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THE  
ARCHITECT  
AND  
CONTRACT REPORTER.

VOL. LXXVIII.



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THE  
ARCHITECT

AND

Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

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*A very clever architect may choose to show his power by building with insufficient materials; but the supreme architect must require the very best, because the perfection of the forms cannot be shown but in the perfection of the matter.—T. DE QUINCEY.*

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THE

# ARCHITECT.

## AND CONTRACT REPORTER.

A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

### THE WEEK.

THE education committee of the London County Council contemplate for their institutes and schools of art the establishment of new classes in subjects for which there have been frequent applications in the present session; the holding of additional meetings of existing classes rendered necessary to accommodate the increased number of students in classes which are highly successful; the establishment of classes in craft subjects in respect of which there is likely to be a demand for skilled workers in the immediate future; classes for practical instruction in artistic handicrafts to complete the facilities for instruction in certain branches of such work; the provision of the requisite equipment of materials to enable the classes to be conducted on the lines and up to the standard approved by the Council, or to meet the needs of extensions in the work of the institutes which have been already sanctioned by the Council; the continuance of free instruction to promising students from elementary schools, and the delivery of special courses of lectures on various subjects by well-known specialists, who are to be paid out-of-pocket expenses. Among the proposals are the delivery of a course of twenty-five lectures on architectural history at the Camberwell School of Arts and Crafts, and also twelve lectures on subjects of general interest in the same school, the employment of a teacher of costume drawing at the Hammersmith Technical Institute, organised visits to museums, &c. The Council is an influential body, and many technical students are likely to take advantage of the facilities offered in preference to those of the Government schools.

THE American National Fire Protection Association have arrived at the conclusion that a hollow concrete block wall is better than a frame wall, for the simple reason that it is incombustible and will withstand moderate fires which would feed upon and destroy wood, but it is inferior to a brick wall on account of liability to breaking from unequal expansion, probability of continuous cracks through wall at imperfect mortar joints, and especially on account of tendency to poor workmanship in manufacture. The highest fire resistance will be found in the block that has (1) the thickest shell, or the nearest to solid (it should never be less than 2 inches thick). (2) That contains a good brand of Portland cement. (3) That contains one part cement to not more than four parts sand or other aggregate. (4) Is made with the wettest mixture practicable. (5) Is most carefully cured or aged not less than thirty days before using, during which it is frequently moistened by water spray or steam. (6) Which provides solid blocks for the course on which joists or girders rest, instead of allowing said timbers to rest on

or hang to the inner side of a hollow shell which may break off. The use of hollow blocks is not extensive in this country, but they have many advantages, and could be produced under more favourable conditions than those prevailing in many parts of the United States.

AN area of 4,200 square feet in Old Broad Street was certain of realising a large sum. It is true the property consisted of a church. But nowadays City churches can be regarded simply as survivals which may have architectural or historic interest, but whose removal would not cause much regret to congregations. At the opening of the sale of the site and fabric of St. Peter-le-Poer on Tuesday, Mr. TEWSON, of the firm of Messrs. DEBENHAM, TEWSON, RICHARDSON & Co., said that 100,000*l.* would be a fair value for the property. The price obtained was not far short of that sum, for the amount was 96,000*l.*, or about 23*l.* per square foot. The origin of the title is unknown. According to Stowe it was "so-called for a difference from other of that name, sometime peradventure a poor parish, but at this present there may be many fair houses, possessed by rich merchants and other." The church which was sold on Tuesday does not date from further back than 1788, when the old structure was taken down on account of its decayed condition. The building was designed by JESSE GIBSON and was consecrated in 1792. On plan it was circular with a recess for the altar, and was lighted from above. The church was restored in 1888, when the gallery which surrounded the interior was removed. As an example of architecture it possessed little interest, and it seemed out of place in modern Old Broad Street.

THERE is some satisfaction in knowing, when inconvenience is caused by motor-cars hurrying along ordinary roads, that the inhalation of dust is not always dangerous. Dust from any hard stone (such as flint, granite, sandstone, &c.) is undoubtedly very injurious to the lungs, producing a marked predisposition to phthisis. On the other hand coal dust, cement dust, and probably many other varieties of organic and inorganic dust have by no means the same serious effects. During the inquiry by the Departmental Committee appointed to inquire into the ventilation of factories and workshops many experiments have been made by Professor RITCHIE with a view to finding a means of experimentally distinguishing the more injurious from less injurious dusts, but unfortunately no satisfactory results have as yet been reached. The committee recommend the use of respirators for workmen only in exceptional cases, where the air contains poisonous or otherwise dangerous dust, and for that purpose a sheet of cotton wool is found to form an efficient respirator.



## SOUTHWARK CATHEDRAL.\*

IF considered as a seat of episcopal authority the cathedral in Southwark may be said to date from yesterday, for the see was only inaugurated on May Day 1905. But the history of the building which is used goes back to an early time. STOWE has recorded the interesting tradition of the founding long before the Conquest of a nunnery on the river bank by a maiden named MARY, who possessed the monopoly of a ferry over the Thames previous to the erection of the earliest London Bridge. As the watermen continue to have privileges in our day, it is not unlikely that some remote representative of theirs claimed the sole right to carry people across the river. The nunnery, according to STOWE, afterwards became a college for priests, who erected a bridge of timber, and then one of stone to supersede the ferry. Subsequently the monastery was used as a priory for Augustinian canons, the founders being the Norman knights, WILLIAM PONT DE L'ARCH and WILLIAM DAUNCY. The priory church of St. Mary Overy would, of course, have been in the Norman style. A few fragments still exist, but they are not sufficient to indicate the character of the building. Near it the Bishop of WINCHESTER erected a palace.

In 1212 there was a fierce fire in Southwark, and the priory church did not escape. Crowds of citizens rushed across London Bridge to witness the spectacle. The wooden buildings on the bridge were caught by the flames, and almost simultaneously another fire broke out at the London end of the structure. Efforts were made by boatmen to save the unfortunate people who were massed between two quickly extending fires. But owing to the excitement the boats were overturned, and it is supposed 3,000 or 4,000 lives were sacrificed. The church was restored and a large chapel dedicated to MARY MAGDALEN was added by PETER DE RUPIBUS, who was Bishop of Winchester. The works were completed in 1235. The columns, it is said, were cylindrical. But some years afterwards they were encased in order to present a polygonal section which was then in favour. According to STOWE, it was necessary to rebuild the church in the reign of RICHARD II and HENRY IV., and "the roof of the middle west aisle fell down in the year 1469." The priory was surrendered to HENRY VIII. in 1539, and, continues STOWE:—"About Christmas next following, the church of the said priory was purchased of the king by the inhabitants of the borough, Doctor STEPHEN GARDNER, bishop of Winchester, putting to his helping hand; they made thereof a parish church for the parish of St. Mary Magdalen, on the south side of the said choir, and St. Margaret-on-the-Hill, which were made one parish of St. Saviour."

It is well to note that in 1539 there was also surrendered an abbey in Bermondsey which was known as St. Saviour's, and the two are sometimes confounded. The abbey was originally established for the Cluniacs, and its position is recalled by Crucifix Lane, &c., while the church of St. Mary probably stands on the site of the monastic church. The cathedral is the church of St. Mary Overy.

The Crown held possession of the new St. Saviour's, the inhabitants of the borough paying an annual rent of 50*l*. In 1614 nineteen of the parishioners were able to purchase the property for 800*l*. The parishioners then became patrons of the living until 1885, when an Act was passed by which the right of presentation was transferred to the Bishop of ROCHESTER. There was consequently the unique arrangement in force during a long time by which, instead of a vicar or rector of the

parish, there were two chaplains. As they were a law to themselves, or were entirely controlled by the parishioners, it is easy to understand the neglect of the building after 1614.

There was likely to be another cause which was unfavourable to the parishioners taking an interest in the church. Southwark is closely associated with the early history of the English drama. It contained numerous inn yards in which theatrical performances could be witnessed from the surrounding balconies. Several theatres were also erected in Southwark. There was a bull ring in the High Street, and a bear garden was another popular institution. A large number of actors preferred it for a residence. In St. Saviour's were buried a brother of SHAKESPEARE, FLETCHER and MASSINGER the dramatists, HENSLOWE, who owned a theatre, and other worthies. Crowds of the citizens of London crossed to Southwark for amusement. The manor belonging to the Bishop of WINCHESTER was allowed to enjoy some immunity from the general law, and in consequence taverns and other resorts were erected there in which more freedom prevailed than elsewhere. With such an environment it was not likely that much attention would be given to services in the church or to the building itself. It is possible the church of St. Saviour was also disliked because within it HOOPER, who had been Bishop of Gloucester, ROGERS, a prebendary of St. Paul's, SAUNDERS, a rector of All Hallows, and others were tried for their alleged heresy and sentenced to the stake. There must have been extraordinary causes, or so important a church, which might be considered as belonging to the City of London, would not be allowed to fall into so discreditable a condition.

It is not necessary for us to trace the progress of neglect. It is said that Sir CHRISTOPHER WREN mutilated the fine altar-screen in order that it might serve to support a partition of wood and plaster which was to act as an altar-screen in keeping with the Renaissance spirit. JOHN CARTER visited the church in 1797 and again in 1808, and in the interval he says the work of dilapidation was so rapidly and silently carried on, to make room for stables, manufactories, &c., that he feared that in another year every vestige of antiquity would be consigned to oblivion.

In 1822 it was decided that some steps should be taken to secure the safety of the congregation, who used then to worship in the choir and lady-chapel. The whole of the groined roof of the choir was taken down as well as the upper part of the walls. The chapel of St. Mary Magdalen was demolished. GEORGE GWILT, who obtained the commission, took care to make his work appear new. For the masonry a sharp grit-stone from Houghtree, near Kirkstall Abbey, was used. In other parts white surface flints were employed. In 1829 and 1830 ROBERT WALLACE acted as architect, and in restoring the south transept he believed it was necessary to shorten all the windows. In the north transept he introduced a window with circular tracery. The nave was not much used. It was therefore considered prudent to avoid any chance of casualties, and the whole of the nave was in consequence removed. We give an engraving to show the appearance of the lady-chapel in 1834, and it is enough to suggest the difficulty of attempting to restore order in such a chaos. The arch which is filled up in the view led to the bishop's chapel, of which the founder was unknown. It was supposed to date from the time of EDWARD III., and it was taken down in 1830. After a time a Mr. ROSE was entrusted with the work of the nave, and he, like the other restorers, was allowed to follow his own sweet will. Ten years ago we published the reproduction of a drawing by JOHN BUCKLER, F.S.A., representing a part at the west end of the nave and south aisle which had been concealed for more than three centuries, and most of the details were thought to be characteristic of early thirteenth-century work. The groined vaulting of the nave was regarded as necessary, "owing to an unaccountable

\* See Illustration.



deviation from parallel lines in the position of the newer pillars in the nave." There could have been no careful examination, or the discovery of this secret chamber would have been made earlier. Rose had hardly completed the nave in his own way when PUGIN, who was in his combative youth, made it the subject of a fierce attack. It was an instance of what he called "the horrible repairs, alterations and demolitions that have taken place in our venerable edifices, ever directed by a tepid and parsimonious clergy, brutal and jobbing parochial authorities, and ignorant and tasteless operatives." *The Ecclesiologist* was no less severe, for in the first volume we have the following description of the renovated church in 1842:—

The nave of the church of St. Saviour, Southwark, has recently been destroyed, and in its place has arisen a structure in the modern Lancet style, composed of a nave and two aisles of equal height. The great south porch, although in a mutilated state, was of great value as an architectural example of Early English date; this, however, has been

most glorious. The east end of the nave is separated from the transepts by a slight partition of wood, against which the new altar is placed. Over the altar are perspective paintings upon the flat wall of four Lancet panels, in which are the Decalogue, &c., and above these five large glazed Lancet apertures through which a glance of the choir may be obtained; and to complete the whole a mean pulpit with its modern appurtenances is placed in front of this disgraceful altar. After this it will be unnecessary to say that a very striking contrast exists between the nave and choir. The tomb of the poet Gower was removed some years ago into the south transept, where it now stands with the head of the effigy northward. It is lamentable to think that an opportunity should have been lost which, if improved, would have rendered St. Saviour's Church second to none in London, except the venerable minster of St. Peter.

After such terrible vicissitudes it was impossible to deny that the famous church of St. Mary Overie, which history and legend superadded to art had made a glorious English memorial, was a thing of the past. The building, however, debased by meddling, served



THE LADY-CHAPEL IN 1834.

removed, although it does not appear that any inconvenience would have resulted from its preservation. The south side of the new nave is faced with flint and ashlar, but the north, not being so much exposed to view, consists entirely of brick. The splendid choir is now merely a vestibule, and the services of the church are conducted in the nave, the floor of which is now about 10 feet higher than that of the choir. The principal entrance into the nave is through a door lately made in the south wall of the south transept, from which one flight of stairs leads to the floor of the new building on each side of the new altar, and another to the east ends of the galleries, which occupy the whole width of the aisles as well as the west end. There are other entrances at the west end under the organ. The roof, which is intended to resemble a stone vault, is supported, or supposed to be supported, by two rows of shafts of about one-fourth the diameter proportionate to their height. The church is lighted by two rows of lancets; those above the galleries are all triple. Internally they have a very poor effect, being without splays or mouldings of any sort whatever. But the most miserable part is that which should have been the

for such uses as the good people of Southwark required. Year after year was allowed to run on without any vigorous effort to recall the appearance of the noble church in its palmy days. In 1877 the late Dr. THOROLD was appointed Bishop of Rochester. He was inspired to believe that the removal of Rose's nave was a duty which was incumbent on him. He was able to persuade many people to share in his eagerness, but it was not until 1890 that the financial arrangements could be completed. On July 24 His Majesty, then Prince of WALES, was able to lay the foundation-stone. Dr. THOROLD, to the regret of all who knew him, was destined to be among the men who die without being able to see the fruition of their labours. His spirit, however, still survives, and it may be confidently anticipated that whatever is necessary for the completion of the cathedral will be accomplished. The last restoration was entrusted to the late Sir ARTHUR BLOMFIELD, A.R.A., and his sons have charge of the building.



## THE EXPLORATION OF MEMPHIS.

THE appeal of representatives of the British School of Archæology in Egypt for funds to undertake explorations at Memphis may by some be supposed to resemble a great many other requests for money by archæologists. Every ancient city might easily be considered to present opportunities for increasing our knowledge, and the humble spade in the hands of native labourers has already accomplished so much, there is no reason why it should not lead to further discoveries. The operations on the temple sites at Memphis are estimated to cost about 3,000*l.* a year during fifteen or twenty years, while a clearance of the ancient capital would require about 500,000*l.* The sums may appear startling, but the object in view is well deserving of a costly enterprise for its attainment.

Every tourist who has visited Cairo could hardly escape from seeing the supposed site of the earliest capital of Egypt. As little else than several mounds are apparent, many people may imagine that the greatness of Memphis was no more than a myth which was not worth the trouble of investigation. Collections in museums present few objects which are suggestive of the wealth or dignity of the ancient capital. When MARIETTE undertook the systematic exploration of the Necropolis it was expected that many revelations would follow. Unfortunately he did not live to complete his work, and it may therefore be said that we still have to take the greatness of Memphis, as shown by works of art or industry, on trust. We can imagine that the early city was not surpassed by any of its rivals. But the site offers no evidence to support that view, and the ordinary visitor to museums is unable to see small or large objects from which he can draw conclusions about the people, who are said to have rejoiced in an advanced stage of civilisation wherever it came from. There was no place of equal note in the ancient world which has afforded so little for the amazement of posterity. What makes it more strange is that in the fourteenth century so many remains of ancient buildings were said to be visible there could be no doubt about the accuracy of the early descriptions.

Memphis is recorded to have been founded by MENES, who is believed to have commenced his reign 3,900 years prior to our era. Modern conclusions are in favour of the supposition of his reign beginning still more remotely. According to HERODOTUS, when MENES gained his power the whole of Egypt, except the part around Thebes, was only a morass. MENES, by raising embankments and forming channels for the river, anticipated the work of modern English engineers and the Egyptian Irrigation Department. When he had diverted the course of the Nile, says HERODOTUS, he built the city of Memphis within the ancient bed of the river and founded the magnificent Temple of Vulcan. It is also said he was able to excavate a lake or reservoir outside his city. The efforts of MENES were successful, for the Greek traveller was amazed at the fertility of the land, by which agriculture became a pleasure rather than a toil. He had 330 successors before his dynasty ended.

Some writers, from the resemblance of the names, have said that MENES may have been MINOS, who gained fame in India as well as in Greece. Whether this is more than a plausible theory cannot be determined, for up to the present no monument has been discovered to confirm the duration of the reign or even the existence of MENES. It is well to remark that DIODORUS ascribes the foundation of Memphis to OUCHOREUS. MENES, he says, was once saved by a crocodile in the lake Mœris, and in consequence erected Crocodilopolis, which apparently was very inferior to Memphis, which was under the protection of the god PTHAH or VULCAN, who was more powerful than a legion of crocodiles. From this it will be seen how much uncertainty prevails about the origin of the

city, and which can never be removed until some memorial has been brought to light.

Although the first dynasty lasted for 253 years, there is no monument known which recalls any of its other representatives. The pyramid of Sakkarah is supposed to be the tomb of a king of the second dynasty. On plan it is not a square and therefore does not correspond with the later pyramids. The door leading to the sepulchral chamber was carried off by LEPSIUS, who directed an expedition sent to Egypt in 1842, and it is now one of the treasures of the Berlin Museum. The chamber itself, it may be remarked, was lined with blue tiles resembling those made in Holland, thus showing that vitrified porcelain was known from a remote age in Egypt. The third dynasty was originally from Memphis, and it is believed that a bas-relief found at Wadêe Maghâra relates to one of the later kings. It represents the king holding a prisoner by the hair and about to strike him with a mace. Although coarsely executed it anticipates the representations of kings which were afterwards common. The Great Pyramids of Ghizeh are supposed to have been erected by two kings of the fourth dynasty, and the Sphinx belongs to the same period. In the course of three or four centuries various ways of erecting memorials arose and the Egyptian kings were not backward in using them. But they were mainly occupied with their own renown, and they adopted no means to glorify MENES, from whom they may have claimed descent. The first king might be only a fabulous being, and it would be a strange event if English labour demonstrated the truth of his existence as well as imitated his arrangements for fertilising the Nile Valley.

HERODOTUS when he visited Memphis took more interest in the country around the city, which recalled parts of Greece to him, than in the city itself. He imagined that the land at one time was covered by the sea, and he apprehended a time of great misery when the soil would be elevated and could not be watered by the Nile, especially as there was little rain to take the place of the river. About the city itself he says little. He refers to the magnificent Temple of Vulcan which MENES had erected and to which Mœris added a large portico. There is also mention of the palace of NITOCRIS, with its spacious subterranean hall, which she employed to drown her enemies. SESOSTRIS, who was a great builder, left memorials at which the Greek traveller wondered, but that ruler lived a thousand years after MENES and belonged to a different dynasty. In the Temple of Vulcan was a chapel dedicated to VENUS the Stranger, and HERODOTUS assumed HELEN OF TROY was celebrated under the title. He also relates the strange story of the treasure-house of RHAPSINITUS, which HEINE employed as a subject for one of his most irreverent romances. It is a curious legend, especially as suggesting the occasional mistrust of architects in the ancient days when Memphis was a great city. One thing is worth remarking, viz. that just as Mr. DICK, no matter what pains he took, could not prevent the head of CHARLES I. from coming into his memorial, in the same way the Temple of Vulcan is always cropping up in the narrative of HERODOTUS, which relates to Egypt. It might be not only the centre of Memphis, but Memphis itself. So many porticos were erected, that unless others were demolished to make room for them the temple must have appeared insignificant in the midst of such accessories. One monarch, after erecting a portico, is described as placing another spacious edifice with sculptured figures and colossi 12 cubits high in front of his addition. Another king placed before the temple a recumbent figure of 50 cubits, or 75 feet in length, with two statues standing near it each 20 feet in height. By the terms of the arrangement made with the English Government the British School is to have one-half of the sculpture which is found, and if they can secure some of the figures at which the Greeks won-



dered another enlargement of the British Museum will be inevitable.

DIODORUS wished to outdo his predecessor, and from him we learn that the circuit of Memphis was 150 stades, or over 17 English miles. He does not mention that it was surrounded by a wall, and the dimensions given may have included the suburbs. But the area is so large, the half-million pounds sterling for clearing the whole of the ground does not appear to be excessive. The size of the buildings is suggested by the fact that the enclosure of one of the temples was sufficiently large to allow of bull-fights.

The decline of Memphis dates from the time of the Persian invasion under CAMBYSES, or five centuries before our era. It was recognised as the nominal capital until the rise of Alexandria, which through the influence of the Greeks and Romans was better adapted to serve as the capital of a country which possessed a maritime trade. As in other places, the palaces and temples were in course of time used as quarries for the erection of meaner buildings. But it is not impossible that the drifts of sand to which the city was liable may have overwhelmed some of the remains, and that it was not considered worth the trouble to seek them with so much stone in higher places. In all explorations an element of speculation must necessarily enter, and the treasures of Memphis which have survived may not be worth the trouble found in seeking them. But in archæology it is well never to open a profit and loss account. Memphis is the last of the great fields which remain covered. Other countries have wished for the chance of making researches in it. To some extent it resembles the efforts to reach the North Pole. Success in such an enterprise is worthy of a great nation. Since Great Britain has undertaken so many offices in Egypt, there are reasons which make it incumbent that this country should also take up the noble task of revealing Memphis.

#### ARCHITECTS IN SOUTH AFRICA.

AT a recent meeting of the Transvaal Institute of Architects a paper on "The Qualifying Examinations in South Africa of the Royal Institute of British Architects" was read by Mr. G. A. H. Dickson, past president of the Transvaal Institute.

The Council, said Mr. Dickson, when discussing the syllabus of papers to be read, were of opinion that the subjects to be treated should as far as possible be of local interest, and treated from the standpoint of an architect practising in South Africa. It was not intended to encourage academic discussion on, say, the history of architecture, about which it is improbable, though certainly not impossible, that anyone of us could contribute any original information, although a thesis treating of the fundamental principles of our art viewed from a modern and local standpoint would be interesting. I certainly did not feel equal to anything of this sort. Most of such papers are culled from standard works which are open to us all, and are for that reason, as a rule, in danger of being intolerably dull. In my case I was not, as I say, prepared to deal with these subjects, and it occurred to me to take as my text the proposed compulsory examination of the Royal Institute, with which I am connected as chairman of the examining board, as it will offer an opportunity for discussing a subject of general interest to us all—the status of our profession in South Africa.

The announcement that the Royal Institute of British Architects intends holding an examination for membership in Johannesburg for South Africa is of interest not only to those directly connected with the architectural profession, but also to all classes of the community. The Royal Institute of British Architects was incorporated in the reign of William IV. by royal charter, in which it is set forth that it is for the advancement of architecture and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith; it being an art esteemed and encouraged by all enlightened nations as tending to promote the domestic convenience of citizens and the public improvement and embellishment of the towns and cities. Fellows and associates of the Royal

Institute are granted the right under this royal charter of using after their names the affixes that they do. The Royal Institute requires a high standard of technical and general education, and the tendency in South Africa must undoubtedly be for good, and will result in time in the raising of the standard of taste in architecture in this Continent.

After all is said and done, the public are, speaking generally, led by the profession, and their taste is formed to a great extent by what is provided for them, and by what they see around them in their daily life, rather than by any conscious effort of education. The stimulating effect on the profession therefore must mean a general levelling up of the popular taste in architecture and kindred subjects. This higher standard of education in the public and the profession will, we may confidently hope, prevent in the future many of the vulgarities in architecture for which the principal towns in South Africa are now unfortunately notorious. There can be no doubt that the profession in South Africa in the past has been discredited, and that architecture has suffered from certain nondescript adherents who have neither the technical training nor the general education which are necessary in this as in all other liberal professions. The effect of the proposed examination will be, in time, the elimination of these. It is to be hoped, therefore, that the Government and the Transvaal University College will be able and willing to collaborate with the Transvaal Institute of Architects in the cause of higher education in architecture in South Africa.

It would be a worthy object for one of our millionaires with wide artistic sympathies who has shown an appreciation of art, archæology and architecture in Europe, if he would espouse this cause in South Africa, and institute at the Transvaal University a chair of architecture. There is a chair of architecture at Melbourne University, and, of course, at various universities in England. A Bill has been prepared, and it is more than probable that in the near future it will be introduced in the Imperial Parliament, instituting some form of compulsory examination and registration of architects, as is the case in most other European countries, and these examinations by the Institute are preparing the way for such ultimate legislation. No doubt the colonies would follow the example of the home country in this matter, and the institution of this qualifying examination in the colonies is a step forward. No living or national architecture can be created in a country without a knowledge of the history and philosophy of the art, in addition to the technical requirements which are necessary in architecture in common with civil engineering. We hope that in time there will be developed in South Africa a style distinct and characteristic. We have conditions that require and suggest a departure from the European models, and there is undoubtedly a tendency among the more intelligent architects in South Africa to evolve designs, whether secular or ecclesiastical, that have some characteristic feature suggested by a wide knowledge of our art and an appreciation of our requirements.

With regard to the election to membership of the Royal Institute, it is open to the following objection:—There are practising in South Africa (and elsewhere) firms who are "reputable," but who are in the real sense of the word not architects or professional men, as the latter word is understood in other professions. Their work is in no sense architecture, although it satisfies the class for whom they cater, and their contracts are no doubt carried out in a businesslike way. These gentlemen are accepted at their own value as architects by the uninitiated, and we have no quarrel with them except that their work is too often a misfortune from an æsthetic point of view. There are others of this class practising who are ignorant of the elementary rudiments of engineering science, and cannot say what part of a roof is in tension and what part in compression. We have, as I say, no quarrel with these gentlemen and do not object to their practising, but it is most strongly contended that the exequatur of the Royal Institute should not be extended to them, although they may be practising reputably, as either class would bring discredit on the Institute as a professional body. We are here, perhaps more than elsewhere, constantly brought into contact with civil and mining engineers with high qualifications, and to them and other learned professions the fact that Fellowship of the Royal Institute does not preclude ignorance and absence of any professional training as understood in other professions is bound to have a most prejudicial effect on the standing of the Royal Institute in this country, and is, I venture to urge, most unjust to those members who have submitted to the educational tests of the Institute,



whose status is thereby impaired and whose claims to be regarded as members of a professional institute are liable to be questioned. We object to those nondescript adherents of the profession who only wish to cover their deficiencies with the cloak of the Institute, and whose inclusion in that body is, we submit, unfair to the members and to the reputation of the Royal Institute itself as an examining body, and would be, we think, undoubtedly misleading to the law tribunals and to the public, who cannot be expected to learn to differentiate between one class of Fellowship and another.

The Institute will in future not only insist on certain attainments, but, which is very important, they will put a definite face value on those attainments. Under present conditions a man may have had a most expensive training in his profession, but how are the public or the Courts to assess his value? A man cannot go about saying I was a pupil of so-and-so, the well-known architect, and my training has been of such-and-such a character. In my own case, I was a pupil of the late George Edmund Street, R.A., and of Sir Arthur Blomfield, A.R.A. When I went into the world, unless I had passed the Royal Institute qualifying examination I should for all practical purposes in the eyes of the public have been on the same footing as, say, the office-boy who was there at the same time, and who, as a matter of fact, is at this moment, I believe, practising in a small way as an architect in London. These are domestic details, but they serve to illustrate the necessity for our making an effort as a profession to get into line with the other liberal professions, one result of which would be the constitution of what I have called a face value, as in other professions, for men who have been through the prescribed preparation, and who have been successful in passing the ordained qualifying examinations of the profession.

That the existing condition of affairs has worked altogether unsatisfactorily I do not contend; it has perhaps played into the hands of men with well-known names, owing to the qualifications of the younger men having no official imprimatur and being an unknown quantity to the public. It is not contended that the Institute examinations will discover whether a man has the gifts necessary for a great architect; it only guarantees that he has the necessary technical and general education to enable him to practise. If it is thought desirable, in order to bring as many architects as possible under the ægis of the Institute in order to insure uniform practice, I submit that some different and clearly-defined class with a different denomination might be created, or that the honorary fellowship of the Institute should only be given, as it has been in Johannesburg, in cases of unquestioned eminence, on which point the whole of the members of the Institute practising in the country, wherever it may be, should be asked for an almost unanimous vote, which, although we are singularly free here from local jealousy, has many obvious difficulties. In order to meet these and other objections and difficulties in connection with the selection of members, the Institute are proposing to hold a special qualifying examination in the various parts of the British Empire. This does not, I admit, altogether cover the ground, as there are numerous gentlemen belonging to this Institute who cannot, for perfectly legitimate reasons, undertake to undergo this ordeal, but it is a step in the right direction, and will in time bring about a standardisation of recognised architects. The tendency to eliminate the nondescript adherent must be to raise the status of the profession in this country.

With regard to our position, I suppose I am within the mark when I say that some half-dozen leading members of our local Institute have had the spending of some millions of pounds since the war, money entrusted to them by the public. We project and carry through large schemes, from the initial stages to the most minute detail of the completion. This argues the possession of certain mental qualifications and exceptional organising power. We are, however, consistently overlooked by the powers that be when any public commission is appointed in a matter of importance, and we have not been asked to contribute or suggest a member of the Legislative Council. I think that as a profession we are too retiring and self-contained. I believe that a wise hospitality would advance our art and its recognition. The public hears too little of art and architecture. We should have an annual dinner, to which public men should be asked, as is done by most of our kindred societies. We should let it be seen that we are of some importance in the world as professional men, as business men, as scientists and also as artists. Architecture is an art that has always been esteemed and

encouraged by all enlightened nations; it has been taken as a gauge of the civilisation and culture in all times; it is necessary that we as professors of the art should see that it does not suffer from neglect and ignorance in South Africa.

It is surely nothing less than a national misfortune when public buildings are erected which are a travesty of our art, and when our suburbs, which might have been beautiful, and for which nature has done so much, are composed to such a large extent of the commonplace and drab type of house instead of the beautiful homes, either large or small, which it is proved are possible. The older suburbs of Pretoria, and a considerable part of our older Johannesburg suburbs, are full of examples of the baneful influence of the "nondescript adherent of the profession," and of an uninformed and uncritical public, who show an absence of any appreciation of the charm of simplicity, dignity or truth.

To revert to my text, it is certainly a most extraordinary anomaly that a mechanical engineer in a mine, and even a plumber, should have to pass an examination and obtain a certificate, while an architect can practise without anything of the sort. He can simply put up a board with "architect" after his name, and he becomes at once a member of the professional classes. Should he appear in Court his evidence is taken down by the judges as being expert technical evidence, when he may possibly know less of the subject than the man who is opposed to him. These gentlemen, to whom I referred as nondescript adherents of the profession, have no knowledge of the underlying principles of architecture and employ empirical methods, which are out of place in a profession. To remedy this state of affairs is the desire of all qualified men. At present, of course, it cannot be said that all members of the Royal Institute are qualified men, but the Royal Institute is slowly and surely achieving her object, which is that they shall be. Still less do I wish to seem to infer that the members of this Institute and others who in the past have for various legitimate reasons been unable to find time or have not had an opportunity of going up for the Royal Institute examinations are not fully qualified. I am dealing rather with the future of our profession and justifying the line taken by the Royal Institute in holding these examinations, and in making them a condition of membership, and also to justify the intention of getting a Registration Act passed through Parliament at an early date. How the desired end will ultimately be attained is not within the scope of this discussion; I merely wish now to point out that this is the end in view, and I think we all agree it is a desirable one.

#### GLASGOW SCHOOL OF ART.

THE new art school when completed will have, along Renfrew Street, a total length of 148 feet and a depth of 77 feet. The existing eastern section is 56 feet in height, but the roof is to be removed and an attic storey added, giving a uniform height over the whole extent of the building of 72 feet. The frontage to Renfrew Street is a continuation of the design of the eastern section, but the western elevation to Scott Street will form a special feature. At the south-west corner of the building on the second floor the library is situated. Here the building rises to a height of 100 feet, and the wall will be broken by the library windows, 20 feet in height, between which will be placed a series of emblematic figures, representing art, sculpture, architecture and music. The basement floor of the building is set apart for the modelling school and a series of technical studios for metalworkers, wood-carvers and enamellers, book-binders, house decorators, &c., and there is a sub-basement, in which there are rooms for stone-carvers, pointers and casters. The modelling school measures 120 feet by 48 feet, and has elementary, advanced and life classrooms. Altogether on the basement floor there is accommodation for about 200 students. The life modelling-room is lighted from the roof and is 30 feet in height, an all-important matter in connection with colossal statuary, as the largest piece of sculpture may be worked inside and a number of students employed upon it. On the basement floor there is also a lecture theatre, seated for 150 students, with an independent entrance from Scott Street. On the ground floor are situated the still life and architectural schools. The ornament and still-life classes occupy the corresponding floor of the eastern section, and this portion of the new section, which will accommodate about 200 students, will be set apart for the architectural school. Passing to the first floor,



there will be here also a rearrangement of classes. The eastern section, when the building is completed, will be given over entirely to the antique school, and in the new or western section will be the life school, the school of design, a large and finely-lit museum, a school library, and the head-master's private room and studio. The life school measures 120 feet by 35 feet, with a height of 28 feet, and it will accommodate about 150 students. It is splendidly lighted from the front, and it has also roof lights, the second or attic floor being recessed about 10 feet to permit of this arrangement. The library is a handsome apartment, 35 feet square and 28 feet high. The bookcases are so placed that there will be recesses all round the room, giving ample opportunities for private study. Adjoining the library is the librarian's room. The second or attic floor will be appropriated entirely for studios. In the new section there will be five private studios for professors, while in the old section over the existing building there will be nine studios for advanced students or for artists visiting the city. Hitherto there has been a lack of facilities for artists from a distance who might desire the use of a studio temporarily to do some special piece of work, and the arrangement to be made in the school of art, when it reaches completion, will be a great convenience to such visitors. Classrooms for flower painting and composition will likewise be provided on this floor immediately over the library, and connected with these rooms will be a conservatory with light from the south-east.

Sixty-seven years ago, in the upper rooms of a house in Ingram Street, at the foot of Montrose Street, diverted for the time from its purpose as business premises into a medium for the study of other arts of peace, the Glasgow School of Art started on its career. And there are not a few among the older citizens of Glasgow and the neighbourhood, says a correspondent of the *Glasgow Herald*, who can still recall, with a sense somewhat of physical discomfort, the cheerless wintry mornings that saw them wending their ante-auroral way to receive those lessons in drawing which, though rigorous and circumscribed in dexterity, were yet in certain instances to prove of fruitful issue to the recipients, and in all cases to serve as an incentive to further progress and to higher and more purely artistic attainments.

For from this humble beginning, in these chilling yet courageous circumstances, the Glasgow School of Art has grown in power and broadened in development, until the stately but utilitarian building pictures the present ideal which those charged with the care of art education in the Western Metropolis have decided to complete, in order to satisfy the demands of a school whose pupils are as numerous and as earnest as those of any art institution in the three kingdoms, and whose work is receiving a recognition that begins in Glasgow but extends among the majority of civilised communities. The strength of the school has grown with the recognition of art as a vital factor in the commercial and social life of the city. It was the foresight of a few of the leading citizens of Glasgow, interested in art education, that gave the institution its birth. Just as a small body of equally intelligent civic fathers saw in the MacLellan collection of pictures the nucleus of the present famous gallery of paintings, and as the Municipality has just crowned their art collections by building in Kelvingrove Park a palace fit to contain such treasures, so have the citizens and the State combined to erect an institution wherein the sons and daughters of the citizens of Glasgow may receive an art education rendering them capable in the present of appreciating art, whether pictured, carved or manufactured, and possibly give to certain of their number that cunning of hand that may either enable them to add their picture or their sculpture to the galleries, or widen that knowledge of design and application that shall enrich the product of the factory and of the workshop. Certain it is that it is long since Glasgow relied upon any hands other than those of her own artists to place her among the art centres of the world, and just as surely it is that designers working in Glasgow are capable of more than holding their own among the demands made by the world's markets. In the education alike of painter, designer and craftsman the Glasgow School of Art has played an important part, and the governors, fully alive alike to the needs of the hour and the question of future developments, have met the responsibility committed to their charge with commendable fulness of thought and action. Their untiring efforts to make the school in every way a success have been munificently acknowledged by the State, acting through the Scotch

Education Department, and as equally responded to by the Municipality and by the growing circle of warm-hearted friends interested in the work and development of the school.

The building, whether studied internally or viewed from the outside, may be said to be, in more senses than one, the latest development in architectural thought, but when all is said and done there is little doubt that as a workshop it thoroughly meets all demands, and the six years that have been spent in the portion now standing have found out new faults in the outer structure or in the inner arrangements. So much is this the case that the new half is virtually to be a repeat of that now standing. Certain changes in external treatment appear, but the spacious, well-lighted rooms that now exist are to be repeated, and the whole building when completed, will be another noteworthy addition to the wealth of architectural art in Glasgow. The design is from the firm of Honeyman, Keppie & Mackintosh, the work being carried out under the personal supervision of Mr. Mackintosh. And it may be, perhaps, a practical testimony to the character of the education given that Mr. Mackintosh is an artist who received his early training in the school, and who by this, his latest work, adds to his reputation as an architect, and gives an added lustre to his Alma Mater. Living and working in the school as a pupil, and having a knowledge at first hand of the requirements of an art school, Mr. Mackintosh has conceived these requirements as from the inside outwards, and he has embodied his knowledge and experience in a building that sums up the necessities of the art education of to-day in a spirit that testifies to the beautiful in the essential.

#### CONSTRUCTION OF FIRE STATIONS.

AT the meeting of the London County Council on the 18th ult. a question was asked whether there was an excessive amount of steel used in the construction of the Council's fire stations. The fire brigade committee have inquired into the matter. The steelwork in fire stations is, they are informed, designed as far as possible upon the basis of the following loads and working stresses, viz. :—The maximum stresses allowed in the steel are 7 tons per square inch for exposed girders, and 9 tons per square inch for steel joists and girders embedded in concrete. The portions of steelwork in the fire stations which would be likely to appear to an observer to be excessive generally occur at the first-floor level over the appliance room. Here somewhat heavy girders are necessary owing to the exceptional loads which they have to bear as the result of the special planning required in the case of a fire station. The appliance room usually occupies the greater part of the area of the ground floor, and has to be kept as free as possible from piers and walls, and practically the whole of the frontage of the room is required for the run-out from the station. Provision has therefore to be made for carrying the greater portion of the upper structure (which is divided into small rooms), consisting of floors, walls, partitions and chimneys, and most of the steelwork is thus concentrated at the first-floor level. In some of the fire stations the supporting power of the central pier at the run-out is ignored in order to allow for its removal, and in certain stations provision has been made for building an additional storey whenever required, and the weight of this would have to be carried by the main girders.

In the new Tooting fire station the main girders extend over three spans, and were originally designed as plate girders, but the steelwork contractors in order to expedite delivery offered to supply heavier girders from their stock without additional cost to the Council, and this offer was accepted.

The Right Hon. Charles Booth has addressed the following letter to the Chapter of St. Paul's through the Archdeacon of London :—"I have already expressed to you privately my wish to present to the cathedral the picture by Mr. Holman Hunt entitled *The Light of the World*, and I would now beg you to be so good as to bring my offer formally before the Chapter. My wish and that of Mr. Holman Hunt would be that a place should be found for the picture in the body of the church, so as to be readily seen by those who come and worship there." This munificent gift has been gratefully received by the Chapter. The picture is on its way home from its journey round the world, and will not be placed in the cathedral before October.



## NOTES AND COMMENTS.

IN modern exhibitions examples of French art are considered to be essential. But the artists who contribute works no less than those who are not invited to contribute are often dissatisfied with the results. If there are sales they are found to be subjected to unexpected commissions and many other grievances arise. In order to obviate disappointments which have been too common a committee of leading artists was lately organised, and this permanent committee of fine arts will be responsible for the arrangement of the French section in foreign exhibitions. M. BONNAT was unanimously nominated as president and has accepted the office. The vice-presidents are M. BERNARD, the painter, and M. MERCIÉ, the sculptor. There are special committees to represent architecture, painting, sculpture, engraving and etching, and decorative arts. The members of the architectural committee are MM. DE BAUDOT, DEGLANE, GUILLEMONAT, LALOUX, MOYAUX, NORMAND, PLUMET, RAULIN, VAUDREMER. With so many zealous artists to control exhibitions the objections of many French artists will be removed and the public in general will be gainers.

AFTER spending three months in Buenos Ayres M. BOUVARD has returned to his duties in the Hôtel de Ville, Paris, where he directs the services of architecture. He was solicited to visit the capital of the Argentine Republic in order to suggest the works necessary to place it on an equality with the European capitals. Never was a projector less hampered. M. BOUVARD might be a magician, and the authorities, his faithful servants, were prepared to do whatever he commanded. Apparently the positions were reversed. The citizens of Buenos Ayres saw only wide thoroughfares and splendid buildings. It was the architect who had to put a check on their imagination by explaining the cost of improvements. M. BOUVARD has prepared a scheme which reveals what is possible in the course of several years if money is forthcoming and the inhabitants continue to be enthusiastic about building. But he has prepared other plans which are limited to the works which should be commenced without delay, and which will be an earnest of those which are to follow. Two of M. BOUVARD's assistants will remain in Buenos Ayres in order to superintend the works and to keep him informed of the progress of events. Next year M. BOUVARD will again visit the South American city.

THE clergy are bound to set an example of reverence for the Sabbath. We may therefore take it for granted that when they learn from the latest report of the Tariff Commission that the stained glass which is imported in such large quantities from Belgium and Germany is in part a product of Sunday labour they will cease to give orders to foreigners. Complaints have been reported about the glaring colours and the unfitness of the treatment for quiet English churches without avail. But possibly the breach of a Commandment may have more effect on the clergy. The high tariff, which amounts to 45 per cent. of value, has diminished the trade between this country and the United States in stained glass. The duty in Canada is likewise so high, less glass is exported to the colony than formerly. An architect and surveyor informed the Commission that the cheaper and thinner grades of glass especially are derived very largely from foreign importation. The superior kinds hold their own much better, though even "British" plate is made abroad and sent here. Difficulty and cost of transit seem the only important bar to heavy dumping. Certain kinds of glass for the lining of walls in lieu of glazed tiling are arising in considerable quantities. A variety of suggestions are made in the evidence in the way of remedial measures,

the prevailing opinion being in favour of a change in the British fiscal system to equalise conditions in the home market, to secure fairer treatment in foreign markets, and especially to encourage trade with what are regarded as the most promising export markets for the glass industry, namely, those of the British colonies.

THE biennial prize of 12,000 francs founded by the late Baron ALPHONSE DE ROTHSCHILD will next year be awarded for the first time. It is intended to encourage a French artist having merit, or as a recompense of an artist's career, and the Académie des Beaux-Arts will be the judges. Their awards for other prizes which were available this year have been announced. M. LEPORT-MAGNIEZ has gained the Maurand prize of 1,000 francs destined for a young landscape-painter. One founded by HENRI LEHMANN of the value of 3,000 francs for painters who are under twenty-five years of age was divided between M. URBAIN BOURGEOIS and M. ANDRÉ LEROY. M. RASET has gained the Prix Deprez of 1,000 francs for sculptors. The Prix Brigard valued at 3,000 francs for a marine painting was awarded to M. ALFRED STIVAL. The prize Maxime David of 400 francs for miniature painting falls to Mlle. JEANNE BURLY. Another prize worth 2,000 francs, offered for a painting of a nude baby from eight to fifteen months old, was awarded to M. GUEDY. A prize of 3,000 francs to recompense a painter without fortune was bestowed on M. BALANDE. For the Prix Ary Scheffer of 6,000 francs for an engraver M. LAGUILLERMIE was the successful applicant.

ACCORDING to the Greek legends the venerable NESTOR, whose name is likely to live for ever as the designation of a wise and faithful councillor, was born in Pylos. Old as he was he took a prominent part in the Trojan war, and when it was over the gods who favoured the Trojans did not interfere with his voyage homewards, and he is supposed to have continued his rule for several years in Pylos. Whereabouts in Greece was his city? It appears there were three towns which bore the name, and the ancient geographers could not decide in which of them NESTOR reigned. In modern times it was thought to be Navarino Vecchio. Dr. DÖRPFELD has been superintending explorations on the supposed site. He discovered a vaulted grave of the type of those in Mycenæ, which was approached by a tortuous passage. Apparently the researches were anticipated some centuries ago, for the vault or treasury had been cleared of its contents. All that could be discovered was a very small figure of a frog in gold and a few vases which in style had some resemblance to those brought to light at Knossos by Dr. EVANS. The masonry of the walls was not of a high class, and at present there is nothing to justify HOMER's description of Pylos as a well-built city, which was a common expression with him. But it is hoped that when the exploration is resumed in the autumn there will be more success.

ALTHOUGH *L'Art* has no longer the benefit of the guidance of the regretted PAUL LEROI, the new number must be considered satisfactory by the subscribers. An etching of a child by M. WALTNER after PAUL DUBOIS is a characteristic example of that master's vigorous treatment. There are also six phototype plates after different masters. Articles appear on LANCRET, the painter, CHALLAMEL LECOUR, the publicist, Early Salon Exhibitions, German Art in the Eighteenth Century (with reproduction of the lithograph of GOETHE by DELACROIX) and other subjects. Under the new management the reputation of the periodical acquired during twenty-seven years will be sustained.



## ILLUSTRATIONS.

MANCHESTER ROYAL INFIRMARY.

THIS illustration is reproduced from the drawing now in the Royal Academy, and shows the administration blocks of the infirmary at present in progress under the direction of Mr. EDWIN T. HALL and Mr. JOHN BROOKE. Plans and elevations of the buildings represented appeared in *The Architect* for January 4, 11 and 18 of the present year. The institution is to be completed next June and nearly all the buildings are already roofed in. The contractors are Messrs. ARNOLD & SONS, of Doncaster, and the clerk of works, Mr. A. TURNER. Among the sub-contractors are—The Trafford Park Steelworks, Ltd., iron fire-escape staircases; Messrs. E. HEATON & SON, boilers and fittings; Messrs. J. & E. HALL, LTD., refrigerating plant; Messrs. GODDARD, MASSEY & WARNER, disinfectors; Messrs. MELDRUM BROS., LTD., refuse destructor; Mr. GILBERT SEALE, carving; Messrs. JAMES SLATER & CO., kitchen fittings; Messrs. D. & J. TULLIS, LTD., laundry fittings; Messrs. VINCENT ROBERTS & MAN, drying machines in laundry; Messrs. MORRIS & SON, fire hydrants, &c.

NEW GOVERNMENT OFFICES: PARLIAMENT STREET FRONT.

THE remarkably fine block of new Government offices which face Parliament Street, Westminster, is now approaching completion, and we are therefore enabled to give an illustration of the same. The exterior is all of Portland stone. The sculptors of the pediment are Messrs. HORSEMAN & GUNTHORPE, while the carvings on the archway facing Charles Street, as well as the keystone heads and panels, were done by Messrs. FRITH & CO., and the capitals of the columns are by Messrs. DAYMOND. The roof has been covered with Limmer asphalte, and the Fletton bricks to the number of nearly 20 millions were supplied by Messrs. HICKS, GARDENER & CO., of Peterborough. Altogether there were about 28 millions of bricks utilised.

The joinery is of teak and oak, and pitch-pine blocks have been used for flooring. The mosaicwork has been executed by the Mosaic Marble and Tile Company and Messrs. DIESPEKER, LTD. The plastering-work is by Messrs. A. & S. WHEATER, the tiling by Messrs. CARTER & CO., of Poole, and EDWARDS, of Ruabon. Mr. W. E. BONE is responsible for the plumbingwork, and the ironwork has been supplied by Messrs. DORMAN, LONG & CO. The staircases and steps are of hard York stone, supplied by Messrs. J. BROOK & SONS, Halifax. The lavatory basins were by Messrs. G. & D. MUSGRAVE, Horwich, Lancs, and the urinals and closets by Messrs. DOULTON, of Lambeth. The sashweights, of which about 75 tons were used, are from the Carron Company. The heating has been carried out by Messrs. STRODE & CO. The contractors for the whole work are Messrs. SPENCER, SANTO & CO., and the architect was the late Mr. J. M. BRYDON. We may add that the manager of the works is Mr. P. H. PATTEN, and the clerk of the works is Mr. SEARCHFIELD.

THE NEW ROYAL LIVER BUILDINGS, LIVERPOOL.

WE publish this week an illustration of the important building designed as a substitute for the Tower Buildings which now exist at the bottom of Water Street, extending towards St. Nicholas Church. As the view indicates, there will eventually stand in this important thoroughfare a building of imposing proportions calculated to dwarf any other building in the city devoted exclusively to mercantile offices.

It has for some time been recognised that the buildings have been unsuitable to present-day business requirements, and with their numerous awkward staircases and no lifts communicating with the different floors they are considered out of date. Baron GLANUSK, for this reason, some time ago decided that the whole of

the existing buildings should be pulled down and a building of a modern character erected in their place, adhering still to the same name, and thus maintaining the traditional interest attaching to the historic associations already referred to. As emblematic of this it will be noticed that a tower occupies a prominent position on the top of the building.

According to PICTON'S "Memorials of Liverpool," the site of Tower Buildings during the early years of the nineteenth century was occupied with a grim-looking, castellated structure, the "Tower" of Liverpool, which in the olden times was the fortalice of the Earls of DERBY: indeed, its history is closely connected with the fortunes of the STANLEYS of Knowsley. For many years it was the seaside residence and embarkation place for the Isle of Man and Ireland for the DERBY family. During its later years the ancient structure was used as a common gaol, and notwithstanding the erection of the new borough gaol in 1786, the old Tower continued to be occupied both by felons and debtors down to July 1811. It then remained unoccupied until 1819, when the building was pulled down for necessary improvements in Water Street, and the materials were sold by auction for 200*l*. During the sailors' riots in August 1775, some of the rioters were secured and lodged in the old Tower. A mob of about 2,000 men assembled and attacked the gaol, which surrendered at discretion, and the prisoners were carried off in triumph. At one period, balls and assemblies were held in the ancient chapel of the Tower. Those whose business takes them to the offices in Tower Buildings may have seen on a stone tablet on the south wall of the inner quadrangle the following inscription:—

Has Aedes  
Situm olim castelli  
Comitum de Derby  
Denuo construxit  
Negotiis pacisque artibus fovendis  
Dedicavit  
Jos. Bailey Eq. Aur.  
Anno Salutis MDCCCLVII.  
Architecto J. A. Picton.

The new colossal pile will rise up eight storeys in the main body, and eleven storeys with the tower. The building altogether will cover a site of half an acre, the whole of the ground floor, having that great area, being already taken by the Booth Steamship Line, James Street. This will rank as perhaps the largest single office in Liverpool. Half the first floor will be occupied by the Ellerman and Hall Steamship Lines, which are located in the present building. Messrs. F. H. POWELL & CO., shipowners, will have a suite of offices on the second floor, and many of the present tenants will again be seen in the new premises. The height of the structure to the top of the main tower will be 152 feet, compared with 136 feet, the height of the existing tower. There will be three public entrances—one in Water Street, one in the Strand and another from the churchyard—and inside the building there will be three main staircases, and four lifts. The premises will be lighted with electricity, and heated throughout by the landlord. Whilst architecturally the building will be of handsome and striking appearance, light and utility are the main features of the design. It is expected to be ready for occupation in the year 1908. An arrangement has been come to whereby the lessees, in return for the permission of the Corporation to the absorption of a portion of Prison Weint in the building site, will give up the portion of the site required for the widening of Water Street. This will constitute an important public improvement, allowing more room for the electric-car and vehicular traffic, which is constantly pouring into Water Street from the pierhead and the docks.

The architect for the new building is Mr. W. AUBREY THOMAS, State Insurance Buildings, Dale Street, Liverpool, to whom we are indebted for the photograph.

CATHEDRAL SERIES.—SOUTHWARK: VIEW OF EXTERIOR.



## URBAN AND SUBURBAN PLANNING.\*

IT is still a somewhat new idea in England that a city can consciously assume a beautiful shape, though this Conference is a good witness to the strength of the idea now that it has been born among us. In England we have too long looked for beauty in towns as a kind of accidental by-product brought about by the fortuitous combination of age and situation. Given a new manufacturing town in the centre of a flat expanse of country, we at once imagine it of necessity some hideous thing to be shunned by all except those unhappy ones who are compelled to spend a portion of their lives within its gates. As such towns are usually constituted by sheer haphazard the feeling is a very natural one. Yet such a town presents the easiest problems in symmetrical and monumental planning—the type of planning suited to a plain.

There seem to me to be two chief reasons to account for the fact that in this matter we, in the nineteenth century, fell so far behind our continental neighbours. The first, which is still with us and may be always so, is the average Englishman's desire to get rich quickly and shut himself up in his own castle, careless of the community which has helped him to achieve his ends. The second, which is slowly disappearing, was that every cultured person in the latter part of the last century suffered from a surfeit of the picturesque. The Gothic revival in architecture, the romantic spirit in literature, the teaching of Mr. Ruskin and the works of the pre-Raphaelites all led in this direction and did infinite harm to the dignity of our towns. I suppose since the beginning of the last century no square or circus or any other symmetrical place of any importance has been laid out in any English town, and yet it is only with the use of such forms that the finest architectural effects are possible. It must not be imagined from this that there is no scope for the picturesque or romantic in civic architecture. The very supposition is absurd. The real fact is that the picturesque is properly inherent in the site and cannot be artificially brought about. It would, for instance, be impossible for Edinburgh with its rock to be anything but picturesque. But on a plain the right treatment of plan is a broad symmetrical balancing of effects, the type of plan which is in essence monumental and classical. This was the kind of plan Sir Christopher Wren first suggested in England after the Great Fire of London, of which the best English example is the city of Bath, laid out in the eighteenth century by the Woods, father and son, the architects of the building we are occupying at the present moment. In the nineteenth century Paris is the obvious instance.

If, then, it is conceded that this is the spirit in which we should plan the level and principal portions of the town, it follows as a necessary corollary that the planning of such new parts or the alterations of existing parts must be consciously directed towards some definite scenic effect. The direction of the main thoroughfares can no longer be dictated by that of the primitive sheep track. It means further, that in these portions of the town the scope of the individual builder must be limited for the public good. In the picturesque portions the reverse is the case. Here the very individuality of the buildings enhances the picturesqueness. We all know the charm and romance conveyed by the varying outline of roof upon roof as buildings climb a hill. To prohibit variety of form and colour would here be to lessen the beauty of the town, not to increase it.

In the last century in England we carried our individualism through our towns from end to end, respecting neither our neighbours nor the general good. It was possible less than ten years ago for Nash's fine architectural scheme in Regent Street to be broken up by two odd and ugly domes erected to advertise certain shops. It is still possible in Liverpool to introduce a yellow terra-cotta dressed building into the quiet dignity and repose of Rodney Street, for it has unfortunately been done. Castle Street, too, which had the makings of one of the finest streets in England, though in our happy-go-lucky way it just manages to miss being centred on the domes of the custom house and the town hall, has never maintained the example of dignity and stateliness set by these two buildings and by Cockerell's Bank of England. Good as the street is by its width and position, how much better it might have been were the buildings on either side of one height and one material, not to mention the more debateable point of one style.

While, however, this riot of individual fancy and individual advertisement was playing havoc with our modern English towns, France was laying out, not only in Paris but in all her provincial centres, broad streets and boulevards on architecturally conceived lines. By this I mean streets which had some architectural relation to one another, being either focussed at some important centre or having their vista closed by some monumental building. The broadness of effect was certainly obtained in the majority of cases at some sacrifice of the picturesque, but sufficient old and irregular streets remain in Paris round Notre-Dame or give varied outline to the Montmartre Hill to even enhance by contrast the grandeur of the great boulevards.

The lesson for us is that this could only be consciously brought about by strict building regulations which took into consideration other things beyond hygiene and the public safety. To increase the beauty of the town was the patriotic duty of the municipality and the rights of individuals were curtailed for this end. French and lately American towns have, in fact, lived a conscious regulated life, while our towns as towns have in this respect slept. The result of this foresight, as of all foresight in such matters, has not only been an increase in dignity and beauty, but, if Paris may be taken as typical, an increase in material prosperity as well.

It may be useful then to state in general terms the way in which these results have been brought about and to see if the same methods could not be adopted here.

The first main distinction between Parisian methods and ours is that in Paris all schemes involving in any way the beauty of the town, whether they be for the laying out of new streets, the drafting of new building regulations, or merely the decoration of some public building, are reported on by specially appointed commissions of experts assisted by the permanent officials. It has become an honour for any artist, whether he be an architect or painter or a sculptor, to serve on these commissions and give freely and without remuneration the best of his ability to the public service. For instance, the Paris building laws were revised in 1896 on the report of a commission which consisted of the following persons:—Two municipal councillors, the official who corresponds to our building surveyor, the chief of the department which deals with building lines, the chief engineer, the chief inspector and the honorary architect to the town of Paris, that is, seven official personages. So far it might have been an English departmental committee. But here is the difference, in Paris sixteen other outside architects of distinction were added so as to insure to the town the best ability, which is not generally willing to submit itself to the trammels of an official position. Such a commission it will be at once seen would possess enormous weight. It dared to legislate on many other matters besides those affecting the health and safety of the public. It imposed a large number of restrictions on buildings which we have not arrived at in England, but it did them with knowledge of the effect to be produced. To take an apparently small matter but one which has been large in the result. As in Edinburgh and London, though not yet in Liverpool except for domestic buildings, the limiting height of all buildings in Paris is proportioned to the width of the street, but in addition to that the roof is to be contained within a quadrant of a circle of given radius. The result of this simple regulation has been to bring about a striking uniformity of roofs, which is most important to the regular and monumental appearance of a street, for in a wide thoroughfare it is the masses of roof seen against the sky which are the dominating features of the façades. The Avenue de l'Opéra and Rue de Rivoli are good examples of this. Another by-law, more strictly dealing with projections over the public way, has led to the flatter and quieter treatment of town fronts which is so characteristic of a French town. But granting the existence of such a commission as I have related above, it is possible for the municipality to exercise a much greater control over buildings than it exercises already, and to definitely prohibit buildings of bad design, as well as to encourage good ones.

In Edinburgh, where the Guild Court, which is largely composed of architects, controls all building operations, the designs for the exterior of buildings about to be erected have to be submitted for approval together with a statement of the materials to be used. Edinburgh can thus control the appearance of its streets in a way neither Liverpool nor indeed any other English town can. But Brussels and Paris go much further than this. When a new street is to be opened up they offer definite encouragements to good building by awarding prizes for the best designs for the buildings

\* A paper by Professor C. H. Reilly read at the City Beautiful Conference, Town Hall, Liverpool, on Thursday, June 27.



about to be erected in it. Paris even not only gives a prize to the architect but gives a remission of part of the street tax, that is, of the rates, to the owner of the building. No such direct encouragement to build beautifully has ever been proposed, as far as I am aware, in England, nor would it be much use unless we accepted the system of trusting the awards to juries of experts. In England the building by-laws are drawn up and administered by lay bodies, assisted by officials who in most cases make no claim to be architects or to have had any education in the fine arts.

But if this question of expert advice is necessary in dealing with the details of buildings, how much more necessary does it become when a big improvement scheme is projected. For consider what the cutting of a single new street in a town involves, in addition to the sewerage, the lighting and paving, for which the borough engineers and surveyors are the proper authorities. The intersections the new street makes with every cross street mean important building sites, and the shapes of these sites determine for ever the shapes of the buildings to be put upon them. Are they good shapes, conducive to beautifully-shaped buildings? For it is not a sound canon of architectural criticism to say of buildings, as was once humorously said of the University Buildings in Liverpool, that we greatly admire them, but much dislike their shape. The ground plan of a building is its most important factor. Will the sites provided make balanced, symmetrical, dignified buildings? These are all questions, I submit, of a purely architectural character, and the city beautiful of the future depends for its existence on the solutions arrived at, and as such they are as important as those problems of traffic and sewerage which have till now completely held the field.

We are having at this very moment in Liverpool a striking example of the simple disaster which follows the neglect of these questions. The famous George's Dock sites are, it will be admitted, among the most important in the town. They stand at its very gates and a worthy treatment of them should have been the town's first care. Yet the shape and size of these three sites has been determined solely by the carrying through to the river front of Water Street and Brunswick Street, regardless of the fact that the sites so left are of most unequal shape and size. This being so, we are beginning too late to realise that we can never have a balanced composition of the three buildings such as the position demands, and it is consequently rather useless now to complain of one building being higher than the rest. Again, there being in existence no architectural scheme for the whole, we find the Dock Board on one of the end sites putting up a building with a very dominant dome led up to by lesser ones, which is essentially the type of building to form the centre of a composition, not one of the wings. I do not know in this case what difficulties, if any, there were in the way of laying out these sites in an architectural manner. If, for instance, it were necessary for Brunswick Street and Water Street to be carried through, why the buildings on the river front could not have been carried over them on arches or with a colonnade; but whatever the difficulties were, I feel in France a proper architectural solution would have been obtained even at the cost of a short Act of Parliament. The best architecture can now never make a success of these sites, though beautiful materials and good detail may alleviate the disaster.

In London we have recently had an example of the opposite method of dealing with town property—the French method, if I may call it so, though it was the English method too from the time of Wren till the end of the eighteenth century. The Crown, in dealing with its Piccadilly and Regent Street property, have formed just such an advisory committee of artists as is commissioned in Paris. Two leading independent architects—Sir Aston Webb and Mr. Belcher—were asked to form a committee to join Sir John Taylor, the official architect, in advising the Crown. The result has been that, after a century of individualism, we are to have once again a complete scheme of harmonious architecture from one end of a street to the other.

Perhaps enough has been said for the establishment of advisory committees of artists. When once established, and if the municipality at its back is endowed with sufficient power, everything becomes possible. To begin with, an ideal plan of the city—ideal only in the sense that it is waiting to be realised—such as Washington and Boston already possess, should be drawn up, towards the ultimate realisation of which all improvement should lead. If Wren's for London, after the Great Fire, had been adopted how many expensive latter-day improvements would have been forestalled. As in Berlin, certain districts could be

set apart for certain purposes. The development being no longer haphazard the character and consequent value of districts could be maintained. Just as much or just as little variety as the district requires could be allowed to buildings, and not only buildings and streets but whole districts could be made parts of one harmonious composition. But the possibilities are endless. The one thing necessary for a city, as for an individual, is to have faith, and all else is added to it.

#### HOUSING OF THE WORKING CLASSES.

A PAPER was read before the Conference of the Royal Sanitary Institute, Dublin, by Mr. P. C. Cowan on "The Economic Housing of the Working Classes in Town and Country." He directed special attention to what had been done in Ireland. The waste of capital and revenue involved in the conditions of life in slums or insanitary hovels was now being generally recognised, and the perils to all classes of the community caused thereby had become manifest. Professor Koch said:—"It is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of those conditions that we must first and foremost direct our attention if we wish to attack the evil at its root and wage war against it with effective weapons." The first Labourers (Ireland) Act was passed in 1883, and at March 31, 1906, 20,634 cottages had been built, and 887 were in course of erection. For these cottages loans amounting to 3,415,280*l.* were sanctioned, equal to about 159*l.* per cottage with plot. These loans were repayable by an annuity, covering interest and sinking fund, of 4*l.* 17*s.* 2*d.* per cent., with a period of fifty years. By the Labourers (Ireland) Act, 1906, a great improvement in the financial facilities for building cottages was effected, and the District Councils might now obtain loans not exceeding, in all, 4,250,000*l.*, repayable by an inclusive annuity of 3½ per cent., and the Government had undertaken to pay 36 per cent. of the loan charges, so that only 64 per cent. of 3*l.* 5*s.*, or slightly less than 2 1-12 per cent., would be payable by the District Councils for interest and repayment of the loans, for which the period was 68½ years. During the passage of the Bill of 1906 it was stated that the cost of a cottage and plot should not exceed 170*l.* On this assumption the 4½ millions made available should provide for the erection of 25,000 cottages with plots. With a rent of 1*s.* 3*d.* a week for a cottage and plot costing 170*l.*, a deficit of 5*l.* 0*s.* 2*d.* on loan charges alone was inevitable until the Act of 1906 was passed, but, under the terms of the Act, a similar deficit of only 5*s.* 9*d.* per cottage would fall upon the local rates. Up to 1906 only about 2 per cent. of the total number of cottages were erected in Connaught, and less than 10 per cent. in Ulster. In the latter province a number of cottages with weaving-room attached have been erected for hand-loom weavers of linen. The rents now charged throughout the country for a cottage and plot of at least half an acre, provided under the Labourers (Ireland) Acts, varied from 6½*d.* to 2*s.* 6*d.* per week, the general average being 11*d.* a week. Until the present year designs for cottages under the Labourers (Ireland) Acts were prepared by architects for the local authorities, in accordance with simple general requirements framed by the Local Government Board; but, in accordance with a somewhat general desire, the Board has now issued a set of eight plans for homes with three or four apartments, and a general form of specification which contained a number of alternative clauses to suit varying local conditions. Four of the plans were obtained by means of an open competition, the terms of which called for a kitchen and three bedrooms, an open shed and simple pail closet, a height of ceilings on the ground floor of 8 feet, and a minimum net cubic capacity in the apartments of 3,300 cubic feet, at a cost not exceeding 130*l.* Two enterprising firms of contractors had erected for the home industries committee at the Irish International Exhibition cottages on the designs which obtained the first and second prizes in the competition. He understood that these firms were prepared to erect cottages according to the prize design, with or without slight modifications, for a price closely approximating to the sum of 130*l.* already referred to. In Ireland, as might be expected, the operations of the sanitary authorities as to building houses under the Housing of the Working Classes Acts had not been very extensive, though the attention of the various councils had been carefully directed to the purpose.



Up to March 1906 the local authorities in Ireland under these Acts provided accommodation for 4,279 families, at a cost of about 180*l.* per family, or 789,874*l.* in all. The average rent was about 2*s.* 4*d.* per week, and the average annual loss about 3*l.* 5*s.* per annum. In the Dublin district, including the townships, most interesting examples of municipal effort in this direction could be seen; and the magnificent rehousing schemes of Lord Iveagh were worthy of special attention, as were also the varied and able designs of the city architect. In the Dublin district the Dublin Artisans' Dwelling Company had provided 3,500 excellent dwellings at a cost of about 600,000*l.*; and if to these were added the dwellings provided by the Iveagh and Guinness Trusts, the Suburban Artisans' Dwelling Company and the Association for the Housing of the Very Poor, a total of 4,665 dwellings, costing about 750,164*l.*, was reached. It was interesting to observe that these associations had provided more houses in the Dublin district than had been provided by the town authorities in the whole of Ireland. The great influence of a good caretaker on the condition of working-class dwellings and on the cost for maintenance was not sufficiently regarded, and he was convinced that a city might possess an abundant supply of cheap homes in fair condition and yet be in great part insanitary on account of the domestic habits of the people. An improvement in these habits was urgently required, and could only be secured by education in simple hygiene and a much more rigorous inspection of the sanitary condition of houses than was now provided for. As to the provision of new houses for the working-classes in towns, the operations of voluntary societies or companies should probably be looked to as the most hopeful factor, and it was most desirable that such operations should be aided as far as possible by the State.

#### SANITARY ADMINISTRATION OF DUBLIN.

THE inaugural address at the Sanitary Congress in Dublin was delivered by Sir Charles Cameron, the chief medical officer for the city. He said that the city of Dublin contained a population estimated in this year to be 300,691. Together with four townships, it constituted the Dublin metropolitan registration area of the Registrar-General, which contained a population of 390,691. In comparing the vital statistics of Dublin with cities like London, those of the city alone were often taken, not those of the whole registration area, which really included the suburbs of the city. Forty years ago the sanitary staff of the Corporation of Dublin consisted of the whole of one man (an inspector of nuisances) and a small part of another man (the secretary of the markets committee). Now the staff included a medical superintendent officer of health, who was also executive sanitary officer and public analyst; 20 *ex-officio* officers of health, who were the Poor Law medical officers; an assistant executive sanitary officer, a veterinary surgeon, two building surveyors, a superintendent of sanitary sub-officers (sanitary inspectors), 32 sanitary sub-officers, six lady sanitary sub-officers, two inspectors (one a lady) under the provisions of the Shop Hours and Shop Assistants' Seats Act, three inspectors of food under the Public Health Acts, two inspectors of food under the Sale of Food and Drugs and Margarine Acts, an inspector of slaughter-houses, caretaker of refuge for persons whose dwellings were being disinfected and persons who had been in contact with cases of infectious disease; 12 clerks, caretaker of smallpox hospital, six labourers, a superintendent of disinfecting department and a staff of twenty-three disinfectors, ambulance men, drivers, white-washers and charwomen. The total number of persons employed in the public health department, and including the superintendent and staff of the Corporation baths and washhouses, was 112. This large staff had for main objects the betterment of the sanitary condition of the city. Perhaps in no other city in the United Kingdom was the work of the sanitary department more extensive and difficult. A hundred years ago Dublin was the largest town in the United Kingdom outside London; now it was exceeded in population by six cities, which, during the hundred years, had grown from moderate size to enormous proportions. They were comparatively new as regarded their houses, but the Dublin of 1907 was much the same as regarded its residential houses as it was in 1807, except that the houses formerly occupied by single families were now largely tenement houses, and were so old that it was difficult to keep them in repair. In these houses thirty-seven out of every 100 families in Dublin occupied each a single room. In many English towns not 10 per cent. of the families

were occupiers each of a single room. The poverty of a large proportion of the people was shown by the fact that whilst about 16 or 18 per cent. of deaths in English towns occurred in workhouses, hospitals and other institutions, more than 40 per cent. of the deaths in the city of Dublin take place in these institutions. One-third of the inhabitants of Dublin were not natives. Many of the persons who had come to Dublin from the country had not added to its wealth or health. The Dublin hospitals were largely supplied with country patients. It was not fair to compare a city which, as in the case of Dublin, contained an abnormally large poor population, with cities like London, in which there were higher standards of wealth and comfort. In 1906 the expenditure of the public health committee amounted to 15,593*l.*, and the revenue, including the liberal contribution of 2,091*l.* from the Local Government Board, was 4,339*l.* 9*s.* 4*d.* A large proportion of the expenditure was in relation to the maintenance of fever patients, payment for notifications of infectious diseases, fees to the registrars of cemetery boards, working the Act relating to the street trading of children, contributions towards the maintenance of open spaces, proportion of law agents and accountants' expenses, expenses in connection with the Contagious Diseases (Animals) Acts, and in providing dwellings for the working classes. The Corporation had expended 485,000*l.* in clearing unhealthy areas, and a very large sum in the erection of baths, wash-houses, refuse-destructors, abattoirs, &c. The Corporation of Dublin had expended 345,000*l.* in providing dwellings for the working-classes, and a large sum in the erection of baths and washhouses, abattoirs and a disinfecting house refuge for persons whose residences were undergoing disinfection or who had been in contact with cases of infectious disease. A sum considerably over half a million had been expended in main drainage works, designed to free the river Liffey from pollution and to prevent the blocking of the street sewers. They maintained, as he had shown, a large sanitary staff. Had there been any substantial results to justify so great an expenditure? There had been good results; very good as regarded the lessening of zymotic diseases, but it was somewhat disappointing that the general death-rate had not been reduced to a greater extent. As he had already said, this might be owing to so large a proportion of the population coming under the heading of the very poor. Still, he thought the following statistics would show that the money spent upon improved sanitation had produced a good result:—

	General Death-Rate.		Zymotic Death-Rate.	
	Dublin City.	Dublin Registration Area.	Dublin City.	Dublin Registration Area.
Mean of ten years—				
Period 1879 to 1888 .	31.5	28.6	4.2	3.8
Mean of ten years—				
Period 1889 to 1898 .	28.9	26.0	2.9	2.5
Mean of five years—				
Period 1899 to 1903 .	28.1	25.7	2.9	2.5
Mean of three years—				
Period 1904 to 1906 .	23.7	22.3	2.0	1.8

In 1906 the zymotic death-rate in Dublin was below that of the sixty-seven largest English towns, and even below that of London.

Dublin was built partly on stiff boulder clay, partly on loose gravels. Having studied the incidence of typhoid fever in Dublin for many years, he ascertained that the disease prevailed to a greater extent in the districts on the gravels than it did on the clays. This seemed to him to indicate a connection between the soil and the disease. It appeared to him that the disease was of semi-malarial character, and that the micro-organism causing it might for a time exist in filthy soils. Some years ago Dublin was largely a midden city; but since he became chief medical officer of health incessant efforts had been made to adopt the water-carriage system of filth removal, and now Dublin had practically got rid of the objectionable midden system—a system which, existing still in some English towns, helped to raise their death-rates. Some years ago Dublin had the highest death-rate from typhoid fever amongst the towns in the United Kingdom, with the exception of St. Helens in Lancashire. Now typhoid fever is an insignificant factor amongst the causes of death. In 1906 fifteen persons out of every 100,000 died from enteric fever.



## GYPSUM AND ITS WORKING.

THE members of the North Staffordshire Institute of Mining and Mechanical Engineers had an interesting excursion last week to the gypsum mines and works of Messrs. J. C. Staton & Co. at Fauld and Tutbury, where they had excellent opportunities of learning the manner in which gypsum is mined, how it is manufactured and the uses to which it is put. The visitors were met by Mr. Trafford Wynne, the engineer of the mines. On arrival the dressing sheds were first inspected, says the *Staffordshire Advertiser*, and the visitors observed how the stone brought from the mine is sorted into its various qualities and despatched to the mills at Tutbury. The members then entered the mine by means of the tunnel running into the hill-side, and proceeded over the extensive workings for a considerable distance, observing the system of mining, the method of getting the gypsum rock destined for conversion into plaster and the method of obtaining the blocks of alabaster. At one point a block, 12 feet long and  $4\frac{1}{2}$  feet in width, had recently been got, and the men were seen cutting out a similar block. Afterwards they inspected Messrs. Staton's plaster mills, where they were able to see the various methods adopted for converting the gypsum rock into plaster and cement. The water turbines, which supply the whole of the power necessary for the working of these huge mills and which produce a minimum of 300 horse-power, proved a great source of interest, this economical means of obtaining motive-power being generally commented upon and probably envied by engineers who have to resort to expensive means of driving plant under their control. Next the visitors observed the various means—generally simple in character—of converting the gypsum into plaster. Ordinary plasters, such as those used for potters' mould-making and that used by builders, are made by first crushing the stone, next grinding it to the finest possible powder, and then driving off the water by the process known as boiling. The powdered gypsum is placed on large circular hearths under which are furnaces and flues, and constantly stirred by mechanical means. At the conclusion of this operation the plaster is packed and ready for sale. The finest plaster used for artistic work and various other plasters are first calcined in kilns, then scrupulously brushed to remove foreign matter, and then ground as finely as possible in mills. Keene's cement, parian cement and patent cements are first calcined, next treated chemically, then "baked" again and finally ground up. A variety of plaster known as "pink plaster," owing to the colour it gains from the iron in certain classes of gypsum, is made by the firm, and in order to meet the requirements of mould-makers and others who require a finely-ground plaster at a cheap price, the firm make a high grade of "pink plaster" by first grinding it as finely as possible and then boiling it in the manner described above.

According to Mr. Wynne, the use of alabaster by sculptors, especially for monumental work and church decoration, dates back to ancient times, and so far as he could learn the whole of the stone so used came from the mines lying between Tutbury Castle and the site of the present Fauld mines. "The Register of John of Gaunt," now in the office of the Duchy of Lancaster, records that a monument was erected by John of Gaunt, Duke of Lancaster, to the memory of his duchess in St. Paul's Cathedral in 1363, the chief material being alabaster sent from Tutbury, and the cost, including carriage, being 486*l*. At an earlier date than this alabaster was largely used in the archway of the great western doorway of Tutbury Church, commenced in 1080. This shows that its use in sculpture dates back to the Norman Conquest, and it was probably well known in France at an even earlier date. The use for monumental purposes is also shown by the fact that when Tutbury Church was restored, in the early part of the last century, several large alabaster slabs were found with inscriptions dating from 1622 to 1681. Recently Messrs. Staton's mine at Fauld produced eighteen huge blocks of alabaster, each weighing about 15 tons, which were sent to be used as columns (14 feet 6 inches long by 4 feet 6 inches in diameter) for the entrance-hall of the sumptuous and ornate mansion of Mr. J. K. Vanderbilt, the New York millionaire. It should, however, be stated that it is only in a few places that the gypsum is found sufficiently massive and whole as to be suitable for use as alabaster blocks, and hence it may be considered almost as a by-product of gypsum-mining, except in the Dove Valley. The bulk of the gypsum extracted from the mines is used for a more

commercial purpose, being sent to the plaster mills, where it is manufactured into Italian plaster, plaster of Paris, parian cement, Keene's cement, floor plaster and various patent plasters which are secret mixtures. The finer varieties are used for artistic purposes—for the casting of sculpture and modelled works of all descriptions, for the making of potters' moulds and for various industrial purposes. The best and commoner varieties of plaster, parian cement and Keene's cement are also used for the internal lining and ornamentation of buildings, and a large quantity is used in manufacturing blocks or slabs of plaster for use as fireproof partitions, &c.

The gypsum deposits in the Dove Valley, with which the excursionists were concerned, lie near the village of Hanbury and just to the south of the road which leads from Tutbury Castle to Sudbury. The three mines which are now working are situate close to this road. Two of the mines are situate at Fauld and one at Draycott-in-the-Clay. The mine operated by Messrs. J. C. Staton & Co. at Fauld has been worked by them or their predecessors for very considerably over 100 years. It was originally an open quarry, and there is still to be seen the old kiln where the gypsum was burnt, and the threshing-floor, where the burnt stone was beaten with flails into powder, in which condition it was sold as plaster. Messrs. J. C. Staton & Co. had another quarry adjoining the old one, but both are now abandoned owing to the cost of removing the overburden, and the deposit is worked as a mine by means of a tunnel running into the hillside. The stone is dressed and sorted at the tunnel entrance, then sent over a private railway to the North Staffordshire Railway at Scropton, and thence conveyed to the mill at Tutbury. This mill, originally the corn-mill for Tutbury Castle, is now worked by turbines, the motive-power being furnished by the waters of the Dove, conveyed in a flume cut so long ago as the reign of Henry VII. Another mine is worked at Fauld, and adjoins that of Messrs. Staton, and the third is near by, at Draycott-in-the-Clay. The gypsum found in this deposit is of the massive variety, crystals being very rarely met with. All classes of the stone are mined from large alabaster blocks, either pure white or veined or coloured. The best white gypsum, from which the highest grades of plaster are made, pass through the various grades down to stone so mixed with marl as to be valueless. Anhydrite, or, as it is locally called, "hard stone," is met with in varying quantities. Anhydrite differs from gypsum in that it is practically pure calcium sulphate, and lacks the water of the latter. Consequently it is useless for conversion into plaster, and it is a problem for the chemist to discover as to whether it can be hydrated by some simple means and so made of commercial value.

As to the methods of working the mineral, Mr. Wynne says the system adopted is a kind of pillar-and-stall. There is, however, not the regularity in the size of the stalls and pillars that is usual in coal mines, as this depends so much on the varying conditions in different parts of the mine, how the roof stands and the quality of the rock. The great aim being to leave as little good stone as possible in the mine, the pillars are, so far as possible, left where the stone is inferior. They are generally left large enough to be cut through again, when the working places are finished. The rock is soft and easily bored with auger drills, which is done by hand so quickly that there seems no encouragement to go in for mechanically operated drilling plant. Powder is used entirely for blasting. The method of obtaining blocks of alabaster is more complicated, as it is of the utmost importance that they shall not be in any way shaken by blasting. Where good solid rock occurs and it appears suitable for cutting into alabaster blocks, all blasting in the immediate neighbourhood is stopped. The roof is undercut just above the good stone, and it is then blown down with lightly-charged shots, until the rock is cleared for about  $4\frac{1}{2}$  feet to 5 feet back and about  $2\frac{1}{2}$  feet to 3 feet in height above the block, and this space is then available for the workmen. A gutter about 10 inches wide is then cut along the back of the block for such a length as may be considered advisable, and others at each end, so that the block, generally  $4\frac{1}{2}$  feet wide and from 4 feet to 20 feet in length, is entirely separated from the rest of the block, except at the bottom. The thickness of the block is then determined, and usually it will be half the thickness of the rock, so as to obtain two blocks of equal size. A line is marked along the block at the height required and auger holes are bored through the block. Steel feathers and wedges are then inserted in the auger-holes and the block of alabaster is forced from its bed. It is then turned over,



examined and any inferior stone dressed off. If too large or if one end should prove to be inferior or shaken the block is sawn into such lengths as may be desirable, and it is then ready to be loaded on to waggons and sent to the artist or manufacturer. It is unfortunate that every block does not turn out to be good alabaster, and a large percentage prove, after going to considerable expense, to be valueless.

#### RESTORATION IN SCOTLAND.

AT the opening of an art exhibition in Peebles on Saturday, Sir J. R. Fergusson said the exhibition contained many meritorious works, and probably there were some scenes from the neighbourhood of the ancient royal burgh of Peebles which, beautiful in its situation, had near it many a spot well worthy of the painter's brush. To mention one, where would they find a more romantic scene than Neidpath Castle, the grim old tower perched on a rocky eminence overlooking a winding of the silvery Tweed, shadowed by wooded heights, looking down to Peebles and the hill-environed valley below? That old Border peel had been well cared for. The father of the present venerable but evergreen Earl of Wemyss repaired and strengthened it with kindly care, except that part that was battered by the ruffian Cromwell. Pity it was that similar consideration had not been the lot of Holyrood chapel. The failure of the patriotic bequest of the late Earl of Leven and Melville was much to be deplored, and could only give satisfaction to those very superior æsthetic individuals who would rather see a noble and time-honoured edifice crumble away and fall to ruin than lift a hand to help it. He was glad to see that the chapter-house of the old church of Restalrig was to be restored by the liberality of the Earl of Moray, and that the work was to be in the able hands of Mr. Ross, the architect named by Lord Leven to carry out what he intended at Holyrood.

#### PLANNING OF SANATORIA.

THE "Rôle of Sanatoria as a Factor in Checking Tuberculosis" was treated by Professor M'Weeney at the meeting of the Royal Sanitary Institute in Dublin. He said that a sanatorium played the most important part in the campaign against tuberculosis, because it was the only curative institution; because, without a place whither curable cases could be sent, the work done against tuberculosis could be at best only advisory, and therefore ineffective; because it provided the best centre on which popular endeavour might be focussed, and from which hopeful and hygienic streams of influence could radiate on to the community at large; and because it might be provided out of local taxation under the existing law. He expressly disclaimed the position that the struggle against consumption had for its only weapon the sanatorium. On the contrary, he held that the following measures were also called for:—(a) Compulsory notification under a special Act of Parliament so as not to impose upon consumptives the penalties entailed by the existing notification law. (b) The provision of bacteriological aid in the diagnosis of early cases before the physical signs had developed. This meant that the physician who attended the poor should, in a doubtful case, be enabled to send the sputum to the municipal bacteriologist for gratuitous examination as to the presence of bacilli, his report when positive to be taken as a notification of the case at the Public Health Office. (c) Consequent on the thorough disinfection of rooms vacated by consumptives through removal or death, the movable articles to be dealt with, so far as possible, by superheated steam in the public disinfection apparatus, the immovable ones to be dealt with locally by formic aldehyde vapour and (or) limewash. The bactericidal efficacy of the measures adopted not to be taken for granted, but to be actually tested from time to time by animal experiment. (d) The establishment of special dispensaries in populous centres, with the object of giving counsel to those threatened, so as to enable them to avoid the disease; paying domiciliary visits to poor consumptives, applying the best modern methods to the diagnosis of the tubercular affection and sending those found already affected to the appropriate institution, viz. the early cases to the sanatorium and the advanced and highly infective ones to the special hospital. (e) The provision of the special hospital just referred to. It should be called the consumption hospital, to rob it of its hopeless character and prevent confusion with the sanatorium. It should be made comfortable, so as to induce infective

cases to stay there, but in case of resistance there should be powers to bring and keep them against their will. (f) The provision of spittoons wherever possible in places of public resort and the formal prohibition of spitting in public, under penalties which should not be allowed to become and remain a dead letter. (g) A thorough system of inspection of all milk-producing establishments within the administrative area, and the bacteriological control of milk coming in from without, with the object of detecting the sources whence milk containing the virus of tuberculosis is supplied to the public and putting a stop to the practice, with suitable compensation when due to want of knowledge, and with the severest penalties when wilful neglect is proved. (h) Appointment of expert medical men to visit primary schools and periodically examine the pupils, segregating declared cases, and marking off those threatened for attendance on a special "open air school." His view was that since the campaign against consumption must begin somewhere, the point at which to start was the provision of a working-class sanatorium in each populous centre. Conditions *sine quibus non* for the success of the sanatoria were (1) the reception of early cases only. When tubercle bacilli had appeared in the sputum the case had already passed out of its earliest stage and into that of lung destruction. Modern methods, such as X-rays, agglutination and diagnostic injections with Koch's old tuberculin, should be resorted to in order to assure the diagnosis before the sputum became bacilliferous. (2) The conduct of the institution by a genuine expert, i.e. a medical man who had previously devoted all his attention for several years to sanatorium work. (3) The situation should be suitable and the construction specialised. (4) The patients must not be allowed to return to their unhealthy avocations and surroundings, but must be provided with suitable, light, out-of-door employment after their "cure." He trusted that one result of the present discussion would be the still closer focussing of public attention on this matter, and consequent speedy action, with the result of saving the lives of hundreds of poor consumptives, and maintaining for several years the wage-earning power of many others.

Dr. H. Handford, of Nottingham, spoke of the work carried on in the Nottingham and Notts Sanatorium for Consumption. He expressed himself in favour of the development of the plan for taking into sanatoria a much larger number of persons for educative purposes. Injury had been done to sanatoria by making too great claims as to their curative powers. It was the best means known at present for controlling this disease. As to the permanence of the results he quoted returns of the work in the Notts Sanatorium, from which it appeared that in the last four years out of 359 patients 174 were well and at work, 98 were dead and the others were in different stages of recovery.

Professor Anthony Roche did not deny the benefit of sanatoria, but thought it had been exaggerated. The decrease in the death-rate from this disease in England took place before sanatoria were established, and was mainly due to improvement in the sanitary conditions, whilst in Ireland the neglect of these improvements had been followed by an increased death-rate. If the local sanitary authorities in Ireland were to bear the expense of the establishment and upkeep of sanatoria, he would rather see the money required for these purposes spent on improving the housing of the people and other general sanitary reforms.

Dr. Willoughby, of Eastbourne, stated that from 20 to 25 per cent. of the persons suffering from consumption in Brighton had been through an educative course. The educative value of sanatoria was, in his opinion, a long way ahead of the curative value. To the two main ideas of education and cure he should add prevention. They must have two sorts of institutions—one for the advanced cases, and the other for the second class of cases, but every man's home should be a sanatorium. Means must be found for avoiding the very expensive sanatoria, which did a great deal of harm in prejudicing public opinion against this form of cure, and providing less expensive institutions.

Mr. E. T. Hall, F.R.I.B.A., London, agreed that evil had been done by the large sums of money spent in costly sanatoria, and stated that he was engaged in devising some cheaper institution.

Mr. G. Plummer, of Mortlake, has been appointed surveyor and sanitary inspector by the Haywards Heath Urban District Council at a salary of 170*l.* a year.



## EDINBURGH ARCHITECTURAL LECTURES.

THE first of a series of four lectures to be delivered in connection with the architectural exhibition being held in the Royal Scottish Academy was given by Mr. Alexander N. Paterson, Glasgow, on "Scottish Domestic Architecture of the Seventeenth Century." The remarkable development of house building throughout Scotland during the sixteenth and seventeenth centuries produced, he said, a special type of house. With variations the same type was found, notwithstanding an entire lack of facilities for travel, throughout all Scotland from Kirkwall to Carlaverton and from St. Andrews to Dunvegan. This simultaneous development was due to a common origin, common needs, common limitations and common sentiments. The common origin was the square peel tower or Norman keep; its common needs were in the first instance shelter and defence; the limitations were the lack of possibility of introducing foreign materials or transporting heavy loads; the common sentiments were a certain conservatism or patriotism which clung to characteristics after they had lost their meaning—a love of Scotsmen for things Scottish. On the square peel tower were grafted special characteristics for defence, the corbelled-out bartizan and the salient wing, instead of the square plan, the L-shaped plan, with a door in the re-entering angle. The roof was always formed with gables. Where in France the roof was a steep hipped roof, in England there was a flat platform roof, while in Scotland there was always a steep sloping roof and crow-stepped gables. From these features were developed the national characteristics which pervaded all this type of work—corbelling the gable, the crow steps, the dormer windows. Mr. Paterson traced the submergence and the partial revival under Sir Walter Scott of this architecture and its further development in our own time. Mr. Hippolyte J. Blanc, R.S.A., who presided, moved a vote of thanks to Mr. Paterson. The next lecture is by Professor Charles Gourlay, Glasgow, on "Thessalonica."

## JUBILEE OF THE EDINBURGH ASSOCIATION.

THE Edinburgh Architectural Association, whose jubilee is being celebrated just now, says Mr. G. S. Aitken in the *Scotsman*, began with the small number of nine members, of whom four survive, one being in Australia reaping the golden harvest of agriculture, another is in Lancashire engaged in rural occupations, the third is Mr. Morham, who has so long honourably occupied the position of city architect in Edinburgh, and who was the second president of the Association; the fourth is the writer, who was the first president.

The preliminary meeting was held in a private house and the succeeding ones in more neutral premises; we were enthusiastic young men, and probably our meetings had more of the literary than of the practical element about them.

An early paper was on Druidical and Celtic remains, another on symbolism in architecture. Our custom was to have two formal criticisms on each paper, and I find from the notes of the critique which fell to my lot that the author of the latter paper held the usual theory about the threefold doctrine implied in the triple arrangements of plan and section in church architecture, believing further that a rose window signified Providence and an eight-sided font Regeneration. In our discussions on the comparative merits of Gothic and Classic architecture we were greatly influenced by Ruskin's writings, who, as it happened, was lecturing in Edinburgh on architecture at that time. One of his illustrations showed the iniquity of Classic architecture, and was taken from the conventional lion's head on the eaves of the Royal Institution, contrasted with a sketch by Millais of a real lion's head.

The rules of the Association provided that its committee should annually make a selection of the papers read before it during the previous year, which were to be bound and deposited with the Society and published if it saw fit. It was not till the year 1889 that this resolution was carried out, and we have since that date a most valuable set of Transactions.

Competitions in design and construction were to take place among the professional members and a selection appended to the Transactions. This idea was also taken up in another form at a later date.

Meanwhile, from 1856 to 1859 the Architectural Institute of Scotland, then nearing the sunset of its career, had

established a system of prizes for architectural designs and perspective.

A year earlier (1855) the School of Design at the Royal Institution began its course of prizes for similar work, adding the measuring of old buildings to the list. A very interesting class of practical geometry was begun by Mr. E. W. Dallas, the second master, who published a textbook on that science.

Mr. Alexander Christie, A.R.S.A., the chief director of the school, conducted the class for measuring old buildings, taking St. Anthony's Chapel as the first subject; drawings of what we supposed to have been its original condition were prepared in competition, and the first prize gained by Robert Anderson, now Sir Rowand, and the second by a clever Heriot, Walter Turbett, who died many years ago. Duddingston Church was another building studied, in which we were supervised by Mr. Andrew Kerr, to whom was afterwards entrusted the restoration of Roslin Chapel. The crown of our labours was Holyrood Abbey Chapel in 1856-7, the first prizeman for it being Robert Morham, the second Thomas Arnold, now retired after a successful career in London. The next year the first prize fell to the present writer for some work at Jedburgh Abbey, and the second to Francis Stanley.

Some names of Royal Institution students are interesting, either from their relationship with eminent people or for their own after career, and immediate success as prize-takers. William Miller, the son of the Quaker engraver, was one; Walter Smith, who I believe became the principal of an American art school, was another; Robert Anderson, now Sir Rowand, as already mentioned; David Robertson, A.R.S.A.; Francis Stanley, son of Montague Stanley, R.S.A.; Edward Traquair, brother of the lately resigned Director of the Natural History Collection in the Royal Museum of Science and Art; and Robert Morham, the present city architect.

Among the Architectural Institute's successful students may be noticed the name of William Leiper—now R.S.A.—who has risen to eminence as an artist-architect, and Thomas Ross, the joint author with the late Dr. Macgibbon of a goodly number of volumes on the castellated and domestic architecture and the ecclesiastical edifices of Scotland.

Contemporary with all these, and students in the same place, were young men who have since become famous as artists, such as William M'Taggart, Peter Graham, Hugh Cameron, Thomas Graham, John Pettie, John Smart, John and Alexander Barr, all of whom, as well as Alexander Brodie and John Hutcheson, sculptors, were pupils and prize-takers in the year 1855-6. John Macwhirter's name does not appear, but he was probably at work before this in the Institution classes, and was, at any rate, at that time regarded as a rising landscape-painter. His position to-day justifies the high esteem in which he was then held by Lord Cockburn, who took much interest in his Colinton Dell and other studies near his native village of Slateford.

It is interesting to note the evolution of one of our Edinburgh architects and his architecture. Robert Burn builds Gillespie's Hospital and the Nelson Monument on the Calton Hill; in due time his son William Burn succeeds to his practice, and after a successful career in Scotland, part of the time in collaboration with David Bryce, crosses the Border and becomes the architect of a phenomenal number of large mansions distinguished for the excellence of their planning.

Several English architects have been engaged in adding to the beauty of Edinburgh during the jubilee period. Sir Gilbert Scott in St. Mary's Cathedral; Alfred Waterhouse in his Prudential Buildings; William Slater in St. Peter's, Luton Place; Captain Fowkes in the Museum of Science and Art. C. R. Cockerell, associated with Playfair, in the National Monument on the Calton Hill, belongs of course to an earlier time.

Edinburgh, like other ancient cities, obliged to sacrifice many of its old buildings and much of its city wall, has on the whole been conservative of what was worth preserving. The choir and transepts of the demolished Trinity College Church, whose stones long lay on the slopes below the Calton Hill, easily accessible to us architectural students for sketching from, have been re-erected not far from the original site; and William Adam's Old Infirmary front was removed to Dreghorn by the late Mr. Macfie, and put up in fragments on the outskirts of his estate within view of the high road. St. Margaret's Well has been transferred from its original site under the railway works at Restalrig to a more appropriate locality in the King's Park, opposite Holyrood Palace.



## GENERAL.

**The King** has honoured Mr. P. A. Laszlo, the Hungarian artist, with sittings at Windsor Castle for his portrait in ordinary dress, not in uniform. This is the first time that His Majesty has been painted in ordinary dress.

**Mr. W. E. Cattanach**, architect, Kingussie, has been appointed one of the chief assistants in the Architectural Department of the Egyptian Soudan. Mr. Cattanach has had a successful career in his profession both in the north of Scotland and in London prior to securing his Government appointment.

**Among the Birthday Honours** gazetted last week were knighthoods for Professor H. von Herkomer, C.V.O., R.A., and Mr. William Q. Orchardson, R.A.

**The Gloucestershire** standing joint committee on Tuesday unanimously resolved that instructions should be given for the provision of plans for a new petty sessional court at Gloucester on land adjoining the police station, and that as soon as possible offices for the Education Department and the county accountant should be provided at the shire hall.

**The Liverpool Museum** committee have received this week on loan from the Southport Corporation an ancient dug-out canoe, formed of a single tree trunk, 16½ feet long by 4 feet broad. It was found nearly eight years ago on the southern extremity of the old Martin Mere, one of the largest lakes in Lancashire.

**Probate of the Will** of the late Mr. Julius Alfred Chatwin, architect, Birmingham, who died on June 6, dated October 25, 1870, and four codicils of later date, has been granted to his widow and his sons, Mr. L. Boughton Chatwin and Mr. P. B. Chatwin, the executrix, executors and trustees mentioned in the first codicil. The value of the estate has been sworn at 40,717*l.* gross and 40,443*l.* net.

**The Partnership** between Mr. Walter W. Thomas and Mr. G. de Courcy Fraser, architects and surveyors, Liverpool, under the name of Walter W. Thomas & Co., has been dissolved. The practice will be continued at 15 Lord Street by Mr. W. W. Thomas.

**Alderman Kendrick**, on Tuesday, offered 5,000*l.* towards the Picture Gallery Fund for Birmingham. At the same meeting of the City Council Mr. J. T. Middlemore, M.P., offered to present the painting by G. F. Watts, R.A., known as *Little Red Riding Hood*.

**The Chancellor of the Exchequer** stated in the House of Commons on Monday, in answer to Mr. Austen Chamberlain, that it was proposed to make the advance of the loan of 800,000*l.* for rebuilding purposes to the Government of Jamaica from the Local Loans Fund by instalments, as the money was required. The necessary powers would be asked for this session.

**The Auctioneers' Institute** of the United Kingdom celebrate their coming of age in London on July 23, 24, 25 and 26. An interesting series of excursions have been arranged for the three available days.

**The London Joint-Stock Bank** have arranged to erect premises at the junction of Kingsway with Portugal Street. The elevations will be in Portland stone and in brick with stone dressings.

**The Shaftesbury Memorial Fountain** in Piccadilly Circus, designed by Mr. Gilbert, R.A., is now being cleansed and repaired. The bronze and aluminium parts had suffered considerably from the effects of exposure to the atmosphere.

**Mr. Robert Fogarty**, architect, died last week in Limerick. After long experience in India he returned to succeed his father, the late Joseph Fogarty, and he was appointed diocesan architect for the province of Munster. Another office held by him was in connection with the preservation of the ancient monuments of Ireland.

**The Committee** of the Leeds School of Art invite applications, before July 15, for the post of master of the architectural department. The salary is 200*l.*, and the work will commence in September next.

**The Result** of the Assistants' Prize Competition offered by the Institution of Heating and Ventilating Engineers for the past year is as follows:—J. Roger Preston, 5 China Street, Lancaster, for his paper on "Air Recording Meter," first prize, 10*l.* 10*s.*; W. H. Casmey, Standard Buildings, City Square, Leeds, for his paper on "The National Importance of Heating and Ventilating," second prize, 8*l.* 8*s.*; Thomas Taylor, 10 Acacia Grove, West Dulwich, London, S.E., for his paper on "Low-pressure Hot-water Heating Plants for Private Houses," third prize, 2*l.* 2*s.*

**Mr. P. Fletcher, R.B.A.**, died on Saturday in his sixty-fifth year. He was the son of an architect, and many of his pictures deal with architectural subjects, such as continental cathedrals and other buildings.

**At the Last Meeting** of the Glasgow Corporation the Lord Provost intimated that a public-spirited citizen, who wished for the present to remain anonymous, had expressed a desire to present a drinking fountain of granite by a leading architect to be erected in Castle Street, Townhead, at a point nearly opposite the reconstructed Royal Infirmary. He moved that the gift be accepted, the donor thanked and a remit made to the statute labour committee to arrange details.

**The Bridge House Estates Committee** have asked Mr. Basil Mott to prepare a scheme for the rebuilding of Southwark Bridge and its approaches. The estimated cost of the work is between 500,000*l.* and 570,000*l.*, which will be provided out of the funds of the Bridge House Estates, which amount to 150,000*l.* a year.

**The Replica** of the late Mr. G. F. Watts's statue, *Physical Energy*, is practically completed, and as soon as the pedestal has been constructed it will be erected in Hyde Park. The site has not yet been chosen, but the position most favourably regarded is in the Broad Walk. A plaster model has been erected in the grounds of Mrs. G. F. Watts at Guildford.

**The Society of Arts** held their annual general meeting on June 26. Sir S. C. Bayley, the chairman of the Council, in moving its adoption, said that another matter with which the Council were dealing, although it was not in the report, was the question of additional accommodation, which was very badly needed for the development of the Society. They had hoped at the beginning of the year that it would have been possible to secure further space on their present site, but up to the present the negotiations had not borne fruit, and they were now, at the end of the year, no better off than they were at the beginning.

**The Free Library Committee** of the Wednesbury Town Council reported on Monday having accepted the design of Messrs. Crouch, Butler & Savage, of Birmingham, for the new Carnegie Library.

**Mr. W. H. Brierley** has been appointed to carry out the restoration of St. Michael-le-Belfry, York. He estimates the cost at 1,200*l.* The roof of the church requires immediate attention, it being two or three hundred years old, and having cracked, causing it to leak. The windows and stonework are also in a very bad state, and the glass is tumbling out of place, the wet consequently getting in. But the most serious matter is that the decay is going on very rapidly. The mullions of the tracery windows may fall down any day, and in that case, should the very valuable glass be destroyed, it cannot possibly be replaced. The panelling underneath all the windows and the moulding are nearly all gone, and the main walls, timber and lead require immediate attention.

**An Exhibition** of antiquities found by Professor Naville in the Temple of Deir-el-Bahari will be on view at King's College, Strand, from July 9 to 30.

**Instruction in Clay Modelling** is to be continued in such of the London elementary schools as are provided with a special art-room or other suitable facilities for modelling in clay. The use of plasticine in schools without art-rooms is under consideration.

**M. Carolus Duran** was authorised to exhibit his portrait of Chulalongkorn, the king of Siam, during the last week in the Salon of the Société Nationale des Beaux-Arts. It is destined for the throne-room of the palace in Bangkok.

**At the Mansion House**, London, on June 28, the Lord Mayor presided over a meeting called for the purpose of promoting the interests of the National Institution of Apprenticeship. Lord Avebury moved, and it was agreed, "That it is of the utmost importance that the children of the working classes should be properly taught and trained in trades requiring skill in order to prevent their drifting into the ranks of the needy unemployed, who are practically all unskilled labourers." It was also resolved, "That apprenticeship is the best method of teaching trades requiring skill, and the organisation of the National Institution of Apprenticeship and the assistance it provides, by making the loans and grants for premiums payable to the masters, and by supervising the apprentice, affords the most practical means of effecting apprenticeship, and makes them mutually satisfactory."

**Mr. Arthur H. Ryan-Tenison, F.R.I.B.A.**, announces that he has removed from 12 Little College Street to 21 Great Peter Street (National Society's House), Westminster, S.W.



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.DINGS, LIVERPOOL.

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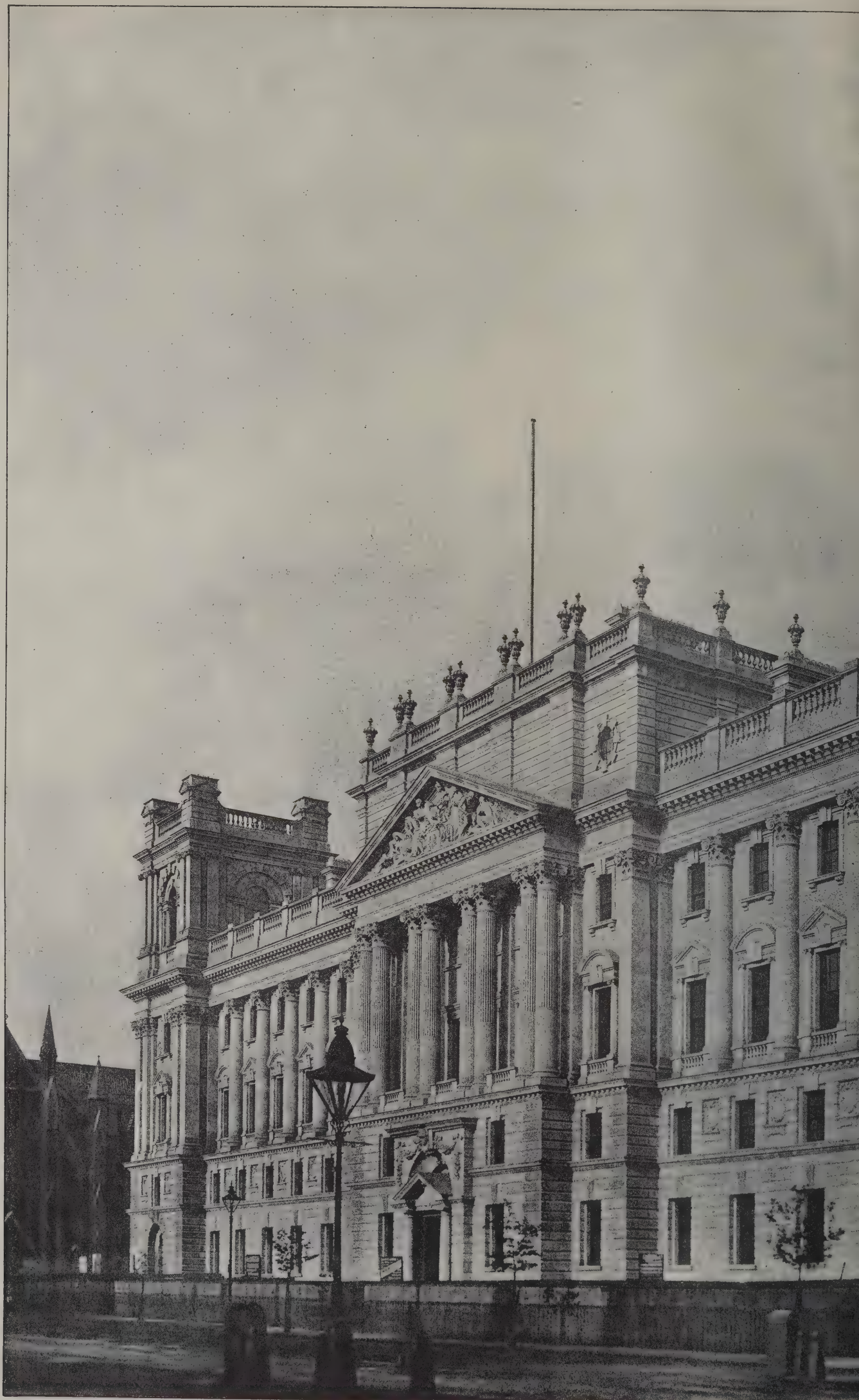


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HWARK: VIEW OF EXTERIOR.



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# The Architect.

## THE WEEK.

THE name of the late WILLIAM LE BARON JENNEY is likely to be remembered for several years to come, inasmuch as the American Institute of Architects concluded in favour of his claim to be considered as the originator of skeleton steel construction and of the lofty buildings which followed. He was born in 1832, and in 1854 he became a student in the Central School of Arts and Manufactures in Paris. On the outbreak of the Civil War he served on the staffs of General GRANT and General SHERMAN as an engineer officer. When the war was over he settled in Chicago. A few years afterwards a fire in the city afforded him many opportunities for showing his skill in planning. In 1883 he introduced the system of skeleton construction in the Home Insurance Building, and there was some hesitation about adopting the arrangement. The columns were of cast-iron, and steel beams made by the Bessemer process were employed. Several years afterwards the Bessemer Steamship Company named a ship after him in recognition of his services in connection with the invention and introduction of lofty steel skeleton construction. He entered into partnership with Mr. W. B. MUNDIE, and the firm carried out several important mercantile buildings. Ill-health compelled Mr. JENNEY to retire from practice in 1905. He settled at Los Angeles, where he died on June 15. He was a typical American, and his countrymen recognised his value.

ACCORDING to Mr. FREITAG, it was in order to obtain a maximum of light for the offices proposed in his Home Building that Mr. JENNEY decided to reduce the width of all exterior piers as much as possible, and to use cast-iron columns within the piers to carry the floor-loads, thus relieving the masonry piers of these loads, and consequently reducing their areas. The question then arose as to the supposed expansion and contraction of continuous metal columns 150 feet high, subjected to a variation of some 120 deg. Fahr., and this suggested carrying the walls as well as the floors storey by storey on the columns, thus dividing the movement. The exterior piers were made self-supporting, but the spandrel portions, between the top of one window and the bottom of the window above, were carried on girders placed in the exterior walls and extending from column to column. The foundation piers in the Home Building were made of masonry, pyramidal in form, and consisting of alternate courses of rubble and dimension stone. This method of supporting the walls as well as the floors and floor-loads on beams and columns was a most important departure from former methods, and attendant responsibilities of design were at once encountered. The concentration of superstructure weights resulting from such design was soon given consideration, and the employment of iron rails in foundations, as in the Montauk Block, was extended to more important use in the calculation of isolated footings.

THE University College of North Wales is an example of the great interest which is taken in education in that part of Great Britain. The college is a portion of the University of Wales. In 1883 the Government, acting on a report of a special committee, offered aid for the establishment of a college in North Wales. So many towns were eager to possess the college it was difficult to select one, but finally the choice fell on Bangor. In October 1884 the college was opened in a building which had been used for a hotel. In the first year there were fifty-eight students, while in 1904-5, the last year of which there are returns, the number was 328. Originally the departments consisted of classics,

mathematics, philosophy, English literature and history, modern languages, physics, chemistry and biology. In succeeding years came departments for agriculture, electrical engineering, day training and secondary training. The Corporation of Bangor in 1902 offered a site of about ten acres to the college, and the college authorities then purchased an adjoining field containing  $3\frac{3}{4}$  acres. Having so large a site it was decided to undertake suitable buildings. There was a competition, and the plans by Mr. H. T. HARE were selected. It is proposed to start with the arts and administrative sections, and an effort will be made to undertake the large hall. The other departments will follow as funds are obtained, but for some time to come it will be necessary to use the old building. His MAJESTY in laying the foundation-stone on Tuesday said that time and money, energy and perseverance would not be spared in the effort to afford facilities for the acquirement of knowledge in the college. Mr. HARE was presented to the KING and QUEEN by Lord KENYON, the president, and handed to the KING the silver trowel with which the first stone was well and truly laid.

It is only in Paris that a man, because he was unemployed, would take revenge upon his family, his country and social policy by endeavouring to destroy a painting in the Louvre. On last Sunday such a scene was witnessed in the Salle Mollien, when Poussin's *The Deluge* was lacerated in no less than eight places. The painting has a peculiar interest. It is believed to have been one of the last works of the painter. He had executed several Biblical scenes, and it is supposed that he wished to express his hope that after his death he would find himself in a world where there was no envy. The rainbow he introduced was probably a symbol of the ground of his confidence. It has been said that it is a thought rather than a painting, and is expressive of the state of his feelings in his old days. On that account the painting has more interest for those who look on Poussin as one of the Great Masters than some of his works which are more attractive to ordinary spectators. If his *Shepherds of Arcadia* suggests the state of his mind at an earlier time, *The Deluge* is no less suggestive of his declining years. It is doubtful whether the picture can be restored, and on that account the vandalism is less excusable.

THE Corporation of Glasgow have been fortunate in obtaining the large painting by MILLAIS called *The Ornithologist* for the comparatively small sum of 1,000l. The subject was suggested by a visit of the painter to JOHN GOULD, the ornithologist, at his house in Charlotte Street, W.C. At the time the collector was an invalid, and his delight was in handling his specimens, especially humming-birds and birds of Paradise. On his way home MILLAIS said to his son, who accompanied him, that what he had seen would make a fine subject, which he should paint whenever he had time. The picture was commenced in the spring of 1885, and although it contained seven figures besides those of birds it was completed in time for the exhibition of the Academy. T. O. BARLOW, the engraver, served as a model for the ornithologist, the two small boys were the artist's grandsons, the woman who leans over them and the girl seated at the foot of the bed were professional models. The gentleman who gave the commission afterwards declined to take it on the ground that it reminded him of an illness in his own family. The painting was therefore kept by MILLAIS. He hoped that eventually it would find its way to a public gallery, and this hope has been realised. There is no doubt about the excellence of the execution. But the strength of the ruling passion by which the ornithologist appears to prefer a small bird to all his family-drawings, the public admiration like less important parts of the artist. Another portrait of BARLOW was painted in 1886 and now belongs to the Corporation of Glasgow.



## THE BRITISH MUSEUM.\*

IN laying the foundation-stone of the extension of the British Museum on the 27th ult., His MAJESTY said:—"Since its foundation a century and a half ago the literary, artistic and historical treasures stored in the Museum have increased enormously, thanks in great part to generous gifts and bequests." In these few words the peculiar character of the Museum is expressed. Like many other British institutions, the founders could not have anticipated what it was to become. The original nucleus has extended in a way that in the seventeenth century would be considered impossible, and what is true of one department may be said to apply to all the others. With the possible exception of some of PANIZZI's additions, the buildings were never in advance of the collections. If, for example, some wealthy individual were to present the Museum with an example of radium, the history of the collections would justify us in saying that in less than a century a special department would be required for the varieties of the mysterious substance.

The Museum is supposed to have originated with the offer of Sir HANS SLOANE to sell a collection consisting mainly of objects of natural history, which had cost him 50,000*l.*, but for which only 20,000*l.* was asked. The beginning may be traced further back to the purchase of Sir JOHN COTTON's collection of manuscripts in the reign of WILLIAM and MARY. An Act was passed for settling and preserving the Cottonian library. In 1706 Sir CHRISTOPHER WREN with TRAVERS, the surveyor-general, prepared a report upon the possibility of converting the building at Westminster in which COTTON lived into a public library. With the Sloane and the Cottonian collections as possessions, it was necessary to obtain a place to preserve them. It suggests the spirit of the time when we find there was nobody to advocate the erection of a special building. WILLIAM KENT had prepared a plan for new Houses of Parliament, and some one suggested that one of the proposed buildings could be utilised as a museum. But in reality the choice lay between Buckingham House and Montague House. For the former the price asked was 30,000*l.*, while the other could be obtained for a third of the money. It is needless to say Montague House was preferred, and was formally acquired in 1754. The building had been erected at the close of the seventeenth century, and took the place of the original Montague House, which was designed by ROBERT HOOKE, the mathematician, and the rival of WREN. The second building was supposed to resemble the first, and was carried out under the direction of PIERRE PUGET and other French artists. Some alterations were necessary, which cost as much as the house itself, and the removal of the collections must also have taken time. But the new Museum was open to the public in 1759. There were three departments only, viz. printed books, manuscripts and objects of natural history.

During a great many years the use of the collections by students was extremely limited. The principle which is found in so many Government departments of "how-not-to-do-it" dominated the new institution. ISAAC DISRAELI, the father of Lord BEACONSFIELD, was an early student, and from his writings we can learn many things concerning the practices in the British Museum. Artificial light was prohibited. CHARLES V. of France had ordered portable lights in order that students could continue their researches in his library. "Many among us," says DISRAELI, "at this moment, whose professional avocations admit not of morning studies, find that the resources of a public library are not accessible to them from the omission of the regulation of the zealous CHARLES V. of France." A light was not permitted to be carried about. That might be excusable. But even in the early part of the nineteenth century genuine students continued to be prevented from making such use of the books as they desired.

\* See Illustration.

The applications of PORSON for admission were, we believe, rejected, and DE QUINCEY from his own experience says there was an absolute interdict upon the use of the national property, and that practically the whole of the funds were employed for the creation of sinecures. Happily those days have vanished and the Museum is accessible to all. Although they might not be much used, books arrived in abundance, and the collection was worthy of a great country.

Originally it was not anticipated that sculpture was to be represented. Any coins or medals which were presented were treated as if they were manuscripts. In 1772 the fine collection of vases belonging to Sir WILLIAM HAMILTON was purchased. Although they could not be considered as belonging to any of the three divisions of the Museum, room was found for them. In 1802 an event occurred which not only gave a new character to the Museum, but enlarged the horizon of antiquity as it appeared to ordinary people. The English public were without any aids which would enable them to understand either the art of antiquity or of any foreign nation. There was no gallery where painting or sculpture was to be seen. Among the dreams of NAPOLEON was the establishment of a national collection in France in which the art of all time could be studied by the humblest classes. Accordingly he had seized on the finest works which could be found in Italy. When immediately afterwards he began the contest with England in Egypt, he brought a staff of connoisseurs and experts with him in order to take possession of whatever was at once precious and portable. The collections were massed at Alexandria. When the city succumbed to English troops the whole of the treasures which were designed for Paris became British spoil. Then it began to be realised how inadequate was Montague House. Soon afterwards the Townley Marbles were obtained. It became necessary to erect a special gallery for Egyptian and Greek examples, which was opened to the public in 1807. Then followed the purchase of the great Elgin collection, which is generally considered to be the most valuable acquisition of the Trustees.

GEORGE IV. in 1823 presented the splendid library which his father had collected, under the condition that the books were to be kept separate from those in the general collection. It partly consisted of books derived from the libraries in the colleges of the Jesuits at their suppression, and at the time it was handed over to the nation it formed the finest private library in the world. The condition of preserving it intact compelled arrangements to be made for the removal of any part of Montague House which had survived. It was then proposed to provide for the future, and for a time at least a public picture gallery was contemplated. One advantage followed from the idea, for several collectors of paintings offered to bestow them if a separate building were provided. The National Gallery is therefore to some extent an offshoot of the British Museum.

The commission for the new building was given to Sir ROBERT SMIRKE. As FERGUSON said, no architect ever had a fairer chance; the ground was free of all encumbrances, the design long and carefully elaborated before execution, and the money, which was more than a million sterling, was supplied without stint. Probably one-half the outlay was useless, for "the courtyard to which the whole building was sacrificed is already gone and the portico is voted a public nuisance, though it will not be so easily got rid of as the other." When the plan was under consideration, ANTONIO PANIZZI was not an official, although he was not far distant, for he occupied the position of Professor of Italian Literature in University College. In 1831 he was appointed as a special assistant. He proposed many changes, some of which were adopted. But it was not until 1837 he became Keeper of Printed Books. If ever there was the right man in the right place it was on that occasion. It is doubtful whether one of the keepers



was satisfied with the space assigned to his department by SMIRKE. But PANIZZI was a commanding genius who loved the delight of battle. He proposed to cover the quadrangle with a domed roof which would not interfere with the lighting of the principal building, and by that addition 300 readers at least could be accommodated. It was a daring project and if it failed PANIZZI's very numerous enemies would have rejoiced. But its success was unquestioned, and the name of the great librarian should be remembered with gratitude by all who use the collections. Complaints are inevitable concerning the Museum, but those concerning the reading-room and its arrangements have the least substance.

The Trustees have not been indifferent to the unavoidable necessity for increasing the area of the Museum. PANIZZI wisely got rid of the "objects of natural history," for, with all his versatility, he possessed no knowledge about them. But the space vacated was found to be insufficient to meet the new demands. The newspapers were exiled to a northern suburb, where few will care to seek them. Yet the keepers continued clamouring for additional space. In 1895 leases expired of houses near the Museum, and fortunately the Trustees were able to acquire an additional area of  $5\frac{1}{2}$  acres, thus bringing the total area possessed by them up to 13 acres. The extension of which the foundation was laid a fortnight ago will occupy the site of the houses which formed the south side of Montague Place. The preparation of plans was entrusted to Mr. JOHN JAMES BURNET, of Glasgow. According to the official account the building, which will be known as King Edward VII. Galleries, is to be composed of a basement and sub-ground floors, already constructed, which will provide ample storage space, chiefly for the never-ceasing additions to the library; next of a range of galleries, also to be appropriated to the use of the library. Above this, of a mezzanine floor, to provide official studies and students' rooms, and on the upper floor of a fine range of galleries, 380 feet in length, which will be adapted for the exhibition of the Egyptian or other collections. The façade, to be in keeping with the Classical style of architecture of the present buildings, is Ionic in character. A simple row of engaged columns, flanked by massive pylons, will occupy its full length, and will ultimately form the central feature of a structure which, in its severe simplicity, will fittingly express the repose and endurance which should characterise a great national museum.

The Trustees, knowing the history of the Museum, are aware that in the past the most important arrangements were dictated by absolute necessity. Accordingly they hesitate to dictate to posterity. But they suggest that the scheme which Mr. BURNET has sketched out may be left as a legacy to their successors, who will show their wisdom by carrying it to a successful completion.

#### COMPLIANCE WITH SPECIFICATIONS.

IN looking through specifications which were drawn up fifty or sixty years ago it is impossible not to be struck by the confidence which was displayed that all the materials used would necessarily be the "best" of their respective kinds, and the absence of any reference to tests in order to discover whether the "best" had been employed and how that quality was to be ascertained. Take, for example, such a structure as the Houses of Parliament. THOMAS GRISSELL and SAMUEL MORTON PETO guaranteed that the buildings and works were to be completed in the best and most workmanlike manner and in the most solid, durable and substantial mode, to the entire satisfaction of CHARLES BARRY or other architect. The bricks were to be equal to a sample approved by the architect and deposited with the clerk of works. In the brickwork was to be employed the best Dorking or Merstham, or other approved stone

lime. The timbers for floors were to be of the best Baltic wood; the oak was to be of the best description. The stone was to be of the very best and most durable quality. The roofs were to be covered with the best Westmorland or Cumberland slates. But from beginning to end there is not a word about how it was to be ascertained that the so-called best, which really signified the dearest in price, had been selected and used. Even the iron roofing was to be taken on trust, the only suggestion of the architect being that the work should be executed in London, partly on account of the acknowledged superiority of London over country castings.

It must be allowed that in the majority of buildings the confidence in contractors was not misplaced. A sense of honour was recognised in trade, and a man was sure to suffer in his business if he substituted inferior materials. It should, however, be remembered that in those simple days architects and builders relied mainly on nature for the direct supply of materials. Stone was brought from the quarry to the building site. Builders in many cases employed their own sawyers to cut trees into the scantlings required. Bricks were often made on a builder's field. Iron was not then much used in construction. Architects, as in the case of the Houses of Parliament, preferred that their builder should become responsible for it, whether adopted for columns or roofs. Sometimes it was specified that castings should be submitted to a "full proof," an expression which, however indefinite, was considered to be very exacting.

When nature ceased to be fully relied on and her materials were no longer set up in the state she offered, then it became necessary to adopt specifications of a different kind. Iron, like all materials, was not only liable to succumb if overloaded, but in large structures expansion and contraction were inevitable and could not be prevented. Various other materials which were obtained by the co-operation of mechanical power and chemistry with a natural product were also found to have their limitations, and it became essential that these should not be exceeded. It is only necessary to compare the experiments of TREDGOLD and BARLOW with the more elaborate investigations of FAIRBAIRN and HODGKINSON, to say nothing about their successors, in order to realise that a different system of judging materials was an absolute necessity. In England we have still a large amount of confidence in contractors, and it is seen in the manner of dealing with materials. But in Germany and the United States it may be expected that in a short time everything employed in architectural and engineering construction will have to be subjected to scientific tests which will become more severe as time goes on.

The proceedings at the annual meeting of the American Society for Testing Materials, which was held from June 20 to 22, is enough to suggest what is being done in America. The Society contains nearly a thousand members, all of whom are entitled to be considered experts, and no less than 268 of them were present. A few of the papers will indicate the extent of the field. Manilla wrapping paper may not at first seem to be of much importance in engineering. But it is used by one of the companies in connection with electric power. A paper on coal showed that in Government departments the contractor is required to state the number of thermal units and the percentage of ash in the coal which he offers to supply. The difficulty of the taking of tests is suggested by the fact that the thermal value of coal taken at the pit is often 25 per cent. lower than when delivered. A standard specification for coke is in progress. The effect of moisture on the strength and stiffness of wood was another subject. Much importance was attached to the testing of wooden and reinforced concrete telegraph poles, and it was found that the latter can fail if a rope is attached to the top of an appliance which will allow of an horizontal pull. According to some experimenters, a new electro-chemical



theory of the corrosion of iron is about to be revealed. The American Government have ordered an investigation of the causes of the deterioration of wire fences, and the official report on the subject will shortly be issued. Tests of cement occupied many hours in discussion. Among other results it was shown that the specific gravity test is not of much account for detecting adulteration.

To many who were present greater importance was attached to the address of the president, Dr. CHARLES B. DUDLEY, on "The Enforcement of Specifications," than to any of the papers. He is recognised as one of the highest practical authorities in America, for testing is the business of his life, and his experience therefore merits consideration. We referred above to the confidence which English architects reposed in builders. They in their turn depended on their sub-contractors. A modern American expert would on reading the lines express amazement that any structure erected under such conditions was able to stand for any longer time than the builder was responsible. Dr. DUDLEY asked whether it was safe to employ materials without the trouble and expense of maintaining a corps of inspectors. He said that those who for the occasion might be called consumers—i.e. architects and engineers—would reply that it is absurd to expect to get what you have contracted for unless people are watched. After his own daily experience with specification material during thirty years he was compelled to agree with them, and to maintain the necessity for inspection and tests. Dr. DUDLEY declined to consider the ethics of the subject. His theory is that a transaction is satisfactory when the user and the producer derive a benefit from a business, or in other words, when both parties are satisfied. But so many unexpected accidents may occur that a man who is disposed to act honestly discovers that he has failed to give satisfaction to his customer, and his failure may be supposed to arise from dishonesty.

Bearing in mind that satisfaction to producer and consumer is the desirable end of business, he gave an instance to show that the omission of a monosyllable may alter the whole character of an important transaction. Americans sometimes pride themselves on the absence of formalities in business affairs. One of that class, who was a lumberman or timber merchant, agreed to purchase a large number of logs from the owner of a timber tract, the simple specification being that only two logs from the same tree should be delivered. The logs duly arrived, and the lumberman was surprised to find them small, tapering and full of knots. What he imagined he should receive were two logs from the butt of the tree; but he had not used the word "butt," and the owner was therefore justified in interpreting the order as two logs from the top of the tree. The price given was low, and it is not impossible that cuteness had overreached itself, for no litigation followed. On the other hand, specifications may be so elaborate as to fail in their purpose. Specifications for steel, it is said, often prescribe impossibilities. The manufacturer accepts the risk and does his best; but, according to Dr. DUDLEY, an improperly-worded or an unreasonable specification is a most potent cause for the tender of unsatisfactory materials. The mistakes of subordinates are a further cause of what may seem to be fraud. Another cause is that commercial processes do not always yield what is expected of them. Dr. DUDLEY examined in his laboratory a shipment of phosphor bronze for bearings. The material is an alloy of copper, tin, lead and phosphorus. The analysis showed that the phosphorus was inadequate, and the shipment was rejected. A member of the firm called and was able to produce evidence of the purchase of phosphor tin at a high price which was employed. But he was not aware that at every melting some of the phosphorus evaporated, and in that way the defect was explained. Contracts are accepted by manufacturers in the belief that if they cannot produce such a material as is

specified they will supply one that is just as good. That reasoning might have served at one time, but under the new condition of business in America it has no value. The specification is the standard from which there can be no departure.

But how is the specification to be enforced? Dr. DUDLEY says the examination and testing must be of such a kind as to leave no loopholes for evasion or the substitution of inferior materials. If the producer is to be trusted in one way, he may as well be trusted in all. The samples should not be selected by a producer. They should be taken at random by whoever represents the testing. Once selected they should not be allowed to remain with the producer. If the sample fails in the testing the material should be rejected. In Dr. DUDLEY's practice there is no provision for second or third tests. In the early days something of that kind was allowed. But now testing has arrived at such a perfection one trial is sufficient. If three are tolerated, why not seven or nine?

The fact is recognised by Dr. DUDLEY that the chemist's methods are not always infallible, and physical tests are not without their imperfections. He does not reject a material until the operations have been repeated, and probably three or four times. It may be stated that there are errors in testing for which allowance should be made, or the terms of the specification should be altered so as to correspond with the deficiency of the testing. What is to become of the material which is below the standard it is not the business of the experimenter to consider. The architect or engineer should take care that defective materials are not employed in any of his structures. And Dr. DUDLEY considers the time is not far distant when for all important structures it shall be made known that they have been tested, and that disasters cannot arise from defective materials or ill-arranged construction. Of course every business tries to make itself essential, and testing is gradually becoming not only a special business but a profession which requires a long course of training and the possession of special qualifications. How people were able to exist and safely meet together in crowds within ancient buildings must now appear to many as indications of a special providence. But the old empiric rules aided by honesty formed a force which even in these scientific days can still accomplish great undertakings.

#### THE INSTITUTE IN EDINBURGH.

ON Friday last the members of the Royal Institute of British Architects, who visited Edinburgh, were conducted through the Castle by Mr. H. J. Blanc, St. Giles's Cathedral by Mr. Thomas Ross, the Parliament Houses and Holyrood by Mr. W. T. Oldrieve. In the evening there was a dinner at the Caledonian Railway Hotel. The *Scotsman* gives the following report of the speeches:—

The loyal toasts having been honoured, Mr. Stokes proposed that of "The City of Edinburgh." He commented on the high standard of the architecture, and particularly of the modern architecture, of Edinburgh, and expressed the thanks of the Institute to the Lord Provost and Council for their hospitality.

Lord Provost Gibson, in replying, observed with reference to comments that had been made on building regulations that the Lord Dean of Guild and his Court were at present considering still more stringent rules. These were essential and necessary if they were to maintain in Edinburgh the prestige they already possessed of having magnificent streets and fine architecture. They had a spirit in modern times which desired to turn the last penny to account, and it was that they feared—in the narrowing of thoroughfares by the erection of overpowering buildings on both sides. It was that they desired to restrict.

The Lord Justice-Clerk, in proposing "The Royal Institute of British Architects and the Allied Societies," said he was sure those who had taken them about the city that day had taken them past the things they ought not to look at, and concentrated their attention on those things which were worthy to be remembered. There were things in Edinburgh which were worthy to be remembered. They would agree that to come to a city celebrated by the names



of Adam, Playfair and Hamilton was to come to the right place. What these men did was a strong and lasting protest against the state of things which existed for a considerable time before they began to exercise their art, he might say their genius, in improving the architecture of the city. There were no people in the world with whom he personally had more sympathy than those who belonged to the profession of the architect. All other workers in art did pretty much what they liked. The poor architect might stand in front of his own work and tell everyone who passed how he had been cut down as to the money he had to spend and how he had been squeezed by public bodies and others to add what they thought would be an improvement, but what he thought would be abominable. He was glad to say they had a great revival of public taste and a great cessation of the ordinary practice, which existed a good many years ago, of everybody, whether he had taste or not, expressing his opinion and urging his views about everything that was done in regard to the architecture of the city in which he lived. There was a great improvement, no doubt. He was not going to enlarge on that, but being a practical man he would like to say a word to the architects all over the country as to what they ought to do with their buildings. An architect erected a beautiful building, the admiration of all who saw it. Happy were they who saw it before it had been interfered with. If he returned three or four years afterwards he would find it probably plastered over with notices and with abominable posts with square boards on the top stating that this was the work of so-and-so, and the price of admission into it is threepence. It was enough to make the architects of St. Giles's rise from their graves that the Ecclesiastical Commissioners of the city kept the doors of that church shut against everyone who wished to go in to see the beautiful architecture, and, it might be, sometimes to sit down and reflect in the quiet of that noble building. But those men at the door, with a demand for threepence in order that nobody but the aristocracy shall be able to get in. He should like, in going into that church, rather than find it empty except for a few empty-headed tourists talking irreverently, to see a lot of poorly-dressed old women going in there in the course of the forenoon, going in quietly and thinking a bit. It might do a great deal of good to a great many of them, and the church would look far better for it. He would suggest to the Lord Provost that he should consider whether it was right that the noble building dedicated to the worship of God should be a place where people had to pay before they could go in. Then at Westminster Abbey, what did they see? A notice, "In this way," "Out this way." Inside they saw an enormous number of big placards in five or six languages describing the buildings and tied round the pillars. There were worse things than that in Westminster Abbey. He hoped they would all set their faces against the practice of loading the walls of beautiful churches with execrable monuments and tombstones—splashes of soapsuds that were intended to represent crowns, with impossible angels and somebody lying in a dress made in the time of Queen Elizabeth. He thought an architect should make it a stipulation, before he erected a building, that nothing would be put in it, and no niches would be cut in the walls without his approval and consent. Why did we always surround our buildings, about 2 feet off from the edge of the building itself, with a railing which disfigured the building, and had no other effect but to form a receptacle for old hats? And if there was anything to clear out, the scavenger had to climb the railings to remove it. At one time St. Giles's was enclosed with wrought-iron railings, which he did his utmost, and ultimately succeeded, in getting removed. He would never have been able to get the railing removed unless he had told the Commissioners it was splendid wrought-iron, and anyone would give them something to be permitted to take it away. A contractor gave them 25*l.* for it, and he was allowed to take it down. He could mention a great many cases in Edinburgh in which that had happened. For the citizens of Edinburgh he might say they were delighted to see the members of the Institute.

The Chairman, in replying, spoke of the undesirable effect of some of the stained glass they saw in ecclesiastical buildings, and urged that a Bill should be passed which would enable municipal authorities to put the development of the suburbs under proper control and prevent them being left to the baneful greed of the ground-rent speculator.

Mr. J. S. Gibson proposed the toast of "Edinburgh Architectural Association."

Mr. Hippolyte J. Blanc, in responding, said when the Edinburgh Association was instituted fifty years ago there

were nine members. To-day the public appreciation of it was evidenced by the increase of membership to nearly 400. It had always been an Association of architects and collateral members—an amalgamation which had been the strength of the Society.

Mr. John Slater proposed the health of the guests and Sir James A. Russell responded.

#### ROMAN VILLA, PETERSFIELD.

ACCORDING to Mr. A. Moray Williams, of Bedales School, Petersfield, the excavation of the Roman villa at the Stroud has now reached an interesting stage, and one wing of what must be a very large house has been laid completely bare. This wing contains about a dozen rooms, three of which were heated by hypocausts, and in one may be seen the rare feature of a wall still lined to an extent with large and unbroken flue tiles. Many of the floors are still well paved with tesserae. Several coins of the late empire have been found, and various small finds of an interesting nature, including objects of iron, glass and pottery. From the latter it has been possible to reconstruct almost completely a fine vase of New Forest ware 12 inches high.

The excavation, as it stands, covers an area of about half an acre, in which space, in addition to the wing already mentioned, two long walls of the courtyard have been laid bare, while more rooms and foundations are every day being brought to light. One long corridor has a mosaic pavement, some portion at any rate of which it is hoped to find intact. The site is now open to the public, and will remain so probably until the end of August. Towards an estimated expenditure of 23*l.* the Society of Antiquaries have subscribed 5*l.*, and Mr. T. H. Harvey, of Fareham, 2*l.* 2*s.*, while other subscriptions amount to 2*l.* 3*s.* 6*d.*

The villa lies a short mile west of Petersfield, one field back from the main Petersfield-Langrish-Winchester Road.

#### WISLEY, PYRFORD AND NEWARK ABBEY.\*

THE country between the river Thames and the places we have visited to-day presented a very different aspect when they flourished than it does now. It probably consisted for the most part of forest, moor and swamp, which was a happy hunting-ground for the king, being an easy excursion from Windsor Forest, and, being wild, was very sparsely populated.

Hence no great provision had to be made by the missionary fathers who mapped out the country with a view to its spiritual needs, accordingly the churches we have visited are very small and simple.

There appears also to have been no wealthy or powerful feudal lord in the immediate neighbourhood, to extend the parish church by building in memory of his forbears or spouse a memorial chapel to presently become an aisle of the local sanctuary; hence both Wisley and Pyrford are to-day practically the same as they existed 700 or 800 years ago.

Both founded in the twelfth century, they present many similar features—shingle-covered, timber-framed belfries give a quaint and picturesque appearance to the exterior; stucco-covered rubble walling partly of ironstone nodules from the gravel drift formation of the district; Bath or Caen stone dressings outside, and clench or block chalk inside, with the coarse plastering common in that day, which originally was decorated with rude fresco-paintings, some of which are noticeable, particularly at Pyrford.

Wisley has undoubted signs of a leper squint (which has been blocked up) in the south chancel wall. The Norman chancel arch and window reveals are undoubtedly original; the quaint old porch is interesting, but has few distinctive features. There is a curious record in a register I found here to the effect that, the churchyard in 1786 wanting a new fence, the parishioners clubbed together and contributed so many panels each. The building dates from 1150 and has one bell. The restoration has been carefully and wisely done by the Buxton family of Fox Warren, who hold the manor, one of whom is the present Postmaster-General, Mr. Sydney Buxton.

Pyrford, perhaps, may claim more interest than its sister church on account among other things of its unique position. It stands on a bluff overlooking the very green and well-watered valley of the Wey river. The north doorway is a particularly good sample of the sculptured Norman arch with its zigzag architrave ornament. The porch placed

\* Read at a meeting of the Upper Norwood Athenæum on May 25, by Mr. Frederick Higgs.



there in Tudor times, was not made wide enough to clear the eastern jamb, the mouldings and column of which it partly covers; it remains in very excellent condition and is



WISLEY PARISH CHURCH.

in itself very interesting. In pre-Reformation times the western jamb column was utilised as the base of a holy-water stoup, which has been half cut away. The chancel arch, like that at Wisley, is clearly original, as also is a large quantity of the timbering of the roof. The pulpit is very beautiful Jacobean, and bears on it the date 1628. The corbel in the centre of the south nave wall probably supported an image before the Reformation. The building has been carefully restored without eliminating any of its characteristic and ancient features. There is some very good sixteenth-century panelling in the north-east corner of



ST. NICHOLAS CHURCH, PYRFORD.

the nave, and old material has been rebuilt into many of the piers. Neither here nor at Wisley is there any sign of piscinae, and it is very likely that they have been filled up, but in any case it is quite evident that the ceremonies of worship carried on were always of the plainest and simplest character.

The west end wall has a huge buttress against its centre, probably to counteract the swing of the bells, and each side, near its top, is a small slit window of Norman type. It is difficult to read any meaning into the wall frescoes, which are, relatively to the size of the building, rather extensive, but some of the colours retain their vivid character. On the north side of the church is an old yew tree which, although a baby by the side of the patriarch we saw at Aldworth two years ago, must have seen several centuries.

From the south side you have an uninterrupted view over the Wey valley and the intervening country to the North Downs, and both Ranmore and St. Martha's can be seen on a clear day. It is a little God's acre both picturesque and beautiful. The present building was founded in 1150; it has two bells and is dedicated to St. Nicholas.

We now consider the romantic ruins of the old priory of Newarke, New Stead, or New Place. Little comparatively of the superstructure exists to-day, but sufficient remains to indicate that it was an establishment of considerable size and importance, where friars of St. Augustine's Order lived in fair comfort, if not in great wealth. Little



TUDOR PORCH, PYRFORD.

appears to be known of its history, as it is not mentioned in many records. I have, however, come across a plan which was prepared some years ago from the old foundation fragments, assisted by what is known of similar buildings elsewhere, and this has proved of great assistance in examining the ruins; without it, as in my many former visits, the remains are largely unintelligible.

In a work called "The Beauties of England and Wales," published in 1813, it is mentioned as having been founded during the reign of Richard I. by Ruald de Calva and Beatrix de Sandes, his wife, and by them dedicated to the Blessed Virgin and St. Thomas of Canterbury; this establishment and the endowments connected were subse-



NEWARK PRIORY RUINS, LOOKING E.N.E.

quently confirmed by Henry III. and Edward I. At the Dissolution by Henry VIII. the endowed revenue amounted to 258*l.* 11*s.* 11*d.* per annum. The last prior dispossessed



at that time was one Richard Lippiscombe, who received a pension of 40*l.* yearly. Henry gave the lands held by the monastery to Montacute, from whom they passed to the Onslow family, and eventually came into the hands of the present owner, the Countess Lovelace, of Ockham Park. For the plan and for the foregoing extract I am indebted to Mr. Webber, who farms the land on which the ruins stand, and who, together with Mrs. Webber, takes considerable interest in the remains. I hope, therefore, he will act on my suggestion that he should remove the stone coffin lid now used as a piece of paving stone at the site of the west gateway to the abbey grounds and place it within the enclosed precincts. I was informed that the Vicar of Ripley has instituted an annual service in the old choir, which is interesting to hear.



NEWARK PRIORY: VIEW FROM S.E.

One peculiarity noticeable in connection with this building is that the transepts were separated at their lower part from the main building by a thick wall 10 feet high, so that they became to all intents and purposes separate apartments, approached only through lobbies from the main aisles. The opening shown on the plan at the north-east corner of the cloisters is, I think, a destructive work of recent date. Each transept appears to have had an oratory chapel of its own, and it is quite clear to-day in the one on the south side, where the piscina stones have been removed. All the dressed stones, or nearly all, have been taken out, leaving little but the immensely thick rubble walling standing.



NEWARK PRIORY: VIEW FROM N.W.

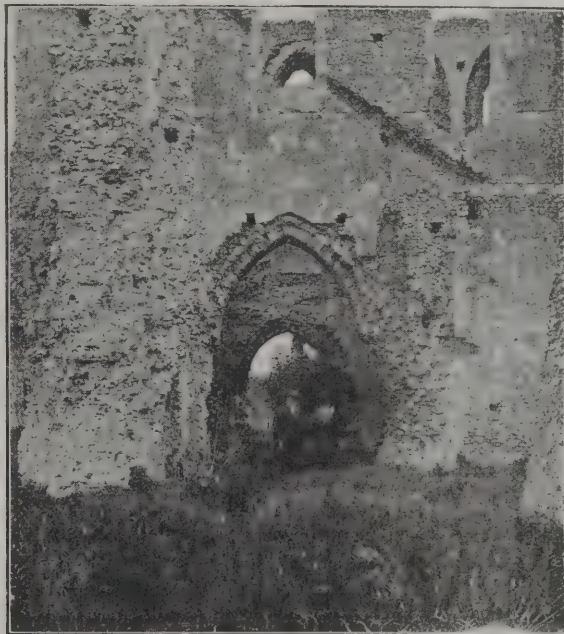
In all probability the nave stretched westwards 100 feet or more, and now that the owner and occupier are showing some interest in the building, having quite recently fenced it in, it is to be hoped that some exploratory excavations may be taken in hand with a view to the tracing out of the

whole extent of the building foundations which most certainly exist below ground.

A fragment of the wall adjoining the old entrance gate is still visible direct west from the centre of the church; it is an interesting specimen of stone and flint facing in diaper squares; abutting on this is what I believe to be the original arch over the fosse outside the boundary wall, and upon this is placed the old coffin lid I have referred to.

It was at this entrance gate that, according to the narrative by Martin Tupper, Stephen Langton, afterwards Lord Archbishop of Canterbury and champion of popular rights against the brutal despotism of King John, knocked after the tragic rescue of sweet Alice Foyle from John's clutches at the burning of Tangle Manor, and whose supposed death caused him to crave admission and to enter the ranks of the Brotherhood. Through this gate Stephen passed when later on he took up his solitary duty as first monk in charge of the new chancel at St. Martha on the Hill by Guildford yonder, specially consecrated to him as the depository of the lovely Alice's supposed lifeless body. King John himself with his lawless boon companions probably often knocked here to demand blackmail, or as much as he dared, from the sacred precincts, the whole district affording a happy hunting-ground for the monarch to disport himself in the chase, varied by an occasional foray upon a defenceless hamlet and even on the homes of some of the less powerful barons or landholders.

The boundary wall of the abbey grounds can still, I think, be traced on the north and east sides in the mound or hedge bank under the grove of elms.



NEWARK PRIORY: DOORWAY FROM LOBBY TO SOUTH.

Care of the ruins has come all too late, as for centuries they have been used as a quarry from which to easily obtain material for farm buildings, &c., and the flint rubble for road-making and repairs. A piece of the north flank of the Homewood farmhouse itself is eloquent evidence to the truth of this, and there may be many others.

Newark Priory and St. Catherine's Nunnery, at Guildford, who very likely frequently exchanged deputation visits, being near neighbours, and the chapel of St. Martha, in the duties of which both were interested, form a most interesting trio of ecclesiastical relics of which this district of Surrey has reason to be proud. The monastic life, then the vogue, which in these strenuous days seems so selfish and futile, produced in the shrines in which they worshipped monuments of the architectural skill and art of Mediæval times which are in most cases still subject of wonder and admiration to our eyes, and in the case of the parish churches gratitude also, both to the zealous missionary churchmen who first erected them, and to the sturdy yeomen of our land who have from time to time preserved them from total destruction and decay, and I trust that in the investigation of the two quaint and simple shrines and the romantic ruin, each in its beautiful sylvan surroundings, our time this afternoon has not been altogether misspent. I am indebted to you, my fellow members, for a good attendance, and to our indefatigable secretary for again tendering to me his valuable help.



## NOTES AND COMMENTS.

WE lately referred to the exploration at Lindos in Rhodes which the Danes have undertaken. One of their latest rewards is the discovery of a great relief representing the stern of an antique war vessel. As, like the *Dying Lion* of THORWALDSEN, it was carved on the face of a rock, it is believed all the parts are of a size corresponding with those of an actual vessel. It is inferred that the rock served as the base of a statue of some renowned captain, known as HAGESANDROS, the son of MIKION, whose deeds, however, are not recorded in any history which has come down to modern times. The sculptor was PYTHOKRITOS, one of the Rhodian artists who lived 170 years before the beginning of our era. There is fitness in the discovery by the representatives of a seafaring people, and the Danes will be inspired to further efforts in Greece.

THE judgment delivered by Mr. Justice LAWRENCE on Tuesday in Manchester suggests that what has been said of late about secret commissions is not without influence on a practice which is accepted by many architects. In erecting a building in which machines are employed it is not always certain that although an architect may have some work in connection with them he will be paid a commission on their cost. He is looked upon as the designer of the case, and any trouble which arises in connection with machines and appliances is not reckoned. If the architect informed his client that a charge would be made on account of such work, the client would have the opportunity of declining the architect's services. The whole question turns on the extent of the knowledge possessed by the client. In the case which was heard before Mr. Justice LAWRENCE on Monday and Tuesday, Mr. TEMPERLEY, of Bolton, claimed 614*l.* 15*s.* 6*d.* for the preparation of plans and other work required in connection with a mill which the Black Rod Manufacturing Company proposed to erect. The tenders for the building were higher than had been anticipated, and the directors offered the architect 400*l.* in payment of his claims, and when he declined to accept that amount he was dismissed. The plaintiff's claim was 5 per cent. on the building contract and 2½ per cent. for quantities, besides 5 per cent. from contractors for boilers, engines, mill-gearing, iron and constructional steel. The defendants counterclaimed for any moneys the plaintiff might have received for such commissions, alleging that they were wrongful. Evidence was given that the payment was usual, although sometimes it was a matter of arrangement. Plaintiff's counsel argued that the two principal promoters were told of the arrangement, and their knowledge of the facts was enough to show there was no fraud attempted. Mr. Justice LAWRENCE said plaintiff's employment as architect would entitle him to 5 per cent. commission on the total cost of the erection, including both building and machinery; but the evidence disclosed that whilst the company would be liable to him for 5 per cent. on the whole, he was getting other 5 per cent. from the contractors, which he had not disclosed to the company. It was for the plaintiff to show that he communicated to the company the fact that he was making these arrangements with the contractors. His Lordship therefore considered that the plaintiff had not made out his case, and judgment must be entered for the defendants. A stay of execution was granted.

THE witnesses appeared to be surprised that there should be any objection to the practice of a sub-contractor allowing 5 per cent. commission to the architect on his tender. There was no secrecy about it, and it was taken for granted that the company knew the circumstances. One witness said that he informed one of the promoters that he had added 5 per cent. commission, which was all the architect was to receive directly or indirectly. An architect agreed that there should

have been an agreement with the company on the subject, and another said it was purely a matter of arrangement. From the evidence it may be believed that sub-contractors are assured that an architect only receives 5 per cent. through them, and that the payment corresponds with that for quantities—which comes from the builder. It is evident, however, from what was said by his Lordship that henceforth such payments will be regarded as secret commissions, and unless an architect is able to show that he has made his client aware of what he expects and that he has performed definite duties for such a commission, he will run the risk of being nonsuited. The architectural societies would do well to have the law on the subject under the new conditions fully explained for the benefit of their members. In the Black Rod case the architect did not receive any remuneration for five or six months' labour.

IN addition to several paintings by foreign and English masters, some examples of ancient sculpture will be sold at Trentham Hall, the seat of the Duke of SUTHERLAND, on Friday next, being the third day of the sale. One is a Roman altar or font, 4 feet 2 inches high, standing on massive supports, with lion claws. It does not correspond with any of the examples seen in museums. The representation of the Signs of the Zodiac in relief is curious. Another Roman font stands on wing trussed supports. A Roman altar of a solid kind, with rams' heads at the angles and large garlands between them, has greater unity. A marble statue, 6 feet high, of a woman has no sign of a goddess, and on that account is as attractive as any of the figurines of Tanagra. A statue of HYGIEIA is also without the customary severity, and there is some novelty in having one of the feet resting on what might have been a medicine chest. There is a perfect figure of an APOLLO in a contemplative attitude. The gardens at Trentham were enriched with copies of ancient statues and vases, besides a few elegant fountains. All these should be acquired, if possible, for public parks.

## ILLUSTRATIONS.

LIVERPOOL, LONDON AND GLOBE INSURANCE CO.'S OFFICES,  
CORNHILL, E.C.

BRITISH MUSEUM EXTENSION.

THE SPREAD EAGLE, BLOKWHICH.

THE SALOON OF THE ROYAL MAIL STEAM PACKET COMPANY'S  
NEW TWIN-SCREW S.S. "AVON."

THIS magnificent craft has a length of 535 feet, is 62 feet in breadth and 43 feet in depth, with a gross register of 11,000 tons. The builders are Messrs. HARLAND & WOLFF, of Belfast. The internal fittings by Messrs. GEORGE TROLLOPE, COLLS & SONS, LTD., and other firms are graceful and beautiful. The state-rooms, sitting-rooms, smoke-room and the *cabines de luxe* are the most luxurious we have seen, and the colourings very chaste. A great boon is the perfect system of ventilation throughout the ship. The social hall, with its double folding doors opening on to the promenade deck, provides every facility for various pastimes and games. The entrance hall, leading to the dining saloon, is, as in the case of the other chief reception saloon, well lighted and perfectly ventilated.

NEW GOVERNMENT BUILDINGS, PARLIAMENT STREET.

IN the description of the new Government Offices in Parliament Street, which appeared last week, it was omitted to be stated that the whole of the Portland stone which gives character to the buildings—for, with the exception of St. Paul's Cathedral, no other example could be found in London containing half a million cubic feet of the material—was supplied from the Coombefield quarries, at Portland, of the Bath Stone Firms, Ltd. The same firms also supplied the stone for the War Office buildings.



## THE PALACE OF PEACE.

IT is to be hoped the deliberations in Mr. Carnegie's Palace of Peace will be accepted with more unanimity than the selection of the design for the building has produced. Several Dutch architects have protested in an address to the States-General against the site, the conditions of the competition and the decision of the jury. Respecting the site they say:—

In choosing the site for an important public building a restful environment has always been aimed at, and such a distance from the public road that a worthy view of the building was insured, the approach thereby conducing also to impress the visitor. A study of ancient cities yields the conviction that the Greeks and Romans in their time set their temples and other public buildings amid stately environs, and, moreover, took care that there was still sufficient space to show up these buildings to the best advantage. A study of the closely-built cities of the Middle Ages shows what laborious care even at that time was expended to gain a distant view of cathedral or town hall from all sides, with the result that we can still admire that idea. The Renaissance, and particularly the eighteenth century, afford the best examples of this, and even our land, that is certainly not overloaded in the matter of monumental architecture, has abundance of examples from this period, especially among its large country seats.

But one might even go further. Many buildings of Eastern architecture might be approached only with the greatest reverence, and so they were shut off from the profane world by a large court in front, or were enclosed in a sacred wood, within which no other building of any kind whatever might be erected. To-day, in these days of more material emotions, there is probably no room for such considerations, and one runs great risk, in even alluding to them, of being answered with a pitying shrug; nevertheless, one might ask if a little more insight might not have been applied in choosing the site for the Palace of Peace. It is for this reason that we wish to point out once more, as has already been done by the publications of our profession, the many disadvantages connected with the site fixed upon.

The building site takes in only a small corner of the park of Zorgvliet, and that the least suitable part, which meets not one of the above-mentioned requirements. The ground is in itself already much too small to allow of the laying out of a park of any size, while the situation makes it, moreover, impossible to get sufficient distance for the so highly desirable perspective view. It has defective approaches, there being no avenue to lead up to it, and it lies, moreover, to the north, so that a shadow effect on the building, which in every period has been an object of care, is precluded. The most serious of all, however, is its immediate environment, the proximity of station and steam-tramway and the extreme probability that in a few years the whole park will fall a victim to building speculators, which, as everyone knows, means the ruin of the entire vicinity. Why had it not been possible to devote the whole park, or at least the greater part of it, to the Palace of Peace, with the building lying at the end of the present avenue? We are therefore of opinion that now Holland has the opportunity of seeing rise within her bounds an institution like that of the Palace of Peace, an institution which the whole world will envy us, every effort should be expended to produce that monument in the grandest manner and worthy of its lofty ideal.

Concerning the conditions it is remarked:—

The first article of the programme, as it was finally published, reads harmlessly enough:—"The competition is open to architects of all lands. The committee of the Carnegie Foundation will, nevertheless, specially invite several to take part in the competition," thus a compromise between a public and a restricted prize competition. The fact that invitations were sent to certain architects, to which invitations a large fee was attached, was the source of profound discontent and great difference of opinion. The payment of a number of chosen architects made the competition unequal. The means were put within reach of those competitors to devote themselves wholly to the work at the cost of the committee, and besides to employ all available mechanical, intellectual and artistic help. An argument based on the inequality of means, which, as everyone knows, already exists, can never, in our opinion, be attended with success. It can never be justifiable to increase, artificially and perceptibly, the inequality occasioned by circumstance. On the contrary, a spirit of justice would rather have diminished, as much as possible, the existing disparity in this prize competition. This might have been

accomplished by the purchase, at a reasonable price, of a certain number of deserving plans which obtained no awards.

It will probably be observed that a competition with such heavy calls on time and money is practically open only to architects of means, and not to those who have only their leisure hours to expend on it. In connection herewith another and important grievance is touched, namely, that it is not quite fair to require such an exceedingly and unnecessarily great amount of work from competitors who, with the exception of a very small number, cannot expect any remuneration whatever. This leads to the waste of a considerable amount of labour and money that might have been more profitably expended. The far too comprehensive requirements added to the limited number of prizes must have deterred many from competing, thereby lowering the standard of the competition. How easily might this waste have been avoided by first inviting plans for a sketch prize competition, an "Ideen-Wettbewerf," before the final match to be held between the winners of the preliminary competition.

At the head of the programme the building sum was clearly stated, viz. 1,600,000 florins (135,000*l.*). It is quite clear that competitors and jury should have reckoned with this sum, in spite of the fact that not one estimate, not even in the rough, had to be sent in, nor were the local prices of materials and wages mentioned in the programme.

The programme had, moreover, more radical faults. The hope that the choice of a site would ultimately be satisfactorily settled was not fulfilled. Not until after everyone was tired of the endless quarrelling, and, cost what it might, an end had to come to the chopping and changing that evoked the mirth and vexation of the whole world, was the piece of Zorgvliet finally bought for 700,000 guilders (60,000*l.*)—a site that is but poorly suited to an evolution in architecture answering to the conception of a Palace of Peace.

But one might have tried to make the best of the rest of the programme. In our opinion, then, a perceptible want in the programme is felt by the absence of any information, indispensable to the foreign competitor, about the environs of the Zorgvliet site. A programme on slightly broader lines would have enabled the designers to plan and to place the building to the best advantage as regards the present streets, &c., and to make it as far as possible a part of the general plan of the town. Whereas only a purely abstract and theoretical solution has been the result.

A no less serious grievance is the way in which the answering of questions and the giving of information took place quite in private. This ought to have been public, in a publication appointed for the purpose, so that all the competitors could have benefited equally from the information which should have served to supplement the programme or to explain its meaning. Moreover, it was not stated in how far the jury were to consider themselves bound by the information tendered by an adviser of the Carnegie Foundation. Finally, we would point out how unfair it was, especially towards the foreign competitors, that the programme was published only in The Hague. For competitors in other countries the time limit was thus shortened by the time required for sending for a programme. Equally unfair was the stipulation that the plans had to be sent to The Hague on a certain date; justice to the competitors had required the plans merely to have been posted, as the postmark would have shown, in the place from which they were sent in before the closing of the time limit.

Without further enlarging on points of lesser importance, it will be clear from the above that the programme showed several distinct shortcomings, which, in the case of a prize competition of such importance, might have been avoided by consideration and forethought. We therefore testify that on several points the programme sets at defiance all existing prize-competition regulations in England, France, Germany and Austria.

With respect to the results of the prize competition the following facts may be called to mind. In the competition 216 entries were received and were judged in a few days by an international committee, the issue of which is now known. If in architectural circles the opinion was almost unanimous that the competition had been a failure, the manner in which the jury acquitted themselves of their task has very rightly aroused a widespread indignation at home and abroad, which has found universal expression, not only in architectural publications, but in the Press in general.

In more or less plain speaking, the work of the jury is condemned for the following reasons:—1. The issuing of a



totally inadequate, self-contradictory report. 2. The disregarding of the regulations laid down as binding in the programme by awarding prizes to plans in which these regulations were not followed.

As regards point 1, in the report issued by the jury and adopted by the Carnegie committee, a serious criticism of the plans sent in is wanting. Had it not been possible to remark on all the plans, the jury should have discussed at least the leet of sixteen from which the final choice was made, in order to make clear on what grounds the choice of the jury was finally based.

In the report issued by them are merely some generalities without any significant bearing on the question, and reasons which clearly show that the awarding of the prizes took place contrary to the regulations of the programme, and in defiance of the fundamental rules of beauty in architectural conceptions.

Limiting one's self now to the two plans awarded respectively the first and second prizes, the jury's report speaks thus of Cordonnier's plan:—"This plan displays a fine general ordonnance. The designer wishes to give expression to the idea that, as The Hague was chosen as the seat of the Court of Arbitration, the architecture of the Palace of Peace should be inspired by the Dutch style of the sixteenth century. This it was which finally procured a majority for this plan. The ground-plans met the requirements of the programme and separate, as was required, the library from the palace, though by so separating them the architect has failed to preserve the so desirable character of a whole architectural harmony."

And apart from the striking circumstance that in reality Cordonnier's plan is very unlike the Dutch architecture of the sixteenth century, the standpoint adopted by the jury by which the awarding of the first prize was decided in favour of a particular style is contrary to the programme which left complete freedom in this matter.

Still, the mere fact that the jury themselves had to confess in connection with this plan that it lacked "the so desirable character of a whole architectural harmony," a quality indispensable to raise a work to a work of art, renders the awarding of the first prize to this plan incomprehensible.

In respect to the plan which gained the second prize the jury declared themselves as follows:—"Only the general arrangement attracted the attention of the jury. The grouping is very good. This is clearly the plan of a palace lying in a park; the large halls get a side-light, and the arrangement of the rear building (containing the rooms for the library) round an enclosed court, in the style of a convent garden, is excellent. It is a matter for regret that the too pompous style, as much in the ground plan as in the drawing of the gables, is not in keeping with the character of stately simplicity befitting the architectural embodiment of a Palace of Peace, without showing either any originality." And in spite of the significant censure that the plan had not the character of a Palace of Peace, and, moreover, lacked all originality, it was awarded the second prize.

That the jury had mistaken their task is also shown in the following passage borrowed from the report:—"The 216 plans sent in represent three distinct types of arrangement. On some of the plans the library and the court of arbitration are housed in two separate buildings, connected only by a corridor. On others they form one building lighted from the sides, in some cases from outer courts which are shut in on three sides only, or lighted from one or more inner courts shut in on all sides. From these plans the jury had to choose six, which, after becoming the property of the Carnegie Foundation, would serve the committee as a basis from which, in conjunction with an appointed architect, to compose one plan suitable to be put into execution. Proceeding herewith six plans were selected which, in the opinion of the jury, represented the different systems of arrangement."

In the programme of the prize competition no regulation was inserted that could justify this singular standpoint; even if it had been taken up, it would all too speedily have proved untenable, for it is impossible from six different systems of arrangement, which after all have not been formed by chance, to make one good architectural whole.

In respect to point 2, the ignoring of the programme regulations, the jury ought to have considered that no prizes might be awarded to plans where one of the most important regulations of the programme, viz. that of the building sum, was disregarded. The jury, however, have notwithstanding awarded prizes to such plans, and have thereby transgressed

article 5 of the programme, according to which article a plan which does not duly meet the regulations of the programme cannot come into consideration for any award.

The fact, moreover, that great economy, coupled with entire remodelling, would have to be applied to the original prize plan, in order to bring it ultimately within the limits of the proposed expenditure, is sufficient to prove that the author of the prize plan in designing it had not thought for a moment of reckoning with that sum. A like disregard of the proposed building sum can also with reason be asserted more or less of the other five prize plans.

In the prize plans, moreover, the jury have allowed the following deviations from the programme:—

1. A non-compliance with the prescribed measurements and situation of the rooms mentioned in art. 14 of the programme.

2. An exceeding of the limits of the ground given on the sketch-map attached to the programme, while art. 13 fixes a certain limit.

3. A different treatment from that prescribed under heading of art. 2.

Taking all this into consideration there is certainly cause to sign a protest against the decision of the jury which was accepted by the Carnegie committee, a protest condemning the way in which the jury acquitted themselves of their task, where they fell short in their obligations towards the many architects of all countries whose participation in the competition evinced a confidence in the strict justice of those who had to sit in judgment on their comprehensive and laborious work.

## CONCRETE WALLS AND FLOORS.

ARCHITECTURE is the art of building. It may be a fine art, if beauty is one of the points studied. Beauty has a natural basis in utility. Utility depends mainly on economy. Hence, if this art is in a high state of perfection the buildings will be beautiful and will be economically constructed. The economy of the builders' art is usually placed in the hands of an engineer. He should work with the architect (the artist) during the evolution of the plans, so that the final ones for the structure may combine a maximum of beauty, utility and economy.

No art is stable. Every art finds its basis in human needs. Needs increase the higher and more complex the civilisation. Arts should therefore be constantly evolving to keep up with the development in society. New materials require new methods of treatment. Strict adherence to old forms with new materials does not permit a maximum of economy, is not therefore most useful, and thereby loses in that which is the basis of real beauty.

Concrete has been used for buildingwork from ancient times. Its adaptation to modern needs, however, has been actively exploited only very recently. The development so far made is enormous, but there is every evidence that the growth is still very young. The wide adaptability of concrete is proved by its varied use at the hands of its enthusiastic exploiters. The perfection in the art of its use must depend on an intimate knowledge of its characteristics so that the utmost advantage may be taken of its good points and that its poor qualities can be hidden or overcome. These qualities may be summarised as follows, say Mr. E. P. Goodrich in the *American Architect*.

**Good Qualities.**—Concrete consists of materials of comparative cheapness and almost universally obtainable. It hardens quickly in the shape imposed by surrounding conditions. Its plasticity when very fresh allows the introduction of steel rods to distribute the setting shrinkage. It has practically the same coefficient of temperature change as steel, so that there is little danger of separation of concrete and embedded steel from such cause. It is high in compressive strength, especially per unit of cost. Its plasticity when fresh and its shrinkage during hardening give it a firm grip on embedded steel, so that the latter may be profitably introduced to increase the low tensile strength. It is monolithic and adamant when it reaches the age of only a few weeks, if properly made. Is highly fire, water and acid resistant.

**Poor Qualities.**—The whole value of work erected in concrete depends upon untiring supervision, the most careful workmanship in mixing, placing and compacting the concrete and installing the reinforcement. Shrinks slightly during the hardening process; is low in tensile strength; its plasticity when fresh makes its exterior appearance almost entirely dependent upon the nature of the material confining it during the process of hardening. The nece



sarily universal distribution of the cement through the whole mass gives the exterior natural surface a dull grey colour. Variations in mixture, impurities in the water, variation in the colours of the aggregates, produce gradations in the dull grey colour, irregular in amount and in superficial extent.

Except those having to do with its external appearance, the poor qualities of concrete can be almost entirely counter-balanced by its good points, provided the latter are properly handled by one thoroughly familiar with both the poor and the good qualities. To obviate the objections to the natural superficial appearance of mass concretework, some artificial surface-treatment or the introduction of coloured ingredients is necessary. The monolithic and fire-resistant qualities make concrete especially valuable for residence work, since such buildings will be exceptionally long lived, free from vermin, sanitary and fireproof.

Certain types of construction, devices of erection and methods of design are peculiar to each kind of building material, and to make the best use of any special kind the several peculiarities must be known and advantage taken of them while designing work. Very often details of arrangement and of decorative effect can be so modified as to take advantage of such peculiarities and give most satisfactory results. There follow some of the characteristics of concrete and reinforced concrete and the possible means necessary to take advantage of the good ones and obviate the poor ones—especially with reference to residence construction.

#### *As to Walls.*

Under certain circumstances concrete, like brick, will absorb a considerable amount of water, which will be given off again under natural conditions. This necessitates resorting to various devices in connection with concrete outside walls of dwelling-houses to make them less absorbent and more impervious to water. The thicker the wall the less pervious it is, but heavy walls have obvious disadvantages. The more cement employed the more impervious the wall, but cement is costly. The larger the size of the aggregate used the more impervious, to some extent,  $2\frac{1}{2}$ -inch stone giving one-third better results than  $\frac{1}{2}$ -inch. Large gravel is many times better than large stone. Various foreign substances may be introduced into the concrete to assist in this point. Alum, lime-paste, soft soap, lye, &c., are variously advocated, but their addition is usually detrimental and their action not well known. Several patent compounds are also on the market. Superficial treatment can also be employed. Either the outside or the inside can be plastered with special cement preparations. Several are advertised as almost perfect in quality. Careful troweling, like cement side-walk finishing, is very effective, as it produces a dense layer on the surface. Asphaltic and other so-called waterproofing paints have been devised, and when amply applied to absolutely uncracked surfaces are moderately effective. The construction of walls with an air-space is probably the best device, as the dead air also serves as an insulator against loss and entrance of heat in winter and summer respectively. The usual furring applied to brick walls is an effective method, but somewhat more costly than some others. Hollow concrete, terracotta or composition blocks are also useful for certain walls where plaster is to be applied to both sides. There are also several systems which produce hollow monolithic concrete walls at reasonable cost. With these, burlap, paint or other varieties of interior decoration can be applied directly to the inner face of the walls without the expense of plastering. At the same time, the outer face can be finished in any desired manner.

Concrete shrinks while setting. Also, of course, with fall of temperature. This shrinkage cannot be obviated; it can only be distributed or concentrated at special points where unobjectionable. Work constructed in warm weather is almost certain to show temperature-shrinkage cracks in the winter. Work done in cold weather is much less likely to develop cracks, but there are obvious difficulties attendant upon doing winter work satisfactorily and economically. The less cement used the less the shrinkage. The larger the aggregate the less the shrinkage. A small percentage of steel, properly located, will distribute the cracking so that it is practically invisible. The use of blocks of concrete or other material locates the cracks in the joints unless exceptionally rich mortar is used. This usually effectively conceals the cracks, which really exist, however. Where use is made of curtain-walls between main structural members, the walls can be joined to main members by

slots in the latter, the full width of walls. Expansion and contraction will then produce movements only within these slots and cracking will be effectively concealed. Cornices, belt-courses, &c., by the use of reinforcement can be prevented from showing anything except minute cracks, but it is much better to design such members with breaks, like pilasters, &c., at frequent intervals. The cornices, mouldings, &c., can be carried around these projections, and cracks can be concentrated at the angles where they are not so objectionable. Smooth surfaces are apt to show minute checks or cracks when examined closely, and when they become cracked to any extent from shrinkage or contraction from change of temperature they are very unsightly. Pebble-dash, stucco, or other method of rough decorative treatment, is really the best method of concealing cracking. Close examination will almost invariably show its existence, however. Smooth-plastered mouldings with rough stucco panels have been worked out most satisfactorily in some instances, and show few blemishes even on close examination.

Where walls are to be plastered or stuccoed they should be left as rough as possible. Dry concrete mixtures, the use of very coarse sand, a slight dearth of mortar (not of cement), employment of rough lumber for forms, &c., tend to give such a surface. Surface coatings, like plaster and stucco, should be as thin as possible, where continuous good bond is assured. If bond can be secured only at comparatively rare intervals, a thickness of coating must be applied sufficient to have enough body to be self-supporting between bonding points. Conversely, where it becomes necessary to apply materials more than half an inch in thickness, some special means of securing a good bond should be provided. In every case it is wise to clean thoroughly the old surface by washing and scrubbing, and to roughen it by picking or hammering. Acid treatment is also effective, and there are in existence several secret and patented bonding preparations, consisting of tar and cement products. Even an application of pure cement grout is often not effective unless the surface is first cleaned and thoroughly saturated with water. If greater thicknesses of stucco are required, resort should be made to mechanical bonds. Wire-lath, even when galvanised or painted, is not always of long life, and small-sized wire is of little value in view of the perviousness to air and moisture of the usual plaster and stucco. Quarter-inch should be the smallest size of iron wire ever employed. Use fewer bonds, spaced further apart, if economy in first cost must be rigidly practised. Copper wire is effective but expensive, while vertical, dovetailed bonding grooves or slots can be cast in the mass concrete at small expense. Overhanging cornices, &c., should be most carefully reinforced, because the difference in shrinkage between masses of different thicknesses is likely to crack off the overhanging portion. Although heavy shadows are probably among the best means of securing relief in concretework, still the use of heavy projections and overhanging masses should be avoided as much as possible, unless they take the form of balconies, &c., amply supported on effective brackets or columns, in which proper reinforcement can be provided.

In stucco, of course, mouldings can be run of almost any degree of intricacy and possessing almost any variety of angles and curves. However, if the work is to be cast in mass concrete, great care must be exercised to secure only such shapes of mouldings as will allow ready removal of forms without breaking the edges of the mouldings. Furthermore, even when quite fluid, concrete cannot be worked into such mouldings with any degree of certainty as to result, unless the edges are rounded, bevelled or chamfered, and all surfaces given proper slopes to allow of natural removal of pocketed air and water. Aside from the liability of cracking, there exists another drawback to undertaking long lines or large surfaces in mass concrete, in the extreme difficulty and larger cost involved in maintaining the forms in perfect alignment. Such extended lines and surfaces should be broken occasionally by slight projections, to hide the wavy appearance almost certain to be found. Projections of an inch or two in thickness by two or three times as much in height, in Greek fret or similar simple design, can be constructed without much expense and may be exceedingly effective as decorative features, as well as aid in hiding blemishes of alignment. Such work in intaglio is even less expensive than when in relief, but fails in possessing any curative property.

Simple ornamental work, like the Greek-fret intaglio spoken of above, simple flutings, &c., can be executed in mass concrete with wooden moulds, but their cost soon reaches



undue proportions when more intricate detail is attempted and other methods must be followed. By the use of pressed-metal moulds very complicated work can be accomplished in mass work, but such work is better cast in a shop and set in the work at the proper point, or after the mass work is complete and the forms removed, if proper recesses have been left for its reception. When it is intended that the moulded work shall be set as the work progresses, so that the plastic concrete is poured around the moulded blocks, the latter should be of as large size as possible, especially with regard to the bed. When they are to be set in slots left in the work, manifestly the moulded pieces should be as thin as possible. In either case some reinforcement is necessary—considerably more in the latter case than in the former. Depressions or continuous holes should be moulded into the large blocks so that good bond can be secured to the mass work, and metal bonding-clips must be used in the second case, with proper arrangements provided for their permanent hold in the wall and for their proper attachment to the moulded blocks. As mentioned above, these blocks should be of ample dimensions so that the corrosion which is likely to occur will not soon eat them completely through. In the same manner in which moulded concrete is set in or attached to mass concretework, terra-cotta or moulded brick may be employed. With these materials a form may or may not be adopted. If the design contemplates a continuous brick veneer, the brickwork can be placed first and so constructed and tied together as itself to take the place of wooden forms for wall columns and beams. If the veneer is not continuous a form must be employed. Even then the brickwork may be erected in sections, scaffold-high, before concrete is placed; but care must then be exercised in pouring the concrete not to disturb the brick. By the use of small wedges to maintain proper thickness of joints, an excellent bond can be secured between brick and concrete, but the joints must almost always be pointed and the brickwork carefully cleaned. Tilework of almost any degree of decorative effect can be employed in a similar way. The pieces can be tacked to the forms with copper nails, or a patented process may be employed in which perforated forms are used and the tile glued directly to them with common bill-poster's paste. When it becomes time to remove the forms, the work needs only to be thoroughly saturated with water so to soften the paste that the forms can be removed with ease. Tile will give any colour effects desired. Copper, bronze, painted cast-iron, &c., can be employed for panels where applicable. Massive colour effects can be secured, if care is exercised, by introducing colouring matter among the mass concrete ingredients. Such work, however, is subject to the same variations in uniformity of appearance as is uncoloured concrete. Probably the best method of securing uniformity and extent of colour is the use of coloured stucco, or, perhaps, the application of water-colours directly to the finished surface might serve. In these matters Europeans have had much more experience than we have.

Tooling, etching with acid and washing the surface with water while the concrete is still fresh are three other methods resorted to when it is desired that the mass concrete itself shall be left without superficial applications which may possibly crack off. These three methods are superior to all others, except possibly the use of tile or brick, or of rough stucco, in concealing the small cracking which is so likely to occur. When surfaces are to be tooled, it is necessary that broken stone be used in the aggregate, as gravel does not take the action of a tool with good results. By employing broken stone of various kinds and colours, together with different colours of sand and a white or grey cement, wide variations in surface effects can be secured. The usual reason for tooling is an endeavour to imitate stonework. The results obtained are apt to be poor imitations, except under conditions which make real cut stone little more costly. When the surface is to be etched uniformity of mixture is important, and gravel gives excellent results as well as almost all of the different combinations of aggregate suggested above. The etching process can be carried to any desired depth, but the best results appear when the action removes only the skin-like layer of cement mortar next the forms. Almost identical results can be attained with a scrubbing-brush and plenty of water, if the forms can be removed at an early enough date. With this end in view special designs have been worked out for the forms. When small dimension, uniform gravel is used effects almost identical with pebble-dash stucco can be secured. Obviously such treatment obliterates sharp edges and is inapplicable to cornices,

corners, mouldings, &c., where sharp lines are desired. If such details receive treatment the result is somewhat like an old, weathered, time-worn structure. While the last-mentioned methods of treatment are usually less costly per square foot of finished surface than stucco, still the results are not usually as satisfactory, and in the eyes of many people the extra cost for that class of work is almost always well repaid in added beauty.

There are certain details of design which can be omitted in concrete, which are imperative with other materials. A window or door opening needs a timber lintel or a brick or stone arch to span it. In concrete neither device is necessary, as the wall is a monolith with steel embedded to prevent shrinkage cracks at the corners of the opening. In this particular instance, besides serving no practical purpose, the cost of moulding lintels or arches is really a considerable item of expense in the construction of a building with many openings. Imitation quoin-stones are also costly details, and there is small excuse for imitation stone joints, except to hide variations of workmanship between different days' work. These are obvious examples, but many other smaller ones exist which can be eliminated with good æsthetic and economic effect.

#### *As to Floors.*

In general, almost any arrangement of columns, beams, girders and floors can be constructed in concrete. Intricate, irregular arrangements are, however, considerably more expensive in concrete than in almost any other material.

Three types of floor construction have been evolved thus far. They may be described as (a) long-span slabs between girders, (b) short-span slabs between beams which, in turn, are carried by the same girders, (c) large, approximately square panels supported on all four sides by beams, and having the slab reinforcement running in two directions at right angles to each other, while in the first two types the slabs have their principal reinforcement run in but one direction. The second type merges into the first in some systems in which the beams are placed so close together that the space between can profitably be filled, flush with the beam bottom, with hollow terra-cotta or concrete blocks. The third type is usually less expensive than either of the other two, except with short spans or light loads. Under such circumstances, even the beams may be omitted, and the construction consist of nothing but columns and a continuous slab. The third type gives most stiffness in all directions against wind and other lateral forces, while the last-mentioned variety, as also type (a), are lacking in stiffness in at least one direction. This very lack may have been the cause of several concrete-building failures. It would seem, therefore, that where an ideal arrangement can be made, the most economical and most stable structure would result from placing columns at the corners of squares, connecting them by beams forming the sides of the squares and spanning the whole with slabs reinforced in two directions. Almost any house plan can be so altered as to allow of such a structural design, and partitions can be adjusted to fall under beams and intersect at columns. Both beams and columns can then be entirely hidden in the partitions, while considerable total building height can be saved when compared with other materials, because of the thin floor-slabs employed without false ceilings and the attendant loss in air-spaces. Of course, it is not necessary to maintain exactly identical dimensions in all panels of a row, or between the widths of different rows; but as little variation as possible should be allowed from the square shape, since the economy inherent in that shape is soon lost when differences of span are introduced. On the other hand, combinations can be made, such as of two rows of square panels with a short-span single slab over a hall between the rows, &c. One panel at almost any point can be devoted to a stair-well, or the stairs may be placed in a special panel of different dimensions outside the regular series. When floor plans are laid out with these points in mind, much money can be saved.

Obviously, the same points that were noted regarding the finish of concrete walls are pertinent with regard to the finish of concrete ceilings. The ideal of decoration would seem to be to give a pleasing appearance to each member or portion of a structure, and in such a way as, at the same time, to disclose its real use and composition. If this ideal is sound, the employment of such details as imitation beams formed in plaster under large span concrete slabs is not good architecture. Such designs are reversions to the old wooden period. Similarly, the usual roof projections can best be made in concrete as simple



cantilever slabs, while almost invariably false roof beams are applied for so-called æsthetic reasons.

Concrete floors finished with a cement wearing surface are so much less resilient than wooden floors that many people demand wooden top floors even with concrete slabs. If a floor is to be finished with a cement dressing, many of the same points apply to the securing of a good bond between the main floor and the top finish as have been noted with regard to the stuccoing of walls. Unless the finish coat is installed at practically the same time as the under floor, a thickness of nothing less than  $1\frac{1}{2}$  inches should be allowed. Many advocate  $2\frac{1}{2}$  inches. In every instance great care should be exercised in cleaning and saturating the surface of the old work before the new is applied. One of the good points about a cement top on any floor is that the cement finish can be carried continuously from the floor up the sides of walls and partitions to form a base which is almost perfect in its sanitary properties. Several patent floor coverings are on the market, which take the place of the hard, heat-absorbent cement dressing above described. They are usually much more costly, however, but are often an improvement in some point or another.

These are but a few of the many points involved in the use of reinforced concrete, and others will occur almost daily to anyone who is studying the evolution of this old-new building material.

### ELEMENTARY SCHOOLS.

THE Board of Education have issued a new series of regulations for the planning and fitting up of public elementary schools. For large departments containing from 350 to 600 places, it is said the most suitable plan is that of a central hall with the classrooms grouped round it. As a rule such a department would require from seven to ten classrooms. Smaller departments may be planned conveniently with the classrooms opening from a corridor, and a similar plan may be adopted even for larger departments. For small schools a schoolroom with one or more classrooms will be sufficient. There should always be at least one classroom, except in special cases.

Where the site is sufficiently large, open and fairly level, the most economical plan is that in which all the rooms are on the ground floor, and this arrangement is preferable on educational grounds. It is desirable that a building for use as a public elementary school should be on not more than two floors. A building on three floors is open to many objections, though it may be necessary in special circumstances, as, for example, on a site where land is very costly, or where it is otherwise impossible to get adequate area for playgrounds.

When there is a central hall it should have a floor-space of not more than 4 square feet for each scholar for whom the school is recognised; about  $3\frac{1}{2}$  square feet for each scholar will be sufficient. The hall must be fully lighted, warmed and ventilated. (a) A single central hall may be provided for the joint use at separate times of two departments, provided that it is so placed as to be readily accessible from the classrooms of each department. (b) Where outdoor space is not available, physical training should be given in the central hall (or corridor). This purpose should be taken into consideration at the time when the building is planned. Since fixed gymnastic apparatus is unsuitable for children under fourteen years of age, a separate gymnasium is not required and cannot be approved.

Large schools not built with a central hall must be provided with a wide corridor giving access to the rooms; and two or three of the rooms ought to be divided from one another by movable partitions only, so that on occasions one large room may be available. A corridor should be fully and directly lighted and ventilated, and from 8 to 12 feet wide, according to the size of the school.

Where a schoolroom is the principal room in a school which has neither central hall nor corridor it should never be designed for more than 100 children, and a room of even smaller size is desirable. The width should vary according to the kind and arrangement of the desks. No schoolroom lighted from one side only can be approved. The gable ends should be fully utilised for windows, and there should be no superfluous windows opposite the teacher. When a school consists of a single room, that room should not contain more than 600 square feet of floor-space.

The number of classrooms should be sufficient for the size and circumstances of the school. (a) The class-

rooms should not be passage-rooms from one part of the building to another, nor from the schoolrooms to the playground or yard. Both schoolrooms and classrooms must have independent entrances. The rooms should be arranged so that each can be easily cleared without disturbing the work proceeding in any other room. (b) A classroom should not be planned to accommodate more than from fifty to sixty children, but in special cases somewhat larger rooms may be approved. In the absence of supplementary light the measurement from the window-wall in a room 14 feet high should not exceed 24 feet 8 inches. Except in very small schools, classrooms should not be planned for less than twenty-four scholars. (c) The proportions of classrooms should vary with the kind and arrangement of the desks; but a long and narrow room should always be avoided, and a room approximating to a square is most satisfactory.

Seats and desks should be provided for all the children, graduated according to their ages, and placed at right angles to the window-wall. The seats should be fitted with backs. An allowance of 18 inches per scholar at each desk and seat will suffice (except in the case of the dual desk), and the length of each group should therefore be some multiple of 18 inches, with gangways of 18 inches between the groups and at the walls. In the case of the dual desk the usual length is 3 feet 4 inches and the gangways 1 foot 4 inches. (a) In an ordinary classroom five rows of long desks or six rows of dual desks are best; but in a schoolroom or room providing for more than sixty children, there should not be more than four rows of long desks or five rows of dual desks. If a schoolroom is 18 feet wide, three rows of long desks or four of dual desks may be used; if the width is 22 feet the rows may be four and five respectively. Long desks should be so arranged that the teacher can pass between the rows. Where dual desks are used this is not necessary, as the gangways give sufficient access, but the teacher should be able to pass behind the back row. (b) The desks should be very slightly inclined. An angle of 15 degs. is sufficient. The objection to the flat desk is that it has a tendency to make the children stoop. A raised ledge in front of a desk interferes with the arm in writing. The edge of the desk when used for writing should be vertically over the edge of the seat. (c) Single desks are not necessary in an ordinary public elementary school.

The accommodation of the school, *i.e.* the number of places for which the school is finally recognised, will depend in part on the arrangement of the desks, which must be approved by the Board. No central hall or corridor, and no classroom for cookery, laundrywork, handicraft, drawing or science, will be counted towards the accommodation. When the building to be erected is for the use of older scholars, the plans of the schoolroom (if any) and classrooms must show an average of not less than 10 square feet of floor-space for each place proposed to be provided. There are special regulations for infants' schools.

All plans, whether for new buildings or for improvements to existing buildings, must be submitted in accordance with the requirements which follow; plans which do not fully comply with these requirements cannot be considered.

1. A block plan of the site drawn in ink to a scale of 20 feet to an inch. This plan must indicate:—(a) The position of the school buildings. (b) Outbuildings. (c) Playground. (d) Drains (collateral and main), with their fall and depth below ground. (e) Entrances. (f) Boundary walls or fences and their nature. (g) Roads. (h) The points of the compass. (i) The levels of the ground at the principal points.

N.B.—For approval of the site alone the plan should show (g), (h) and (i).

2. A plan of each floor of the schoolrooms (and teacher's or caretaker's house, if any) drawn in ink to a scale of 8 feet to an inch. The internal fittings of the rooms (fireplaces, groups of desks, &c.) must be accurately shown. The plan should also state whether the rooms are intended for boys, girls or infants.

In cases of enlargement, a plan showing the buildings as they exist is needed.

3. Sections and at least four elevations, also drawn in ink to a scale of 8 feet to an inch. The ceiling, the positions of window-heads in relation thereto and the mode of ventilation must be shown.

N.B.—(a) Pencil drawings cannot be received, but sketch plans or coloured tracings in ink on tracing cloth may be submitted while plans are in the preliminary stage of pencil, so that suggested alterations can be adopted without difficulty or expense. Such plans may be drawn



to a scale of 16 feet to 1 inch. The Board's final approval will not in any case be given to preliminary plans, and the full plans described above will always be required. (b) Diagrams are of no value and cannot be accepted. (c) In the case of enlargements or alterations the whole site and the existing building should be as accurately shown in every respect as the proposed changes, and in such a manner that any change of numbers can be ascertained. (d) All plans should be dated, the scales drawn on and dimensions figured. (e) It is preferable that all plans should be submitted on linen tracing paper or other material which can be folded.

4. A section of the desk proposed to be used drawn to a scale of  $1\frac{1}{2}$  inches to a foot.

5. A draft specification.

6. An approximate estimate of the total expenditure proposed.

#### DISTRICT SURVEYORS.

THE Building Act committee of the London County Council have prepared the following report:—

We have considered as to the arrangements that should be made for filling the vacant posts of district surveyors in the districts of (i.) St. James, Westminster; (ii.) Paddington; (iii.) Mile End and Limehouse; (iv.) Hammersmith; (v.) St. George, Hanover Square (Belgrave and Pimlico division); (vi.) Charlton, Kidbrooke and Lee; (vii.) City of London, East; (viii.) Holborn; (ix.) Strand; (x.) Lewisham, West; (xi.) Lewisham, East; and (xii.) City of London, West. The gross amounts of the fees received during the year 1906 in respect of the districts (i.) to (vi.) were 2,326*l.*, 1,794*l.*, 1,115*l.*, 1,085*l.*, 1,047*l.* and 639*l.* respectively. The estimated yearly values of the districts (vii.) to (xii.) are 850*l.*, 820*l.*, 820*l.*, 730*l.*, 600*l.* and 500*l.* respectively. In response to the advertisement issued seventy-five applications were received, but in twenty-three cases the applicants did not possess the certificate of competency required by section 140 of the London Building Act, 1894, and three, who were not already district surveyors, were disqualified by age. One of the qualified candidates withdrew his application and another was abroad. The remaining forty-seven candidates were all seen by a sub-committee and their qualifications carefully examined. Standing order No. B 86 requires us to submit the names of three candidates for each appointment, but allows us to indicate the candidate whom we recommend the Council to appoint. The names of those whom we consider suitable are set out hereunder, the first named in each case being in our opinion the most suitable for appointment to the district in question:—

(i.) St. James, Westminster—L. R. Ford, F. W. Hamilton, H. N. Kerr. (ii.) Paddington—F. W. Hamilton, H. N. Kerr, S. F. Monier-Williams. (iii.) Mile End and Limehouse—H. N. Kerr, R. E. Smith, O. C. Hills. (iv.) Hammersmith—A. H. W. Glasson, H. A. Legge, W. G. Perkins. (v.) St. George, Hanover Square (Belgrave and Pimlico division)—S. F. Monier-Williams, A. H. W. Glasson, W. G. Perkins. (vi.) Charlton, Kidbrooke and Lee—A. A. Fillary, P. J. Black, C. B. Young. (vii.) City of London, East—J. Todd, O. C. Hills, H. A. Legge. (viii.) Holborn—W. G. Perkins, A. A. Fillary, H. A. Legge. (ix.) Strand—O. C. Hills, R. E. Smith, A. A. Fillary. (x.) Lewisham, West—W. R. Davidge, A. P. Stokes, C. W. Surrey. (xi.) Lewisham, East—E. W. Lees, C. W. Surrey, W. R. Davidge. (xii.) City of London, West—C. W. Surrey, C. A. Daubney, W. H. Stevens.

Mr. F. W. Hamilton (fifty-six) and Mr. S. F. Monier-Williams (fifty-one), who are both over the age of fifty years, have been district surveyors since 1898, and we are of opinion that their work in their respective districts has been such as to justify their promotion to more remunerative districts. In these circumstances we do not think it necessary to suspend paragraph No. B 17 of our order of reference, which requires that candidates shall not be less than twenty-eight or more than fifty years of age.

The adoption by the Council of our recommendations in respect of the above-mentioned districts will render vacant the districts at present supervised by Messrs. Ford, Hamilton, Perkins, Monier-Williams, Hills and Glasson, viz.:—(xiii.) Wandsworth, West; (xiv.) Fulham, North; (xv.) Hackney, West; (xvi.) Sydenham; (xvii.) Hackney, North-East; and (xviii.) Norwood, West. The gross amounts of the fees received during the year 1906 from these districts were—(xiii.) 1,494*l.*; (xiv.) 795*l.*; (xv.) 806*l.*; (xvi.) 722*l.*; (xvii.) 502*l.*, and (xviii.) 466*l.* respectively. Having regard to the varied characters and values

of the twelve districts which were advertised, and to the fact that applications were received from almost all of those known to be qualified for the position of district surveyor, we do not think that it is necessary to advertise the vacancies caused by the promotion of existing district surveyors, and we therefore submit the following names of candidates suitable for appointment to the districts thus vacated:—

(xiii.) Wandsworth, West—R. E. Smith, A. H. W. Glasson, J. Todd. (xiv.) Hackney, West—H. A. Legge, E. W. Lees, C. A. Daubney. (xvi.) Sydenham—G. Tolley, A. P. Stokes, P. J. Black.

We do not propose at the present stage to submit recommendations for permanently filling the vacancies in (xiv.) Fulham, North; (xvii.) Hackney, North-East; or (xviii.) Norwood, West, or in Streatham, West, which is also vacant, as we have under consideration the question of the readjustment of the boundaries of some of these districts. We have, however, made temporary arrangements with Messrs. A. P. Stokes, H. A. Legge, A. G. Morrice and W. H. Stevens respectively for the supervision of these districts in the event of our recommendations being adopted by the Council.

Each of the selected candidates has signed a declaration that he will accept appointment on the terms laid down in paragraph No. B 18 of our order of reference, and Messrs. Ford, Hamilton, Perkins, Monier-Williams, Hills and Glasson have expressed their willingness to resign their present appointments in the event of the Council appointing them to the districts suggested above. Mr. R. E. Smith, however, asks that he may be allowed to retain his position of Professor of Architecture and Building Construction at King's College until 1910, in order that he may be entitled to retain after retirement from the chair the honorary rank of "Emeritus Professor." We are informed that the time taken up by this appointment is small and will not interfere with the performance of his duties as district surveyor, and we think that permission may be granted. We recommend—

(a) That Mr. Lawton Robert Ford be appointed district surveyor for the district of St. James, Westminster, as from and including September 1, 1907. (b) That Mr. Frederick William Hamilton be appointed district surveyor for the district of Paddington. (c) That Mr. Henry Nathaniel Kerr be appointed district surveyor for the district of Mile End and Limehouse. (d) That Mr. Arthur Henry Wharton Glasson be appointed district surveyor for the district of Hammersmith. (e) That Mr. Stanley Faithfull Monier-Williams be appointed district surveyor for the district of St. George, Hanover Square (Belgrave and Pimlico division). (f) That Mr. Albert Anthony Fillary be appointed district surveyor for the district of Charlton, Kidbrooke and Lee. (g) That Mr. John Todd be appointed district surveyor for the district of City of London, East. (h) That Mr. William George Perkins be appointed district surveyor for the district of Holborn. (i) That Mr. Osborn Cluse Hills be appointed district surveyor for the district of Strand. (j) That Mr. William Robert Davidge be appointed district surveyor for the district of Lewisham, West. (k) That Mr. Ernest William Lees be appointed district surveyor for the district of Lewisham, East. (l) That Mr. Christopher William Surrey be appointed district surveyor for the district of City of London, West. (m) That Mr. Herbert Alfred Legge be appointed district surveyor for the district of Hackney, West. (n) That Mr. George Tolley be appointed district surveyor for the district of Sydenham. (o) That Mr. Ravenscroft Elsey Smith be appointed district surveyor for the district of Wandsworth, West; that he be allowed to continue during the pleasure of the Council, or until March 31, 1910, whichever shall be the shorter time, to occupy the chair of Architecture and Building Construction at King's College, London.

#### THE RESTALRIG CHAPTER-HOUSE.

TRAVELLERS on the North British Railway in passing Piershill station may have noticed on the south side of the interesting old church of Restalrig—a mile or more from the Edinburgh post office—a grass-grown mound with a flattened conical roof reaching almost up to the wall-head of the edifice itself. It cannot be seen over the grimy wall which encloses the church and churchyard on the Clockmill Lane side; neither can it be observed on the north side, which is blocked by a number of mean sheds and byres, which almost touch the walls of the church itself. As the churchyard gate is kept locked, except on Sundays, the



mound in question can only be seen during the week from the railway or the footpath on the north of the railway works. This mound is the chapter-house of Restalrig Church, which it was stated at the meeting of the Edinburgh Presbytery the Earl of Moray, the superior of the village, has generously intimated his intention of restoring to its original condition. Like the greater part of the church, says the *Scotsman*, the chapter-house is said to date from about the beginning of the fifteenth or the end of the fourteenth century, though there are evidences in a doorway of an earlier church, possibly of the twelfth century. It is a six-sided building, with a diameter of about 29 feet, having in the interior a central pillar with carved capital and a beautifully groined roof, with ribbed and carved bosses at the intersections, and at the angles responds with carved capitals. The chapter-house was lighted by three windows, looking towards the south, south-east and south-west. They were each divided into three lights. One of them had been knocked out and made into a door, the others had been filled up with masonry. It will be part of the work shortly to be engaged in to restore these to their original state. The windows, perhaps, are unique in Scotland. They compose what is known as a four-centred Gothic arch, and are about 5 feet 6 inches in width and about 7 feet in height; width and height, including the three lights. No original doorway has been discovered, but as it is evident that the chapter-house would be connected with the church, the clearing-out operations will no doubt bring one to light. The chapter-house is separated from the church by a passage of about 3 feet. On the church side there is a wide space, which has evidently been built up with later masonry, and possibly there traces of the original door may be found.

The chapter-house at present, it may be said, is filled up to within 2 feet of the top of the pillar with earth, and it seems that subsequent to the Reformation period it had been used for purposes of burial. The earth will all be cleared away and the original flooring laid bare. Mr. Thomas Ross, architect, into whose skilled hands the work of restoration has been put, reports that the dainty carved top of the pillar and the elegant groined roof of the chapter-house are in an excellent state of preservation, notwithstanding the mouldy moisture to which they have been subjected for so many years, and that all that will be necessary for their restoration will be to clean them and do some pointing. The walls will also require similar treatment. The turf and earth with which the roof on the outside is covered will be removed, and possibly, after it is seen what is underneath, an appropriate high-pitched roof substituted. It is suggested that the earth had been placed on the top of the roof of the chapter-house, at some period in its history, for protective purposes. The invading armies from England, on their march against the capital, had to pass Restalrig; the village was the scene of many skirmishes between the forces of the Queen Regent and the Lords of the Congregation, and others of later date, and possibly the fine roof of the chapter-house was protected in this way to secure it against gun or cannon shot. A similar thing had been done at Craigmillar with one of its exposed towers. It had been covered to a considerable depth with earth, and something of the same kind existed also at Elphinstone Castle. It is an interesting architectural fact that St. Margaret's Well (now placed in the King's Park), which at one time stood in Restalrig village, is on a plan similar to the chapter-house, though on a somewhat smaller scale. It is singular that two such buildings with features almost unknown elsewhere in Scotland should have been erected in this outlier of the capital. St. Margaret's Well, it may be recalled, stood where the N.B.R. sheds are now erected. It ultimately came into the possession of the Board of Works, who removed it to its present site.

The ancient village of Restalrig is full of social, political and ecclesiastical traditions, as may be seen by the readers of any of the old histories of Edinburgh. There are records of it in the thirteenth century, and the estate was for long in the hands of the powerful family of the Logans of Restalrig, whose stronghold was situated on the rocks overlooking Lochend. It subsequently passed (by forfeiture) to the Elphinstones of Balmerino, and (also by forfeiture) after 1746 it was transferred to Lord Bute. It is now the property of the Earl of Moray.

Arnot, in his "History of Edinburgh," speaks of the church of Restalrig as a ruin with nothing remaining of its former glory but the east choir window, and so it remained until 1837—or some date about that time—when it was reroofed and made into a chapel of ease for the neighbouring

parish of South Leith. Regarding the building now called the "chapter-house" of the church, which is about to be restored, Arnot speaks of it as having originally been the family vault of the Logans of Restalrig, and in his day he describes some old yew trees as growing on its top. Wilson calls it an "ancient mausoleum," and says it is believed to have been erected by Sir Robert Logan of Restalrig in the earlier part of the sixteenth century, and to have "evidently been constructed on the model of St. Margaret's Well," which, at the time he wrote (1847), still stood in the neighbourhood; and both historians, as well as Grant, give a few names of titled people who were buried in it in the sixteenth century. Grant as an alternative to the mausoleum theory also calls it the chapter-house of the church. Wilson, following Arnot, speaks of the building as being "still more beautifully adorned externally" than it was internally, with fine venerable yews that have taken root in the soil accumulated on its roof. The forthcoming restoration of the building will, no doubt, throw light on some of these moot points.

#### WIGMORE ABBEY.

A PAPER was read last week before the Royal Archaeological Society of Great Britain and Ireland by Mr. W. H. St. John Hope on his excavations at Wigmore Abbey, Herefordshire. The abbey, he explained, had stood about eight miles west of Ludlow, and about a mile and a half from the famous ruins of Wigmore Castle. The castle was built for William the Conqueror between 1066 and 1072 by W. FitzOsborne, and its custodian was the first of the Mortimers, subsequently Earls of March. The first monks established near the castle belonged to the Order of St. Victor of Paris, and their church served for the parish as well as the canons. The founder, however, quitted the service of his lord, who seized his possessions, but eventually the site of the abbey was granted to the monks by Hugh Mortimer, who laid the foundation-stone of the church, other stones being laid by John Brian and his father, who both did much for the abbey. That was in 1179, and two years later the Bishop of Hereford hallowed the church, the founder of which was buried in 1185 in front of the high altar. Some years later the Welsh attacked the abbey and burned it, while the fourth Mortimer was a prisoner of the King of France. The Earl of March in 1379 rebuilt the abbey, which benefited largely under his will, and in which he was buried, as were nearly all the Mortimer family. At the time of Henry VIII. the abbey was worth 302*l.* a year, and it was surrendered to the king. Most of the buildings were pulled down, the materials being used to repair neighbouring castles. There still remained the gatehouse, the cellar and the hall above it, now used as a farmhouse. Parts of the wall of one transept and of the aisleless nave also stood, but elsewhere even the foundations had been practically removed. The excavations had enabled the plan of the buildings to be reconstituted in great part, though no trace of the chapter-house had been found. The aisleless nave was 120 feet long by 28 feet wide, and contained seven bays; there were six bays in the presbytery and at least two in the lady-chapel. The whole church was 300 feet long. Mr. Hope showed a few Mediæval tiles found in the course of the excavations, which he said were remarkably bad, and seemed to indicate that the monks were very poor when they laid them down.

#### CAERWENT EXPLORATION.

AT the annual meeting of the subscribers to the Caerwent Exploration Fund Mr. A. Trice Martin (hon. secretary and treasurer) gave particulars of last year's work, in addition to the facts contained in the following appeal:—The report of last year's work at Caerwent was presented to the Society of Antiquaries on May 30. The work, which as usual was carried out under the supervision of Mr. Ashby and Mr. Hudd, included further exploration of the mound and the excavation of a large house of the courtyard type in the orchard to the south of the amphitheatre. In this house, as usual, there were numerous indications of rebuilding, and an attempt has been made to disentangle the plans of houses of at least three different dates which have stood upon this site. There were no less than three hypocausts, one of which showed some interesting details as regards the wall flues. The finds were interesting, and included objects of greater artistic merit than usual. One large jar which had been carefully covered by a mortarium contained a series of almost perfect pots, and in one of these a



few remains were found. This house is still open and will only be covered up as the work progresses to the south and east of it. The work that we have in hand this season promises to be exceptionally interesting, and if funds will permit it is hoped that the work will be carried on for a much longer period than last year. It has indeed already begun, and has brought to light what Commendatore Boni, who has just visited the city, considers to be the massive foundations of an important public building, the first that has been discovered in Caerwent. The investigation of the remarkable drain discovered two years ago is also proceeding, and this season's work will, it is hoped, include not only the completion of these excavations, but also the exploration of the rest of the orchard in which the interesting house of last year was situated. The walls of a house to the south have already been discovered. Subscriptions are again urgently needed, and we shall be most grateful not only for your help but for the help of any others whom you may be able to interest in our important undertaking. Subscriptions may be sent as usual to the treasurer or any member of the committee.

The statement of accounts, which was passed, showed that the subscriptions amounted to close upon 300*l.*, of which no less than 125*l.* was subscribed by Viscount Tredegar. The amount expended in wages was 280*l.*

Mr. A. E. Hudd described the work which had been carried on under his supervision during the month of June, and a visit was afterwards paid to the building referred to in the appeal. The walls were found to be very massive, and one feature which was noticed was the insertion of several courses of brick or tilework above the lower courses of heavy stone. The drain had been further opened out, and it was easy to comprehend the massive size of the structure from the covering stones, which each weighed considerably over a ton.



#### Trade Catalogues for the Cape.

SIR,—Will you allow me through your columns to warn British manufacturers of building materials who are in the habit of sending their catalogues to the Cape that there is at the present time a heavy import duty in force on certain printed matter, in which trade catalogues are included, with the result that hundreds of catalogues are being refused owing to the heavy surcharge levied upon the recipient. Only last week the writer was charged 3*s.* upon a single catalogue sent from England.

My object in writing is not to question the fairness of the tax, but to warn manufacturers that whilst this regulation remains in force sending catalogues to this country may be largely a waste of time and money.

FRANCIS MASEY,  
President of the Cape Institute of Architects.

#### "The Architect's" Illustrations.

SIR,—I should like to congratulate you on last week's issue of *The Architect*. The illustrations were very fine indeed, and I would suggest that the issue is what might be termed a fine commercial number. I was with an American architect in a hotel in the North of England, and he was much impressed by the three fine examples of London, Liverpool and Manchester architecture.—Yours faithfully,

H. J. K.

#### GENERAL.

The Council of the Institution of Civil Engineers have appointed Sir William Matthews, K.C.M.G., president of that Institution, to succeed the late Sir Benjamin Baker, K.C.B., K.C.M.G., as one of their representatives on the main committee of the Engineering Standards Committee.

The Receipts of the closing day for admission to the two rival Salon exhibitions in Paris were handed over to the Society of Friends of the Louvre.

Lady Waterlow has offered to present to the London County Council some marble statuary for the park presented by her husband in 1889.

Mr. John Romilly Allen, F.S.A., editor of the "Reliquary" and of the "Archæologia Cambrensis," died on Friday at his residence in Great Ormond Street, at the age of sixty.

Mme. Garnier, the widow of the architect of the Paris Opera House, has presented to the Military Museum a landscape in water-colours by Marshal Pelissier, who was a clever artist and a friend of her husband.

M. Georges Tersling has obtained one of the gold medals in the competition of façades as architect of a mansion in the Rue de la Faisanderie, Paris.

At a Sale in London on Friday last Sir J. Reynolds's portrait of Master Bunbury, painted in 1780, was sold for 5,600 guineas, J. Hoppner's portrait of Mrs. Manning and her daughter 4,000 guineas, and the same artist's portrait of Susanna, in blue dress and large hat, a similar amount.

The Paris Municipal Council has purchased the "Birth of Venus," by M. Henri Gervex, which is to be hung in the Petit Palais. This year's purchases from the Salons has amounted to 30,600 francs.

The Playing Cardmakers' Company recently offered prizes for the best designs for playing cards, the subject being Imperial unity. The first prize has been awarded to Mr. Harold W. Hardy, Featherstone Buildings, Holborn, and the "H. D. Phillips" prize to Mr. Hector Munro, Grantham Road, Sparkbrook, Birmingham.

Mr. John Mitchell, architect of the Auckland (New Zealand) Education Board, is now visiting the United States to investigate the applicability of reinforced concrete for important public buildings.

A Stained-glass Window as a memorial of Robert Browning has been placed in the Anglican church of St. George at Venice. A committee has recently been formed to provide a similar window as a memorial of John Ruskin.

The Aston Town Council have presented Mr. G. H. Jack, borough surveyor, with an address and a cheque for over 100*l.* as a testimonial in view of his relinquishing his duties to act as Hereford county surveyor. Mrs. Jack was presented with a gold bracelet. Mr. Jack was appointed assistant borough surveyor ten years ago.

Mr. Leonard Maggs, the chief assistant in the architectural department of the Hertfordshire County Council, has been appointed architect to the Nottinghamshire education committee, on the same terms and conditions as Mr. Sander was appointed in 1905.

An Illustrated Descriptive Sketch of the church of Saint White, or Candida and Holy Cross, near Lyme Regis, has been issued by the Rev. D. Holland Stubbs, and should be of great value to visitors. The history of the church goes back to Alfred the Great's reign and its structure to 1180.

At the Last Meeting of the Selby Abbey Restoration Fund executive committee Mr. J. Oldrid Scott, architect, submitted drawings and plans of the new reredos, altar, altar rails, choir stalls, pulpit, Bishop's chair and litany desk, all of which had been presented to Sir E. J. Poynter, P.R.A., who has been consulted and has approved of them. The plans were accepted by the committee. The wood carving for the choir is to be done by Mr. Bridgman, of Lichfield, and the figures in the panels of the reredos are to be executed by Peter Rendel, of Ober-Ammergau, on the recommendation of Sir Edward Poynter, P.R.A.

At Crowland a movement has been inaugurated for placing in the historic abbey a memorial of the late rector, the Rev. T. H. Le Boeuf, to record his work, zeal and love in connection with the restoration of the abbey. A stained-glass window has been suggested as a fitting memorial.

An Exhibition of the work of the Architectural Association School will be opened at the Museum on Friday next, the 19th inst.

The General Purposes Committee of the Westminster City Council, reporting on the letter of Mr. J. Hare touching the proposal to erect a statue on a suitable site to the memory of Sir Henry Irving, states that it has come to the conclusion that the best position for the statue would be on the broad pavement in Charing Cross Road, at the rear of the National Portrait Gallery.

The Earl of Plymouth presided at a meeting on Tuesday to consider the subject of the Whistler Memorial. It is to cost 2,000*l.*, and the subscriptions amount to 1,600*l.* M. Rodin will execute a symbolical figure, which is to be placed at the end of the garden near Chelsea Church.

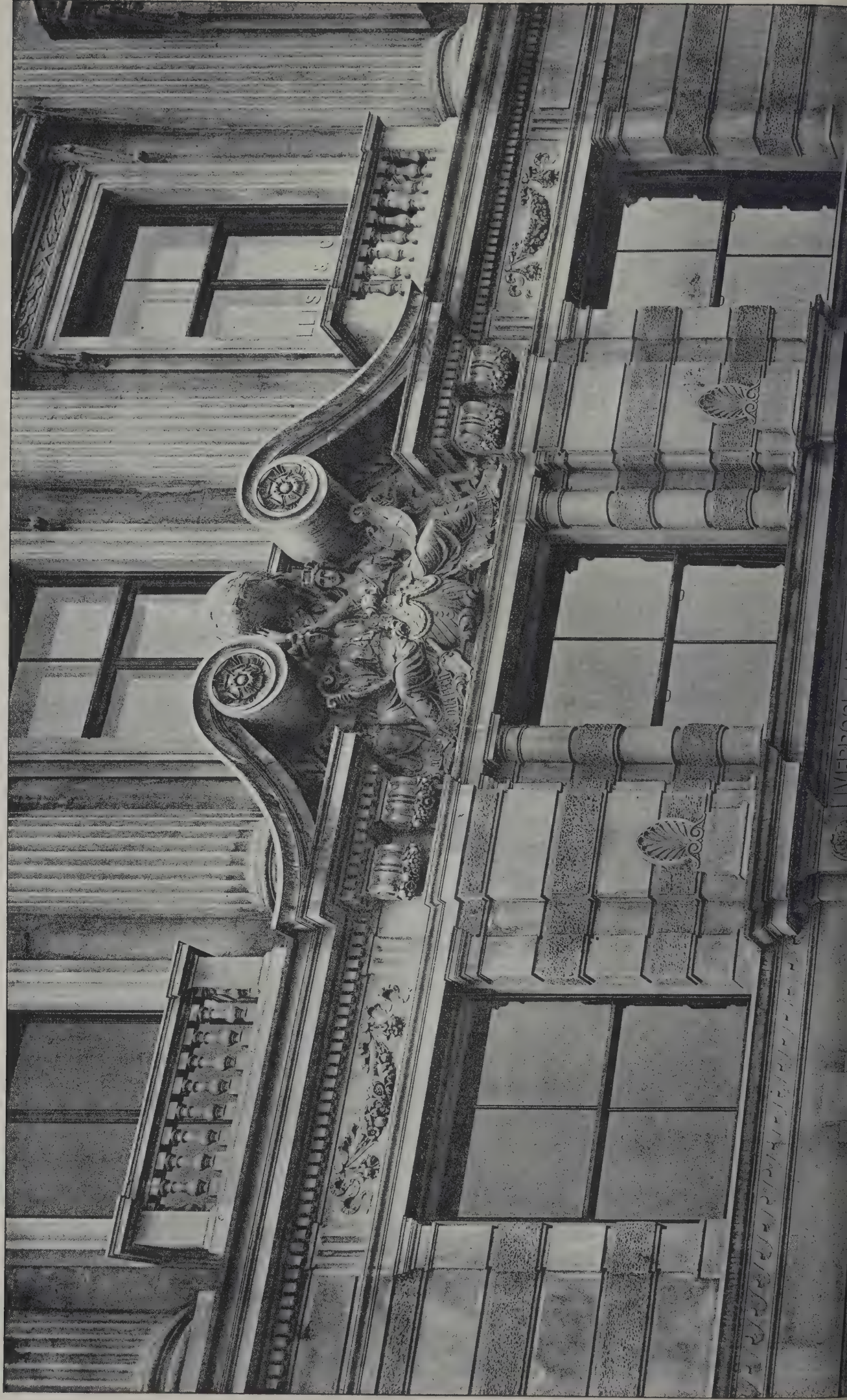
The Joint Committee of the London Corporation have reported against the endeavour to preserve Crosby Hall on account of the large outlay which would be required.



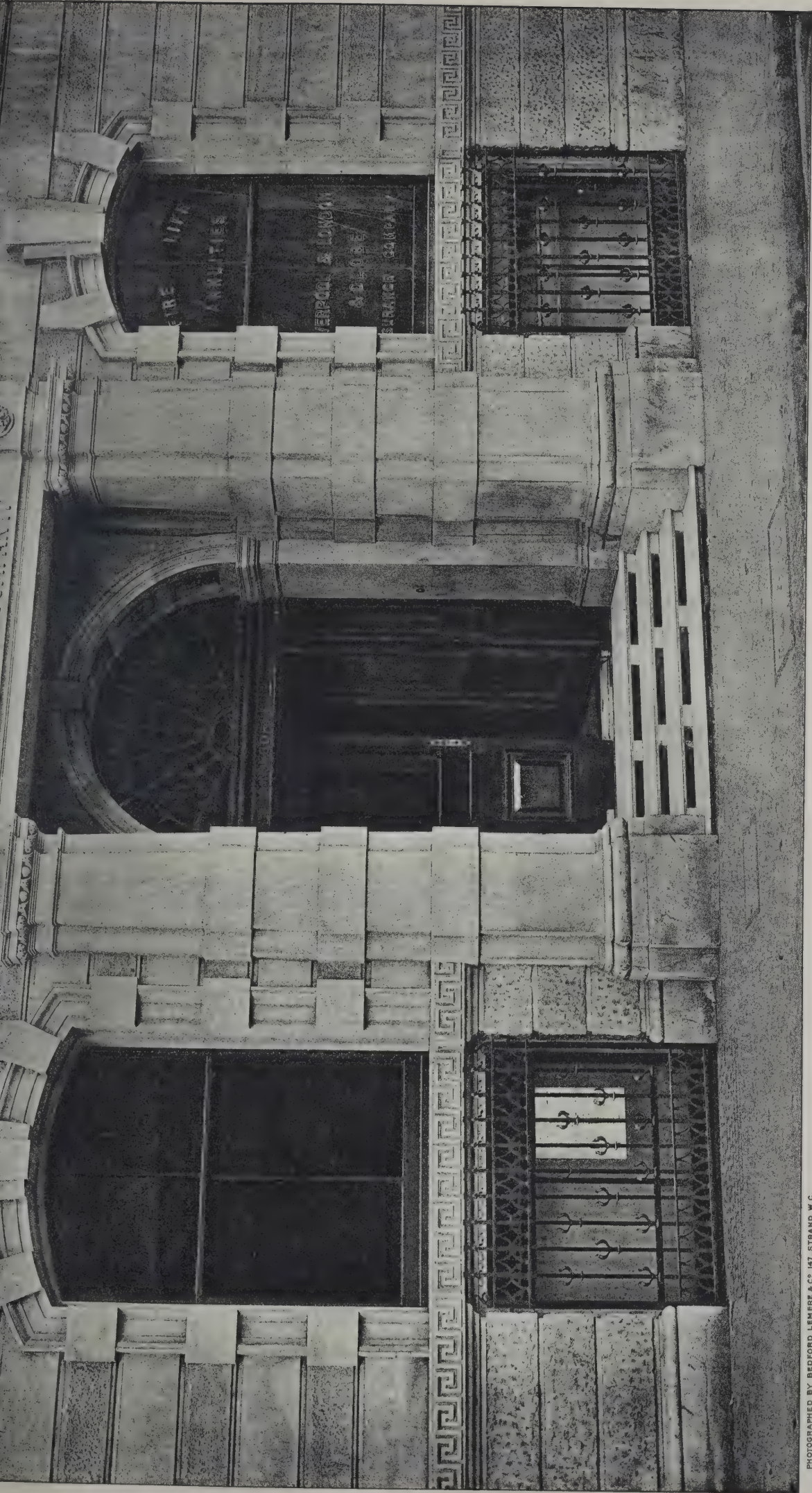
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The Architect, July 12th 1907.







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MONTAGUE ST.

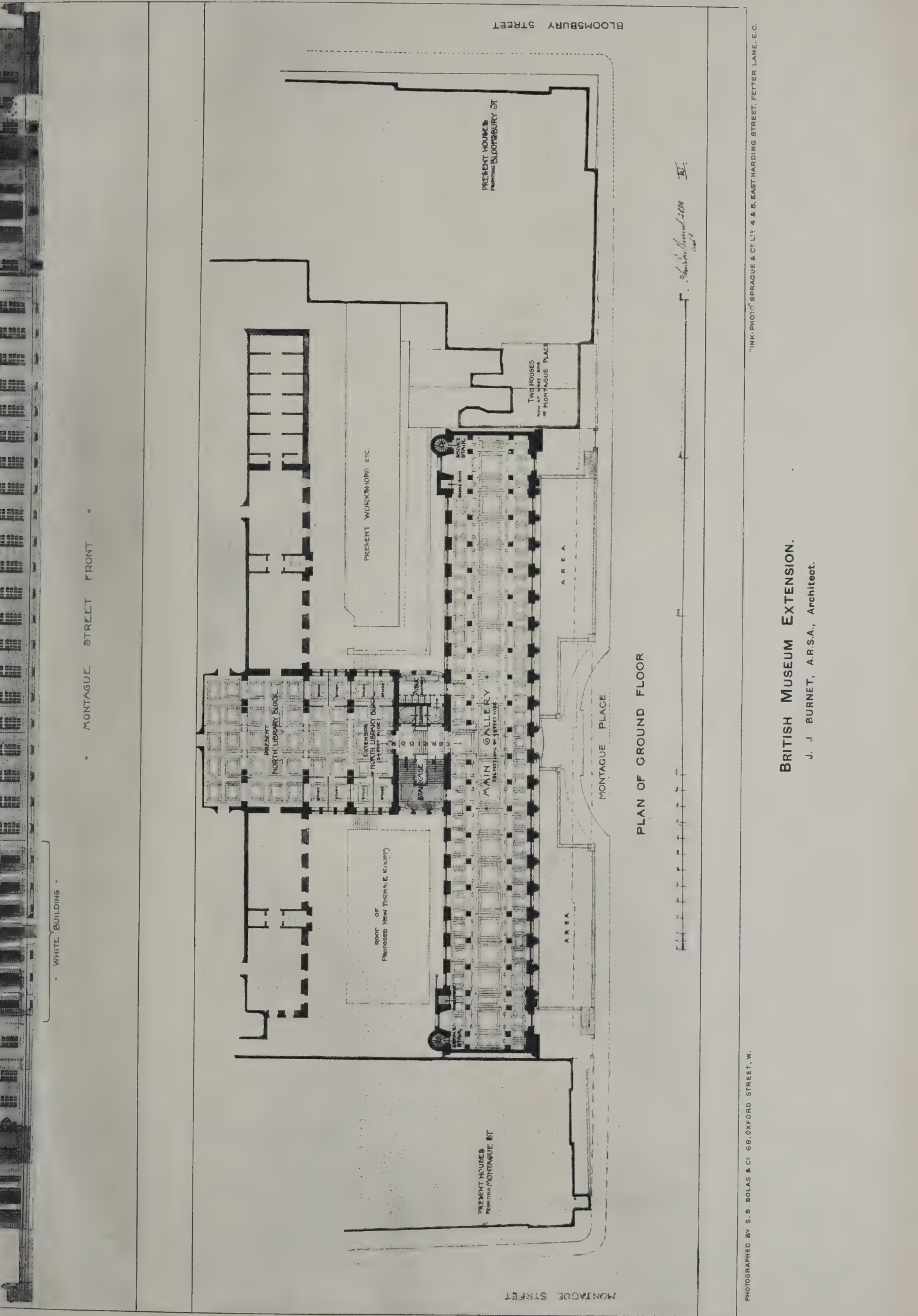
PORTION NOW PROPOSED  
TO BE BUILT

BLOOMSBURY ST.

MONTAGUE PLACE FRONT

BRITISH MUSEUM EXTENSION





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# BRITISH MUSEUM EXTENSION.

J. J. BURNET, A.R.S.A., Architect.

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THE "SPREAD"  
(FOR MESSRS.  
Messrs. HICKTON)



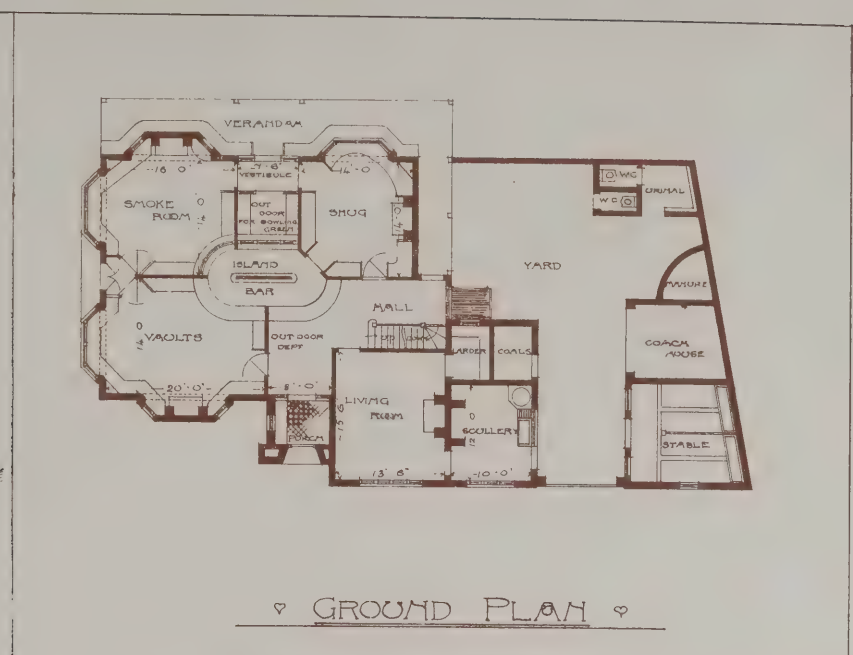


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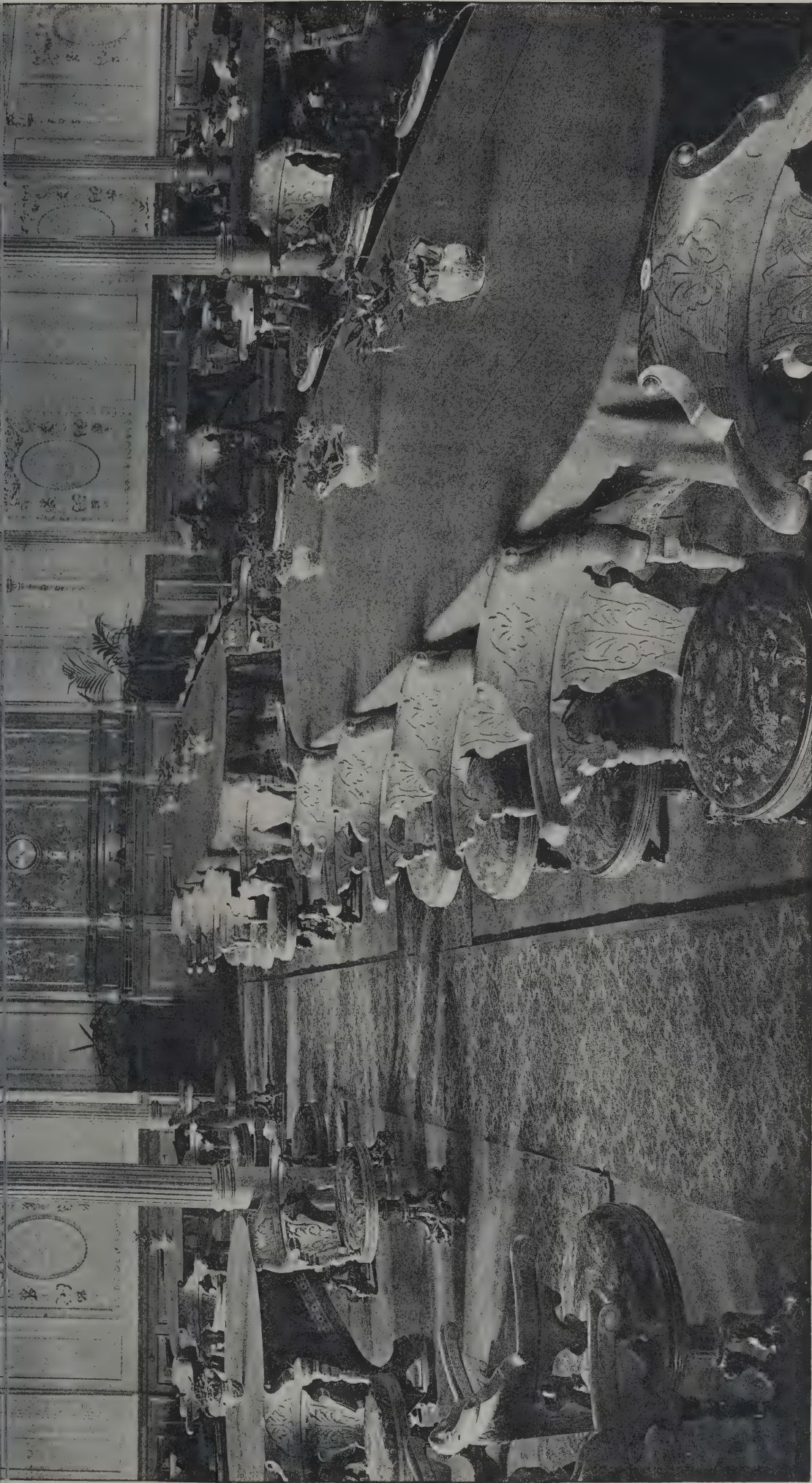
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THE SALOON OF THE R. M. S. P. "AVON."

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# The Architect.

## THE WEEK.

THE late Mr. HARRY QUILTER, who died last week, would probably have ranked much higher in the public esteem if he had only lived as an amateur. He could appreciate art, and he possessed sufficient means to enable him to purchase specimens. But he was not satisfied with the mere enjoyment of his own theories. He wished to show that he could draw and paint, and was entitled to be considered as a lawgiver on all problems of æsthetics. He was in consequence judged by a severe standard, and as neither his drawings nor his pictures were remarkable efforts for a man who had studied painting in the Slade School and in Belgium, his practice did not confirm the value of his principles. But he was outspoken, and always wished to express his own experience. In consequence his encyclopædic "What's What?" becomes pleasant reading, although the reader may not be convinced of the writer's omniscience. He claims the authorship of a third of the contents, amounting to 350,000 words. In several of his peculiarities it must be owned he was a typical Englishman, and if he had lived longer he was not unlikely to have done greater justice to himself.

THERE are so many architects available owing to the inducements which have been held out to ambitious youths, we need not be surprised that Poor Law Guardians consider they should have an architect as a permanent officer. At last week's meeting of the Kingston-on-Thames Guardians it was proposed to appoint an architect on the permanent staff of the Board at a fixed salary. It was found that during the last ten years the average amount paid in fees was 770*l.* per annum. It was therefore proposed to pay an inclusive sum of 400*l.*, which was to include the rent of an office and the salary of a draughtsman. The architect who had received the money, it was said, was also paid compensation for his loss of office as surveyor to the rural sanitary authority. In opposition it was said there was no need to pay so large a salary, for at the present time their architect acted as a quantity surveyor, receiving only 1 per cent. for the work. In the end the motion was rejected, the general opinion being that it came too late. The discussion, however, suggests the belief which is spreading among public bodies that architectural work can be obtained at almost nominal rates.

THE influence of the COLLS case was seen in the Court of Appeal when the case of STAMP & WIFE v. BYWATERS & SONS, LTD., came before their lordships. The plaintiffs are proprietors of an hotel which is on the upper floors of a house in Bond Street. The shop was let to another firm. It was necessary to make alterations. The builders' workmen commenced work at 3.30 A.M. and the noise caused inconvenience to the various occupants of the hotel. An action was taken and the plaintiffs were awarded seven guineas damages. The builders appealed. The Master of the Rolls said that in such a city as London and in such a street as Bond Street there must be the risk incurred of noise whenever building operations were carried on. In the Court below the judge considered the degree of noise as not unreasonable. But he thought that the works should have been commenced at a later hour than half-past six. As the trade unions and the master builders of London had decided on half-past six the defendants could not be considered as entirely responsible for fixing the hour. There was no evidence of actionable nuisance. The other judges concurred and the appeal was therefore allowed. It is to be hoped that henceforth the public will recognise the conditions under which the building trade is carried on. At the present time many builders believe they are incurring a risk

when their men begin to work at the fixed hour. On the other hand, the exigencies of trade, and it may be said also the wish of ordinary people who walk in the streets, are in favour of expedition, and if possible they would have works conducted by night as well as by day.

AN Italian architect, Signor CASTELUCCI, has, it is said, discovered the basin of the font in which DANTE, the poet, was baptized, and it is believed he will attempt a restoration of the whole. The statement is interesting, because we know that about the middle of the month of May in the year 1265 a child was brought to the Baptistry of St. John the Baptist in Florence, and received the names of DURANTE ALIGHIERI. But the font was connected in another way with the life of the poet. In the nineteenth canto of "The Inferno" he tells us how he saw the figures of SIMON the Magician, and some of his followers. The place of their imprisonment was formed of black stone, and recalled to him the Florentine font. As became a student of AQUINAS, DANTE believed that the laws of nature applied to other parts of the universe besides the earth, and in the reservoir he saw round holes which were about the same size as those in the baptismal basin. He probably wished to suggest that any excess of the liquid fire passed away through them just as the overflow of water in the font. At the time of DANTE'S visit it was not fire that issued from them, but the feet and part of the legs of the unfortunate prisoners, which were seen writhing in agony. DANTE, in a rare moment of pity, wished he could free them as easily as he once did a child in the Baptistry, when by breaking the grille which covered one of the holes the water escaped and he was able to save the drowning infant. His enemies endeavoured to make out that DANTE'S act was inspired by sacrilege, and it was probably believed by many of his fellow-citizens, otherwise he would not be so eager to explain his conduct. It has been supposed by some archæologists that the child was rescued not from the font, but from one of the auxiliary basins which surrounded it and through which the water passed. The task before Signor CASTELUCCI is therefore less easy than it would appear from the description.

IN a recent number of the *American Architectural Review* there is mention of a competition for a new building in Washington which is to be known as the International Bureau of the American Republics. It is another of ANDREW CARNEGIE'S gifts, and is to cost 600,000 dols. complete and including the architect's fees. Ten architects were invited to compete, and each of those accepting the special invitation is to receive the sum of 1,000 dols. to cover the expense of making plans. In addition, a general invitation was extended to all architects in the United States to enter the competition on equal footing with the invited competitors. The competition has therefore some resemblance to that for the London County Council Hall. For the best design the prize is 3,000 dols., the second 2,000 dols., and the third 1,000 dols. The building is to contain four sections, viz. administration, library, assembly and service. The library section will have a large stack-room, public reading-room, map, photograph and periodical rooms, and the usual adjuncts necessary to a library. The assembly section will contain an assembly hall of 6,000 feet of floor-surface, with rooms for governing board and committees. It is recommended that, as the peoples of most of the American Republics are of Spanish, Portuguese or other Latin extraction, it is desirable that the building should have a character in harmony therewith. The endeavour to unite the Republics of the two Americas by a bond of brotherly feeling is a cause in which President ROOSEVELT, Mr. CARNEGIE, Secretary ROOT and others have interested themselves deeply. It is to be hoped the various Republics will make more use of the Bureau than the British colonists make of the Imperial Institute, which is supposed to serve a similar purpose.



## EXAMINATION OF MATERIALS IN BULK.

ON Friday last we published an article on "Compliance with Specifications," in which we attempted to indicate the principles adopted for testing materials in the United States. The system which is sought may be shortly described as entirely scientific, and, as far as possible, it is outside the range of human peculiarities. If carried out perfectly the examples to be tested would be obtained by scientific impartiality, tested by mechanical or chemical processes, the results announced by an indicating apparatus, and the contractor, in case his goods were rejected, would have to accept the loss with the philosophy of a machine. It so happened that on the same day when our article appeared an important action respecting wood-paving was concluded, in which the ways adopted for testing in England were considered. Mr. Justice DARLING, who tried the case, may have wished the American system prevailed among us. Like all other impartial men who are brought face to face with the duties of an architect or an engineer, he must have recognised the extreme difficulty of their position. Disagreeable acts have to be done which inflict loss upon contractors about whose honesty there can be no doubt, but who for the occasion have become victims of circumstances.

The action was taken by the Acme Flooring and Paving Company (1904), Ltd., against the Westminster City Council. The origin of the dispute has been already described. The plaintiffs had entered into a contract to lay down wood-paving in nine of the principal streets of Westminster. Mr. J. W. BRADLEY, the engineer to the City Council of Westminster, rejected blocks to the number of 700,000, although the stacks in which they were placed had been approved by subordinate officials. The plaintiffs declined to go on with the works, and brought their action for breach of contract, claiming 700*l.* for work actually done besides damages arising from the rejection of the blocks. Cases of the kind should be heard by experts, for with all respect for counsel, it must be allowed that their training and methods enable them to make mountains out of molehills with satisfaction to themselves. Quantities which are reckoned by hundreds of thousands are adapted to sustain rhetorical effects; but when it is known that the plaintiffs had supplied 9,000,000 blocks which were approved and used, the number in question is not so alarming.

It was contended on behalf of the plaintiffs that such a sweeping rejection was excessive. The specification appeared to resemble many other documents of the kind. It abounded in adjectives. The timber was to be sound and good, of even grain, well seasoned, sufficiently matured, and free from sap, shakes, waney edges, warps, large, loose, or dead knots, or other defects. The city engineer was to have full power to reject any of the timber which he did not consider as fit to be employed. As usual, he was omnipotent. It should be realised by contractors that if people will bind themselves to excessive if not absurd regulations—and the judging of materials in gross is undoubtedly one—they must accept the consequences. It ought to be remembered that natural substances are only uniform to a tolerably general extent. No pair of leaves on a tree are exactly alike in form, and the differences between a pair of trees are more remarkable. It is difficult to find two railway sleepers of similar dimensions which are exactly alike in weight. It will also be found if the two are subjected to a creosoting process their power of absorbing the material also varies. It does not necessarily follow that slight differences affect the strength of the timber, although appearances may be against some of the specimens. For the purpose of testing the most objectionable pieces are commonly obtained; but the results often demonstrate that with materials as with other things we should not always judge by appearances.

It is not to be expected that a busy engineer can afford the time necessary to examine several millions of wood blocks one by one. A summary method has to be adopted, but although it may serve in ordinary practice yet it will hardly sustain the fierce light of an examination in courts. The exercise of despotic power on such occasions may sometimes appeal to ratepayers who are jurymen, and who believe most contractors are dishonest. But it is always advantageous to be able to demonstrate that examination and testing were of a kind which could be considered as fair to all parties. Dr. DUDLEY, whose address we brought before our readers last week, is careful to recognise the possibility of an erroneous rejection, and in such cases whoever is represented by the testing expert should, he say, make good the loss, regarding it as one of the inevitable expenses of doing business. Dr. DUDLEY supposes something more has been done than a mere hurried visual examination. He calculates on tests in a laboratory or in a machine-room, and we expect he would advise a contractor never to supply materials if they were to be examined only in heaps.

The Westminster City Council prudently sheltered themselves behind the contract deed. It stated that the material and works were to give their engineer satisfaction, and his decision was to be final about compliance with the conditions. It was shown that Mr. BRADLEY had examined the materials and there was no obligation on him that he should endorse the opinion given by his inspectors. But an endeavour was also made to prove that the blocks contained an excessive amount of "sap-wood," although in the specification what was prohibited was "sap." Plain men who have had experience can translate the difference between the two. But when a number of physiologists appear are allowed to express their opinions at length, it becomes difficult to say whether both terms are more alike, or whether there is a vast difference between them. If Mr. BRADLEY had any doubt, as an engineer of experience, about the quality of the timber, he was able to find a great many botanists to confirm his view. But students of that class are rather prone to give more attention to the defects of trees. For a perfect tree like a perfect man, does not afford any opportunities for microscopic investigation. It is also doubtful whether a contractor who has not been warned about such tests as the vegetable physiologists applied should be held responsible for any results derived from them. In the manufacture of steel, photographs of microscopic sections are coming into use, and they are also, to a certain extent, employed in connection with cements. But although they may be taken from timber trees, exact rules about the value of the appearances presented are not forthcoming. Mr. Justice DARLING showed little customary good sense when he expressed regret that a practical trial of the wear and tear during a year was not agreed to by both parties.

It is always risky to suggest that an architect or engineer in dealing with materials allows a prejudice of any kind to obtain control over him. It is not to be expected that any man occupying such a position can ever bring himself to have indifference to results like a testing-machine. Although he was a very cool-headed Scotsman, the late Mr. KIRKCALDY used sometimes to exhibit the enthusiasm seen at golf and curling when refractory material held out longer than he had anticipated. Although an American and schooled to be impassive, Dr. DUDLEY says that on his own account he repeats experiments, exhibiting in that way pity for a contractor or manufacturer. As the Judge said, it was a very grave charge to allege that Mr. BRADLEY in his rejection was merely gratifying a fad. But unless there was collusion and profit to be derived from the transaction it could have no weight with an ordinary jury. The consequences of unfairness on the part of a city or borough engineer are so serious, a man must be very indifferent to his own interests who allows himself to be considered either as a friend or as an enemy.



ny particular contractor. In the days of the Metropolitan Board of Works a charge of the kind was made against Sir J. W. BAZALGETTE. One contractor not only believed in him, but consulted him as special adviser. It was accordingly stated that when the contractor was entrusted with a very important section of the main drainage it was solely through BAZALGETTE'S influence that some of the competitors were passed over, although they considered themselves more entitled to the work. But when the investigation took place it was found that the engineer had advised the Board to employ a different contractor. For even under delicate circumstances BAZALGETTE knew how to uphold his official position.

After a long investigation, which was also a test of Mr. Justice DARLING'S recovery from a serious illness, his Lordship left two questions for the consideration of the jury, viz. (1) whether the blocks delivered or offered for delivery by the plaintiffs under their contract with the defendants were in accordance with the terms of the contract and specification; (2) whether, in deciding that the blocks delivered or offered by the plaintiffs did not comply with the terms of the contract and specification, Mr. BRADLEY acted dishonestly. As might have been expected from the beginning the jury gave a negative reply to the second question. As regards the first, they admitted their inability to decide whether the blocks were in keeping with the specification. Indeed, that was a question which practical engineers only were competent to answer. But they considered the spirit of the contract had been strained in the manner of rejecting the blocks. The judge came to the conclusion that judgment must be given in favour of the defendants. He granted a stay of execution, but suggested that some other course besides an appeal should be adopted by the parties.

Whatever may be the end of the litigation, we consider it to be a protest by a dozen men of business against the rough-and-ready process of determining the quality of materials in bulk. Such cases have a resemblance to the Slaughter of the Innocents which is annually gone through in the Westminster House of Commons. A more deliberate and scientific method is required. If anyone will consider what has to be gone through from the time when pine-trees are cut down in Sweden until they are heaped in Westminster as blocks, it must be allowed that, however honest everybody concerned may be, it is impossible to obtain large cargoes which are free from occasional defects. If a superlative standard for wood is necessary, then the officials of any corporation ordering blocks should be present at all the stages from the cutting down of the tree until it is laid in the street. The forests are under no compulsion to comply with the terms of an exact specification. If it is considered that a large quantity of blocks must be eliminated, then steps should be taken by which there will be no possibility of confounding sound and unsound timber, and also no possibility of injuring the reputation of contractors, which is as important to them and to the public as high character is to an engineer.

### WORKING-CLASS DWELLINGS.

WHENEVER the history of sanitary improvements in this country is compiled it will be found that much was executed before the problem of housing large numbers of people was attempted. Sewers and drains could be constructed, nuisances removed, water supplied abundantly without any serious interference with the rights of property. But reformers were daunted at the thought of the cost and litigation which would have to be encountered if the work which, all things considered, was the most important, was attempted. Anyone who will look at a volume of an illustrated paper of 1851 will find a view of a small house which was erected by a Mr. ROBERTS, an architect, in order to suggest how easily the great difficulty

could be overcome. Apparently it was better adapted for a gate lodge than for a couple of workmen's families in a city. The cottages which have been erected by the County Council of London outside the Metropolis suggest that the experiment of 1851 was not altogether vain. At the time Mr. ROBERTS'S cottage, though well adapted to select tenants, appeared to be inadequate to meet the difficulty, and philanthropists did not dare to adopt it as a pattern, although the designer was honoured by receiving a medal from the exhibition authorities.

When the experiment was at length made to provide accommodation for the poorer classes, it was not a cottage with a balcony which was taken as a type, but a barrack. Outlay and returns were wisely contrasted, and care was taken to avoid any expenditure which would interfere with a profit of 4 or 5 per cent. Occasionally a wealthy individual like the late Baroness BURDETT-COUTTS, who believed in the benefit arising from details which would be pleasant to look upon, expended money on windows, doors and chimneypieces without expectation of a profit. But as a rule a severe utilitarian standard was set up and adhered to.

It was found that philanthropy and small profits were not sufficient to overcome the evil. Although Acts were passed in 1851 which to some extent authorised housing at the cost of corporations, several years were allowed to pass without any effort being made to enforce the clauses. The Metropolitan Board of Works expended about 2,000,000*l.* in the purchase of unhealthy areas, but they had not the courage to build upon any of them. They considered it was the lesser evil to sell their land to various companies at about one-fifth the cost price, and to leave to the new owners or leaseholders all the risk of putting up cheap dwellings. With the advent of the London County Council more resolute action was entered on, and not only were sites purchased and cleared, but dwellings were erected and let. It is well to recall these facts, because a great many people imagine that in dealing with the housing problem too much precipitancy was allowed in order to seek the favour and votes of the working class. The truth is the difficulty was shirked until it had assumed dangerous proportions.

There have been some modifications in the arrangements for providing accommodation. Sundry types of buildings have been adopted, but a simple test can always be applied by counting the number of rooms. A return issued by the housing of the working classes committee of the London County Council shows the number of rooms provided during the last five years. In 1902 were added 53,499 rooms; in 1903, 59,009 rooms; in 1904, 51,566 rooms; in 1905, 50,937; and in 1906 the number was 43,428 rooms. The part accommodated comprises not only the central area, but the rest of London and extra-London. It will therefore be evident that although there was a decrease last year yet building was not neglected, and it is only reasonable to suppose that sooner or later there will be a sufficient supply of accommodation.

The committee admit the difficulty of determining whether the accommodation is commensurate with the increase of the working classes. Judging by experience  $1\frac{1}{2}$  persons per room is a reasonable figure for dwellings within the county area, and  $1\frac{1}{4}$  persons in the extra London area. By that ratio accommodation for 69,514 persons was added during last year. The increase of accommodation in the working-class population is assumed to be two-thirds of the total increase, or, say, 69,739 persons. Now if the Council's furnished lodging-houses are included it will be found that accommodation has been provided for 70,408 persons. In other words, demand and supply are almost equivalent in amount.

It was stated in an official report on agricultural settlements in the colonies "that the major part of London poverty and distress is home-made and not imported from outside; that the countrymen who migrate



to London are mainly the cream of the youth of the villages, and that country immigrants do not, to any considerable extent, directly recruit the town unemployed, who are in the main the sediment deposited at the bottom of the scale as the physique and power of application of a town population tend to deteriorate."

There are many, however, who do not accept that conclusion. It has been suggested that on the County Council's estates at Norbury, Totterdown Fields and White Hart Lane the tenants of the houses were not all London workmen. An inquiry followed, and it was found that of the 1,026 families on the three estates 691 moved into the Council's cottages from within the county, while 335 came from various places outside London, also that in 895 cases the head of the family is employed within the county. The working classes are not more free from jealousy than those above them in social rank, and hence objections have been raised about outside tenants in dwellings and about outside students in technical classes. Men from the country will find scanty welcome from their fellows within the Metropolis, and they should therefore employ any influence they may possess for the erection of additional habitations in country districts. The mere fact that over 40,000 rooms had to be erected last year should be enough to suggest that the difficulty and costliness of providing for the accommodation of the working classes of the Metropolis are enough of a burden without having an increase of weight imposed on the ratepayers.

## THE ORIGIN OF OPERA IN FRANCE.

By Dr. JOHN E. BORLAND.

SEVERAL generations before France developed a serious opera of her own on the Italian lines she had possessed an indigenous form of entertainment in which dancing, singing and gesture were utilised, namely, the "Mascarades," "Divertissements dansés," or "Ballets-divertissements." One of the earliest was the "Balet Comique de la Roynie," composed by BALTASAR DE BEAUJOYEULX in 1581. The complete text, with pictorial illustrations and music of the songs and dances, was published by the privileged printers, ROBERT BALLARD and his partners, and the rare volume forms a valuable early record of a unique class of entertainment. Similar productions took place in connection with various festivities down to about one hundred and fifty years later; and these, with the musical and dramatic elements growing steadily in importance, dictated to some extent the form which French opera, properly so-called, was destined to assume. In the first half of the seventeenth century Frenchmen seem to have been as diffident of their own powers and of the possibilities of their own language for operatic purposes as English musicians have seemed to be down to quite recent times. It was thought impossible to acclimatise in France any form of serious music-drama on account of a supposed incompatibility between the French tongue and the art of music.

In 1645 Cardinal MAZARIN, wishing to entertain the queen, ANNE OF AUSTRIA, brought to Paris a troupe of Italian performers, who gave a representation of STROZZI's "La Finta Pazzo," with music by FRANCESCO SACRATI, and "les machines" designed and managed by GIACOMO TORELLI. This was not an opera in the full sense of the word, for there was much spoken dialogue as well as singing and dancing. The staging was magnificent, scenery and costumes were in great variety, and among other features a contemporary chronicler mentions that "a ballet executed by monkeys and bears finished the first act." At the end of the second there was a dance of ostriches, which stooped down to drink at the fountain. The spectacle finished with a dance of four Indians offering parrots to the hero. This piece, though so varied and slight in texture, yet contained more music and a more continuous plot

than its hearers had been accustomed to, and one at least showed little enthusiasm for the new venture, namely, Madame DE MOTTEVILLE, who wrote in her Memoirs:—"For my part I find that the length of the spectacle diminishes greatly the pleasure, and that lines simply declaimed represent conversation more easily and touch the soul more than singing delights the ear." In another passage Madame DE MOTTEVILLE wrote:—"On Shrove Tuesday (1646) the queen had one of her comedies in music performed. . . . We were not above twenty or thirty persons in the place, and we thought we should die of cold and boredom." In the same year a tragedy entitled "Ackebat, Roi du Mogol," was supplied with music by the Abbé MAILLY. The scenes, in musical recitative, were accompanied by several instruments, and it was said to be "a great success, although it had not then been discovered how to put our language into vocal recitative, as has been done since." Another Italian troupe, in 1647, performed "Orfeo ed Euridice," libretto by FRANCESCO BUTI, music by LUIGI ROSSI. Parisian opinion was no more favourable to this than it had been towards the lighter production, "La Finta Pazzo," and a rhymed skit of the period runs:—

Ce beau mais malheureux Orphée,  
Ou, pour mieux parler, ce Morphée,  
Puisque tout le monde y dormit.

The Court, however, received with enthusiasm the one factor in this "Orfeo" which it understood, namely, the mounting. This seems to have been gorgeous, and there was a call for more work of the same kind.

The poet CORNEILLE was commissioned to write a "pièce-à-machines" on the Italian lines, and the result was "Andromède" with music by d'ASSOUCY. The music, however, took quite the third place in importance, and according to CORNEILLE himself, even his verses were only accessory to "les machines." It must be remembered that French drama pure and simple was already in a high state of culture, so that it was only the prejudice which existed against the possibility of successfully uniting the French language with music, anything more than simple ballads, that hindered the earlier development of true French opera. This prejudice was so firmly impressed upon the minds of the lyric poets of the first half of the seventeenth century that even the famous writer of lyrics, BENSERADE, so successful with his ballets, never dared to venture on a scene completely set to music.

The solution of the problem was at hand. PIERRE PERRIN, commonly but erroneously called l'Abbé PERRIN (a native of Lyons, where he was born about 1625), held an official post under the Duke of ORLEANS, which led to his making the acquaintance of Cardinal MAZARIN and of ROBERT CAMBERT the musician. PERRIN was a poor poet, but an astute man who made up for lack of art by adaptability. He was convinced of the possibility of using the French language for music-drama, and in conjunction with ROBERT CAMBERT he produced at Issy, in 1659, "La Pastorale," and afterwards repeated it before the king at Vincennes. The work was singularly successful, and was followed by others on similar lines, culminating in "Pomone" (1671). Only fragments of "Pomone" have survived, and very few copies exist of PERRIN's introduction to the libretto, which is a document of sufficient interest to justify the quotation of a few passages from it. After describing what is signified by the term "opera," he writes:—

Those who have never seen such pieces are scarce to be persuaded that they can succeed. They compare them with Greek and Latin masterpieces of antiquity, or rather with what they have seen represented of these subjects in the theatres of Italy. They cannot conceive that the passions and the emotions of the soul can be treated as naturally and as powerfully by means of singing as by the spoken word; and even if this were so they cannot imagine how a piece for the theatre can be satisfactory without plot, or how a plot which consists of serious reasoning, and which naturally fits the speaking voice, can be appropriately declaimed in singing, which has for its domain the finer



emotions of the mind and the expression of pathos. Even those who have seen the operas of Italy in our theatres are of similar sentiment, and believe that these performances would have no better success in our own language.

PERRIN goes on to say that the problem is indeed a difficult one, but by no means impossible of solution:—

The composer requires a marvellous genius, a perfect knowledge of the language and of French poetry and music, and an adroitness not common, to embody nearly all the plot and all the serious discussion in the piece, particularly in a space of time so short as that of our French spectacles. The thing is difficult, nevertheless I dare to say that it is possible, since you will see that it is accomplished in this piece, which contains as much plot in 500 short lines as the longest spoken piece could contain in 2,000, in which, moreover, I am assured that the most critical will have difficulty in finding any faults against either the music or the lyrics.

I confess nevertheless that the brevity to which one is compelled in order to please the national taste prevents the development of the action as completely as in spoken comedy, or even in the Italian pieces with their length of six or seven hours in performance; but it must also be allowed that expression by means of music has quite another force than that of spoken words, since the music can often touch the heart more powerfully in two phrases than can the others in fifty; and that words sung with change of tone, inflections, accents, ornaments, the softening and raising of the voice, express more vividly, more agreeably and with more variety the transports of the soul than can the monotone of the spoken word.

If we add to this the beauty of harmony, which softens the heart and prepares it for expression, the advantage of making several persons utter the same sentiments at once, sometimes of making them say the same words simultaneously with contrary meanings: of the rondeaus, the repeats, the interchange of phrase, and a thousand other devices in words and music—it will not be difficult to give it the preference in all points, and to exact the confession from the most obstinate that these kinds of spectacles comprise all great and honest pleasures, that they uplift the whole man, that they charm the eyes with the sight of magnificent costumes, of superb scenery, of admirable mechanical devices and of agreeable ballets; the ear by the excellence of the song, the accompaniments and the symphonies; the mind by beautiful designs, and the heart by depicting the passions in the most vivid and touching manner which uplifts and transports it. . . . But how make these things agree with experience to the contrary, say the second critics; and if these pieces are so charming, why have they displeased so much when they have been given on our stage in the Italian language? To that I answer in three words:—They have been too long, they have been full of faults—and of these two things we could correct them; but the third admits of no reply—they were in a foreign language; and while they were able to touch the eyes and ears by the beauty of the spectacle and of the music, the mind and the heart, the most noble parts of man, were left untouched.

PERRIN next deals with a third class of critics, whom he calls "the most dangerous and the most reasonable." These are they who doubt whether the French language accommodates itself to music as well as the Greek, Latin and Italian. This doubt he combated vigorously, with frequent illustrations which are too long for quotation. His main argument was that the French language must be dealt with by those who understand it and are in sympathy with it. The remainder of the preface consists chiefly of a summing-up of the musical forces of the French capital, with eulogies upon the skilfulness of its musicians, the culture of its patrons, the grace of its dancers. PERRIN adds with sublime self-possession:—

I have now satisfied the incredulous ones, and shown that not only can these musical pieces be as good and better than spoken plays, but even that we can in our operas equal and surpass the Italians in every point.

ROBERT CAMBERT, who was associated with PERRIN in this work, was born in Paris about 1628. He was a pupil of CHAMBONNIÈRES, the famous clavécinist, and commenced his career as an organist; but having become chief of the queen's musicians and head of the king's violinists, he had opportunity of

becoming acquainted with the light music of the Court in the Mascarades. In association with PERRIN, CAMBERT gradually acquired further experience in dramatic composition, and these two were undoubtedly the creators of French opera, though to the public the name of LULLY bulks much more largely in the musical history of the seventeenth century. Opera, it seems, is a natural forcing-house for intrigue, and French opera began its career in the midst of quarrels and cheatings as disgraceful as any that have ever disfigured the annals of music. After all their work, PERRIN and CAMBERT were juggled out of their just reward. CAMBERT complained bitterly that as long as the work was experimental and only partially successful no one gave them assistance, nor was tempted, on the other hand, to envy them the results. But "Pomone" was a great success, and JEAN-BAPTISTE LULLY (1633-87), who had previously laughed at the idea of opera in French, and had used his influence in Court circles to put every hindrance in the way of CAMBERT and PERRIN, now cast his envious eyes upon their success. Unfortunately, quarrels took place about the same time between CAMBERT and PERRIN and those associated with them in the undertaking, and the cunning LULLY took advantage of the situation to secure the patent rights of opera for himself. The story of the Académie Royale de Musique is too long to tell here in detail, but any who are interested can find the whole facts set forth in NUITTER and THOINAN'S "Les Origines de l'Opéra Français," and in POUGIN'S "Les Vrais Créateurs de l'Opéra Français."

PERRIN died in great poverty in 1676. The fate of CAMBERT has always been somewhat of a mystery. He came to England and worked here for a time, possibly in the service of CHARLES II., and some of his operas were produced here, and are said by POUGIN to have formed the models upon which PURCELL worked. CAMBERT is supposed to have died in London about 1677: some say he was murdered at the instigation of LULLY and his associates, and the charge of murder against LULLY, whether true or false, formed the basis of a brochure published at Cologne in 1688, the year after LULLY'S death, entitled "Lettre de Clement Marot, A Monsieur . . . touchant ce qui s'est passé à l'arrivée de Jean Baptiste de Lulli, aux Champs Elisées." In this satire the author imagines the scene in the Elysian fields when LULLY arrived there to take his place among the spirits of the illustrious departed. His entry was not without opposition, and amongst the crowd of his opponents there were naturally PERRIN and CAMBERT. PERRIN made a strong appeal against the reception of LULLY, and demanded even his severe punishment as a thief of the labours and the reputation of others. He described how he himself was the real creator of French opera, but that the cupidity of LULLY had deprived him of his reward, and that this "Corsair," abusing the credit which his official post gave him, had had the cunning to persuade the king that he himself was the only man in the kingdom capable of sustaining the dignity of the art, and had thereby obtained the exclusive privilege which had cut the throats of so many people.

"Yes, yes, cut the throat," cried terribly a furious shadow who, pushing aside the crowd, was recognised at once for poor Cambert, still quite disfigured with the wounds by which he had been assassinated in England. "You see, madame," continued he in the same tone, "to what the tyranny of Lully has reduced me. The applause which I received from the public for the beauty of my compositions excited his indignation; he wished to become possessed of the lands which I had discovered, and to reduce me to the cruel necessity of going to seek for bread and for glory in a foreign Court, where envy found means to complete, by killing me, the crime which had been commenced in exiling me from my country. But by whatever hand the blows were given which took my life, I impute them only to Lully, whom I consider my veritable assassin and against whom I demand justice. And it is not for myself alone, madame, that I implore your equity; it is in the name of



all those who were distinguished in his time by some rare talent in music, whom he has not ceased to persecute in all sorts of ways."

This satire has never been taken too literally, but allowing for exaggeration due to the bitterness of feeling which was common against LULLY, it is in the main a correct summary of the position. LULLY undoubtedly ousted CAMBERT from his hard-won place, and posterity has not been able to do justice to the earlier composer on account of the disappearance of his scores. But there is sufficient evidence in contemporary records that the best feature in LULLY's work, namely, his management of the recitative, was not only anticipated, but also equalled or even surpassed by CAMBERT. SAINT-EVREMOND, for example, was no particular lover of opera, for he described it as a "bizarre work of poetry and music, in which the poet and musician, equally impeded the one by the other, give themselves much trouble in making a bad thing." SAINT-EVREMOND said, nevertheless, "CAMBERT has had this advantage in his operas, that the ordinary recitative does not weary, through being composed with more care than the airs themselves and varied with the greatest art in the world." And again, "CAMBERT has a very fine genius, sufficient for a hundred kinds of music and all well husbanded, with a just economy of voices and instruments. There is no recitative better conceived nor better varied than his." A contemporary journal also, *Le Mercure Galant*, announcing the death of PERRIN, and speaking of the great success of LULLY, says, "Nevertheless, since the time of the operas of CAMBERT one has seen no recitative in France which has appeared new."

(To be continued.)

#### THE LATE JOHN WHYTE.

WE record with regret, says the *Glasgow Herald*, the death of Mr. John Whyte, lately master of works to the Corporation of Glasgow, which took place on Friday at his residence, Hollybank, Stirling. Mr. Whyte, on his retirement seven years ago, went to reside in Stirling. He was then and until recently in the enjoyment of good health, but he had a shock of paralysis some months ago. Other seizures followed, and after one of these he passed away. A native of Perthshire, Mr. Whyte was born in the year 1829. Twenty years later he came to Glasgow and entered the works department of the Corporation under the late Mr. John Carrick. The modern city was then in the making. The majority of the main thoroughfares had been of the character of country roads, indifferently administered by a number of independent authorities, over whom the Town Council had no control. All round the city—east, west, north and south—new districts were being laid out for building purposes and new streets were being formed, and the work of the department was growing rapidly in amount and importance. At first Mr. Whyte acted as an inspector of works. Afterwards he was appointed assistant to Mr. Carrick, the city architect, his special duty being to superintend the laying-out and maintenance of the streets and the construction and repair of sewers, and to represent Mr. Carrick in the Dean of Guild Court. In this way he bore an important part in the work of city extension, and in carrying out the great scheme of city improvement which did so much to change the character of the congested areas in the central districts and to ameliorate the sanitary and social condition of the people. In an interesting reminiscence address delivered on the celebration of his jubilee, Mr. Whyte stated that when he came to Glasgow in 1849 the total length of streets in the city was 100 miles. In the course of the fifty years that had elapsed this number had been increased to 315 miles. The length of sewers constructed up to 1849 was 42 miles, the total length in 1899 had increased to 123 miles, while the amount of money expended on the paving of streets during the fifty years had been 664,193*l.*, and in the construction of sewers a million sterling. On the death of Mr. Carrick in 1890 the department was reorganised. Mr. A. B. Macdonald was appointed city architect and engineer, and Mr. Whyte became head of the section of which he had formerly had charge, with the title of master of works. This

position he continued to occupy until the year 1900, and on his resignation Mr. Nisbet was appointed his successor. Not alone in connection with the practical working of the department of which he was the head did Mr. Whyte render valuable service to the city; he also took an important part in the framing of several of the local Acts promoted by the Corporation. In particular, the Building Regulations Act was to a large extent based upon the expert advice he was able to give, the result of his long and varied experience. Mr. Whyte enjoyed in a marked degree the confidence of the members of the Corporation whom he served for so many years, while he was held in the highest respect and esteem by his colleagues in the department. On the occasion of his jubilee the staff, which, numbering four persons when he joined, had increased to 118 in 1899, presented him with an illuminated address in testimony of their appreciation of his character and of the admirable manner in which he had fulfilled the duties of his office. A year later he retired, and was awarded by the Council a handsome annual allowance in recognition of his faithful service. A man of genial and kindly disposition, frank and courteous bearing, Mr. Whyte was held in respect by all with whom he had dealings in the discharge of his onerous duties, and he had a large circle of intimate friends.

#### EXETER CATHEDRAL.

THE following report was made by a special committee appointed by the Society for the Protection of Ancient Buildings to consider the question of the new work recently carried out on the west front of Exeter Cathedral:—

Visiting Exeter Cathedral on June 19, we found no work in progress upon the west front, but we readily distinguished the additions of new stonework made lately, since they are executed in a coarse yellow stone. They consist of six canopies (with parts of their supports), inserted in the south wing of the sculpture-screen, also of the cornice of the same wing, the renewal of the latter being carried round the buttress adjoining. Our report will apply to all this work, but is specially directed to the renewal of the canopies.

1. We could discover no reason for these renewals on the ground of their being necessary for the stability of the fabric. For the purpose of giving strength to the structure, surface additions such as these projecting canopies are evidently immaterial. If they were entirely chipped or decayed away, neither the stability nor the permanence of the sculpture-screen would be impaired, nor would the statues be less efficiently protected from the weather.

2. As to the explanation that these renewals are records of the ancient works, and desirable on that account, we cannot see that they constitute any such record. The ancient canopies were of the finest white stone, admirably sculptured, and with expressions of delicacy and finish that claim for the work the highest place in Mediæval masonry. But the renewals are carved in coarse stone, mechanically executed, and with detail ill-conceived and coarsely rendered. To mention only one point—the original canopies were delicately contoured, so as not by too much emphasis to break up the effect of the wall. Those who are acquainted with the practice of sculpture will appreciate the consummate mastery of effect which dictated such details in this sculpture-screen. Though this screen is a most elaborate collection of ornaments, they are nowhere felt to be fulsome or oppressive; the cohesion and dignity of the wall-surface is preserved throughout. But there is none of this distinction or appropriateness in the renewals. For example, the jutting of the canopies has been so much increased beyond the line of the ancient work that their pendants actually crowd upon the heads of the statues beneath. Such substitutions are, therefore, not records of the ancient work, but in their pretension to be so actually falsify it.

3. Being unable to account for these substitutions, as either structurally wanted or as efficient copies, we can only suppose them to be meant as improvements on this famous piece of ancient sculpture, and we are tempted to ask what artist has been bold enough to venture on such an experiment? We think we can rely on a supposition that no acknowledged master of sculpture has been consulted. Experiments of a very hazardous kind seem to have been undertaken without advice from anyone qualified to give



an opinion as to the treatment of ancient sculpture. On the other hand, we notice no attempt to meet the first necessities of a reasonable treatment. The sculpture has been left in a deplorable condition; the statues are fastened up with bits of bent copper wire, and the whole front is thickly encrusted with dirt that hangs in flakes and festoons upon it. In the first place, it ought to be washed. A cleaning of the whole, properly conducted, would show where the original stone is still protected by its ancient preservative coating of colour; some of this colour is still visible at the backs of the canopies and elsewhere, where the clots of dirt have fallen off. It will probably be found that there is in good condition a much larger part of the original surface than can be at present inspected. But in cases where, after a thorough cleaning, the ancient stone is shown to be unprotected and decaying, there proper preservatives should be applied under scientific advice, so that further decay may be arrested. The statues should in any case be secured in their places in the same way as has been done at Wells.

4. Since the additions lately made are neither structurally necessary nor correct records of what has been, and since they are manifestly unornamental, there appears no reason for their retention. There remain in the cloister many pieces of the ancient work that has been cut away for the new stone. We find that most of these pieces are sound at the core, and indeed little decayed on the surface; they seem to have been wantonly sawn off. The ancient sculpture is still shown by them much more nearly than by the clumsy copies that have been substituted. These latter, therefore, should be removed out of the front and the old pieces returned to it—a work perfectly easy in competent hands.

5. We have in this report spoken as archæologists, as practical architects and as students and artists in sculpture. On the ground of our knowledge we condemn these additions to the sculpture-screen as incompetent work carried out under incompetent advice. We do not touch upon the wider question, which the present aspect of Exeter Cathedral offers. But we may say this: that bit by bit the ancient art of this famous English cathedral church is being obliterated. Substitutions of the same kind as those we have seen in the sculpture-screen of the west front have been, and are being, made on all sides of the church. They cannot be justified on any score of either structural repair, of archæological record or as ornamental additions. But by such substitutions the honour of the ancient art is being filched away. The west window was before the late alterations to it interesting historically, and it contained some good glass of the greatest artistic value. In the place of this now appears a counterpart of the ancient work that has value neither as an historic monument nor as a work of art.

W. B. RICHMOND, R.A., F.S.A.

FREDERICK DULEEP SINGH, F.S.A.

PHILIP NORMAN, F.S.A.

W. H. ST. JOHN HOPE, M.A.

EDWARD S. PRIOR, F.S.A., M.A., F.R.I.B.A.

DETMAR BLOW, F.R.I.B.A.

WILLIAM WEIR.

July 2.

A "Prebendary of Exeter," writing to the *Morning Post*, says:—To those who know anything of the history of the work the animus of the Society's report is only too plain. The Society was not consulted beforehand. I have had nothing whatever to do with the work with which the Society finds so much fault. But, as a frequent visitor to Exeter, I do know this, that the work has been executed with the most loving care and the intensest desire to preserve whatever it was possible to preserve. The new work has been most beautifully executed and will bear comparison with the old in the perfection of its details. The glass of the west window, which has been removed to make room for a really fine and most interesting window, is described in the Society's report as containing some good glass of the greatest artistic value. It was in reality composed of stained glass of the poorest description, erected in the eighteenth century, when the art was at its lowest ebb. Everyone who really cared for the beauty of the cathedral rejoiced when that miserable eyesore was gone. I do not know whether the Dean and Chapter have it in contemplation to do anything in regard to the statues on the west front. But of this I am quite sure, that they will take the utmost care to preserve every detail of the noble and beautiful building committed to their care and which they

all love so well. Their desire and their intention is to hand down to their successors not a ruin, but a reverently-cared-for Mother Church of the city and diocese of Exeter. To do this the advice of the above-mentioned Society is not needed.

### THE LATE DAVID FARQUHARSON, A.R.A.

A WIDE circle of friends will hear with regret of the death of Mr. David Farquharson, artist, which took place last Friday at Birnam, Perthshire, where he had been temporarily residing. Mr. Farquharson, says the *Scotsman*, was one of the oldest Associates of the Royal Scottish Academy, and had he remained north of the Tweed, where he received his art education, he would unquestionably have been elected to full membership. But his removal to London a quarter of a century ago prevented the Academy of his native country from bestowing that full rank upon him which, had he remained in Edinburgh, his painting abilities would have entitled him to. Older friends of his in Edinburgh will remember his studio at 16 Picardy Place. On his removal to London about 1882 he took up his residence in the artistic quarter of St. John's Wood, but for the last thirteen years or so he has resided at Sennen Cove, Penzance, where his style as a landscapist was considerably affected by the painting of what came to be known as "The Newlyn School." Up to the time he removed to London Mr. David Farquharson was a constant exhibitor in the Royal Scottish Academy, and many of his early pictures are still held and prized by Edinburgh citizens. A group of five, which he exhibited in 1879—before his election to the Associateship—will give some idea of the subjects in which his brush delighted—"Noonday Shelter," "Forest and Lake," "A Lonely Moor," "Entrance to Gleneagles" and "Scottish Gipsies," the last a happy combination of figure and landscape, in which, like many other Scottish landscapists, he was also successful. In 1877 he began to exhibit at the Royal Academy. His first picture there was called "Loading," but although his work, admirably composed, carefully executed and harmonious in colour, was always well hung, official recognition was long in coming. The first of it came to him in 1897, when his picture "In a Fog" was purchased for the Chantrey Fund for 420*l.*—a compliment which was much appreciated by himself and his many friends both in Scotland and England. His triumph, however, came in 1904. He had before that time been producing pictures of great artistic worth, which were well placed and much admired both at Burlington House and the New Gallery. His splendid picture of 1904—"Full Moon and Spring Tide"—took everyone by surprise, and to it was accorded the compliment of being hung in the place of honour in the large gallery, usually reserved for a work by the President of the Academy. In the picture was given a view of Sennen Cove, which, with its terrace of cliffs on which the houses are built, and screen of green heights, was very admirably rendered under soft bright moonlight. The water was a beautiful study. The landscape was unhesitatingly pronounced to be the picture of the year, and on his success Mr. Farquharson was heartily felicitated by critics and artists alike. The picture had an important effect on the fortunes of the artist, for it led to his election as an Associate of the Royal Academy at an age when such compliments are rarely paid. Though the official recognition of the work of this artist was long delayed, it was felt that in the circumstances the Academy could not have passed over Mr. Farquharson, whose election certainly strengthened the landscape element in the Academy. At Burlington House this year Mr. Farquharson was represented by "The Pilchard Season" and a very impressive rendering of "Dark Tintagel, by the Cornish Sea," under pale moonlight, the latter especially being in his best style.

The Exhibition of works of Danish artists at the Guildhall Art Gallery closed on Saturday. The number of visitors has been about 100,000.

A Meeting of the Chester education committee was lately held at which the elementary education sub-committee recommended that the services of Messrs. Douglas & Minshall, architects, be engaged to prepare plans and advise the committee as to the erection of the proposed new Council school for the Boughton district. An amendment moved, that all the architects in the city should be allowed to compete for the engagement, was not seconded, and the recommendation was approved.



## NOTES AND COMMENTS.

POPULAR imagination may have exalted the purchase of the "Portrait of the Marchese GIOVANNI BATISTA CATTANEO," by VANDYKE, into a *casus belli*, and accordingly the average number of visitors to the National Gallery has been exceeded during the past week. But anyone who is able to judge the work impartially is likely to agree that the portrait might have been left in Genoa without the least loss to English artists or amateurs, and that the price given for it is amazing. Many superior portraits can be seen at the present time at Burlington House without any expense to the nation. VANDYKE was an able producer of portraits in his day. But his methods have been surpassed, and there are examples enough to reveal their application. The official respect for old masters is no more than a revival of superstition, and unfortunately it is one that is injurious to modern artists, for ignorant people remain convinced that not only are old works worthy of being bought at enormous prices, but that they are unapproachable in their excellence by ordinary painters.

THE overhead trolley system is the cheapest class of tramway for London, as the cost is 9,500*l.* per mile of single track, while the underground conduit system is estimated at 17,000*l.* per mile. But as there is general opposition to the overhead arrangement the London County Council propose to adopt what is known as the "G.B." surface system for the reconstruction of the Aldgate to Bow tramways. The cost is 10,500*l.* per mile. The system has been in use in Lincoln for about a year. As in other surface systems, the electric energy for propelling the cars is obtained by the contact of skates fixed under the cars with studs on the surface of the road. These studs, which are placed in the centre of the tracks, are brought into contact with cables underneath by a mechanical device operated by magnetic action. The studs are only charged with electricity when a car is actually passing over them. The cost of the trackwork is reduced owing to the much less extensive excavation and amount of material which are required for the installation. The terms on which the system can be employed are as follows:—The Council to pay a royalty of 500*l.* a mile of single line in respect of the existing horse lines in Whitechapel Road, Mile End Road and Bow Road; the same royalty to be paid in respect of tramways constructed or reconstructed for this system up to a total length of thirty miles, including the Aldgate to Bow lines. The outlay on the experiment is estimated at 72,210*l.*, and there can be no certainty that the system may not be superseded by a different arrangement.

## ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWARK: VIEW OF CHANCEL.

LOWTHER TERRACE, GLASGOW.

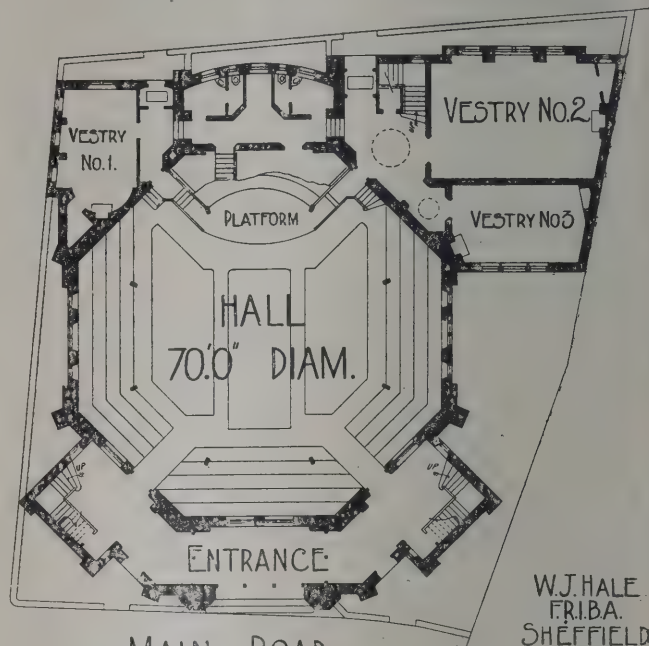
THE illustration shows three of the self-contained lodgings recently erected in this terrace. The buildings are of white sandstone from Giffnock and Bishopriggs quarries, and the roofs are covered with Westmoreland slates. The low wing to the left of the nearest house contains the hall with winter garden *en suite*, while the low building showing through at the extreme left contains the stable offices, garage, &c. The architect is Mr. JAMES MILLER, A.R.S.A., of Glasgow.

WESLEY HALL, CROOKES, SHEFFIELD.

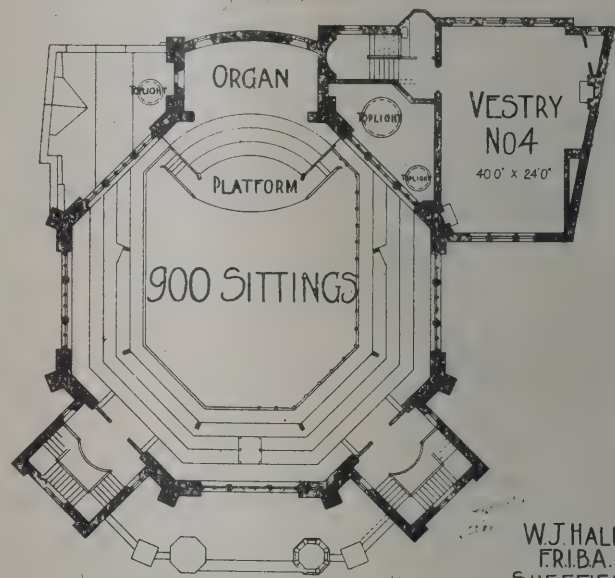
THIS building is being erected for the trustees in order to provide complete premises for Wesleyan mission work in the Crookes district. The hall is octagonal in plan. This shape allows the seats to be effectively grouped round the platform, so that every hearer may be within easy reach of the speaker's voice. A shallow balcony is provided, and as the octagon is 70 feet in diameter there is a large "well-hole," so that the general effect will be light and spacious. The accommodation is for 900 adults. There are ample

exits and crush spaces, and also a number of rooms for social and other purposes. The walls are built of local stone, and the roofs covered with Westmoreland slates. The cost is over 7,000*l.* The contractors are Messrs. T. ROPER & SONS, LTD., and the architect is Mr. W. J. HALE, F.R.I.B.A., of Sheffield.

## WESLEY HALL CROOKES SHEFFIELD

MAIN ROAD  
GROUND PLAN

## WESLEY HALL CROOKES SHEFFIELD



GALLERY PLAN

RAWMARSH WESLEYAN CHURCH.

THIS church is being erected for the trustees on a commanding site facing the main street. The plan is of the usual cruciform type, with nave, transepts and galleries, and with the choir and organ in the rear. Three vestries are provided as well as other conveniences. The building is faced externally with Dunford rockies and ashlar dressings. The contract, which is over 4,000*l.*, has been let to Mr. W. H. TREHERN, of Rotherham. The architect is Mr. W. J. HALE, F.R.I.B.A., of Sheffield.

PROPOSED HOUSE AT GILLINGHAM, DORSET.  
RESIDENCE, RIDGE MOUNT ESTATE, SUNNINGDALE.



## THE OLD MANOR-HOUSE, BYFLEET, SURREY.\*

THE manor of Byfleet dates back to the days of Edward the Confessor, when it was held by Erlwyn the Saxon, under the Abbot of Chertsey. In 1179 it was in the hands of Richard de Lucy, Justiciar of England and Keeper of Windsor Castle and the Tower. Sir Henry de Leybourne, who was knighted by Edward I. for distinguished bravery at the siege of Caerlaverock, in Scotland, was enfeoffed of the manor by Geoffrey de Lucy in 1297. Edward II. lived at Byfleet in the early part of his reign, but no record has been found to show how or when the manor became the property of the Crown. Writs and warrants signed by Edward and issued from here exist, perhaps the most important being a warrant ordering the arrest of the Knights Templar in England, bearing the date December 20, 1307. The king gave the manor to Piers de Gaveston, who had married Margaret de Clare, his niece. After the execution of Gaveston by the nobles in 1312, Edward resumed possession, and passed much of his time at Byfleet. Edward III. granted the manor, then assessed at 40*l.*, to his mother, Queen Isabella, on February 1, 1326-7, and in 1331 to his brother, John of Eltham, whom he created Earl of Cornwall. Upon the death of the prince in 1335, the king gave the custody of the park and warren to John de Chestre for life, but visited the manor occasionally, and in 1338 he granted the manor and park to his son Edward—afterwards known as the Black Prince—"and to his heirs for ever, provided they were Dukes of Cornwall and eldest sons of the reigning Sovereign." Prince Edward died in 1376, and was succeeded by his son, Richard of Bordeaux.

Richard II. commenced a restoration of the house in 1378, and this seems to have been going on for twelve years. In 1391 Richard granted the manor to Henry Percy, Earl of Northumberland, but he only had possession for two years, when John, Bishop of Salisbury, obtained a ten years lease of it. In 1399 Richard was deposed, all his grants were revoked by Parliament, and on October 15, in the same year, Henry IV. gave the manor to his eldest son, Henry of Monmouth, as Prince of Wales and Duke of Cornwall. During the boyhood of the prince Byfleet was let to Sir Francis a Court and his wife, Lady Alice de Vere, sister of the Earl of Oxford, but Prince Henry appears to



BYFLEET MANOR-HOUSE: THE FORECOURT.

have lived here after he came of age. Considerable repairs to the royal hunting-lodge and bridge close by were carried out by Henry VI. in 1447.

The manor passed successively through the hands—as Dukes of Cornwall—of Prince Edward of Lancaster, only son of Henry VI.; his cousin, Edward, Prince of Wales, afterwards Edward V.; Edward, Duke of Gloucester, only son of Richard III.; Arthur, Prince of Wales, son of Henry VII., and upon his death in 1502, to the King's second son, Henry, Duke of York, who succeeded to the throne in 1509 as Henry VIII. Tradition connects Henry's childhood with Byfleet, and Aubrey's statement that he was nursed at a house situated on the Wey, between Newark Abbey and the Earl of St. Albans' mill, seems to indicate

that it was at Byfleet Manor-House, though some authorities believe it to have been at Dorney House, Weybridge. Henry VIII. in 1540 annexed Byfleet to the Honour of Hampton Court.

In 1609 James I. granted the manor to his eldest son, Prince Henry, and upon his death, three years later, he gave it to his queen, Anne of Denmark, who took a great deal of interest in Byfleet and effected considerable repairs. Norden, in his "Survey of Windsor Forest," in 1607, gives a description of Byfleet Park, and in a plan shows a large group of buildings with a square garden, one wall of which still stands. In 1618 a survey was made of the park, and the queen, according to Aubrey, "began to build a noble house of brick." The queen died in March 1619, when the



BYFLEET MANOR-HOUSE: JACOBEOAN ENTRANCE GATEWAY.

king gave Byfleet to Sir James Fullarton, formerly tutor to Prince Henry, and he probably completed the building, of which the Jacobean gateway, forecourt and some of the walls still remain. After the Restoration the manor came into the hands of Henry Jermyn, Earl of St. Albans, Controller of the Household to Queen Henrietta Maria.

In 1690 it was owned by a family named Warburton, and while in their possession the present structure was erected, probably about 1724-34, the materials of the old house being employed in the rebuilding. The Hon. Thomas Murray rented the house in 1763, and ten years later it was leased by the Crown to Henry Pelham, Duke of Newcastle, together with Oatlands. In 1804 Frederick, Duke of York, son of George III., purchased the manors of Oatlands, Byfleet and Walton, and from this date its connection with the Crown ceased. The duke mortgaged the property heavily, and upon his death, in 1826, it became the property of Mr. E. Ball Hughes. Lord King, Baron of Ockham, purchased a portion of the manor in 1829, which came to his son, the Hon. P. I. Locke-King, upon his death in 1833. Mrs. Albert Rutson, the present owner, bought the property in 1891, added the wings and carried out a thorough repair to the house, and she has subsequently acquired the adjacent farm buildings and land.

In the garden is an underground passage, or drain, of some size, that probably belonged to the royal hunting-lodge.

For the foregoing description of Byfleet Manor my thanks are specially due to Miss Frances J. Mitchell, for having placed at my disposal the proofs of a very carefully compiled and most interesting paper recently prepared by her for publication in the "Surrey Archæological Collections."

\* Read at a meeting of the Upper Norwood Athenæum on May 25, by Mr. Frank E. Spiers.



## PREPARATION OF A PAPER.\*

IN offering this brief note for consideration, I cannot pretend that it is in any way a paper in the ordinary sense. I should wish it rather to be taken as the first of those communicated contributions from members for which the President and his predecessors have pleaded on several occasions, without evoking the response so modest a request merited. I think there are two sufficiently good reasons why a note on the preparation of a paper will not be without interest and value. It is a good sign that at our meetings a large proportion of those attending regularly are young men. Several have already given papers, and probably others would if they could feel sure that they would acquit themselves with credit. My first object is to try to dispose of any notions lurking in the minds of our junior members, that they, at least, can know nothing worth imparting to the whole body of members. I also wish to make it clear that writing a paper and preparing illustrations therefore do not constitute a very formidable undertaking. In the second place, I may say that this paper was suggested by remarks at general meetings which have fallen from past presidents, Messrs. Walter Jones and Jno. S. Palmer, who have mentioned the matter on more than one occasion. I hope to be able to impart some hints which will help members who read papers to raise the standard of the printed proceedings. It would be impertinent on my part to attempt any serious criticism of the technical features of the papers read, but speaking as an engineer who has abandoned the rule for the pen, I may perhaps be permitted the remark that, although the outside covers compare favourably with the Proceedings of some other older and wealthier societies, the general style of our own Proceedings inside might easily be improved, if a little more attention were paid to some first principles when the papers were being prepared.

The choice of a subject is usually more troublesome than the actual work of writing. Without being hypercritical, it is not over-stating facts to remark that some of the papers which have been read before this Institution have hardly been worthy of a permanent place in the Proceedings, and the reasons for this unsatisfactory state of things are not far to seek. The subjects chosen have been either too comprehensive to admit of adequate treatment in the space and time allowed, or they have been discursive and consequently, while sometimes provocative of useful discussion, have not disclosed information likely to be useful to the members, who presumably come to the meeting wishing for information in connection with the profession. It seems to me that the first and chief characteristic of a really useful paper lies in its practical character and its completeness. Comparatively restricted subject-matter, if it can be worked up so that all sides are examined, if it is turned inside out and every detail thrashed out, will prove more valuable than the presentation of the main outlines of a big scheme. Looking through the back volumes one is struck by the fact that the best discussions—those which must have helped business most—have often been those following papers of comparatively circumscribed interests. This ought to afford a clue and point the moral that it is quite a mistake to suppose that the method, or line of conduct, which is obviously that of the least resistance to our own mind may have occurred to our neighbour. It is one of the surprises of journalistic work to find what a lot of people there are who know nothing about many matters most nearly connected with their own daily occupation. May I mention a case in point? At a meeting held in the room at Storey's Gate last year the question of the path followed by a body of water circulating through a radiator came up for discussion. In ten minutes three of our past Presidents advanced as many theories and threw out as many hints about coupling the pipes so as to direct the circulation and throttle the flow. Those hints ought to have been worth three times as many sovereigns to those interested and engaged in contracting work. Nowadays it is perfection in respect of small details which pays dividends.

After choosing a subject nothing pertinent to the matter ought to be omitted from the paper. This suggests the next characteristic to be aimed at, namely, a terse conciseness. If all that can be said is to be stated, and that well, the writing must be "lean." Unnecessary verbiage, excursions into side issues even remotely relevant, must be left severely alone, or cut out with a merciless hand, if from lack of practice they are allowed to slip into the first draft,

for every paper will, of course, be rewritten at least once. The question of style must be left to the individual, but one or two hints may not be out of place. It is sound advice to recommend members to avoid the use of the imperative mood in conveying information. May I repeat the sense of that sentence, because I want you to look at it and compare it with my next. Don't use the imperative mood in constructing a sentence intended to convey information. Spoken, this form is not objectionable, and in the workshop it has an authoritative directness about it which makes it desirable. In cold type it does not appear so pleasant nor convincing as a more persuasive form. Speaking from a purely selfish point of view, that of the journalist who has to transpose your remarks from the direct into the oblique narration, when the present tense of the article is altered to the past of the newspaper report, I counsel the sparing use of the first person singular. Quite apart, however, from my point of view the little letter sprinkled like milestones or lamp-posts over the page does not suggest a becoming modesty.

When the draft has been written it should be put aside for a few days before the revised clean copy is made. This plan allows the ideas, remarks, comments and all the rest of the good things which have been committed to paper without banishment from the mind to simmer there. Then when the revision is undertaken little errors and omissions will be noticed and general improvements can be introduced. It is surely not too much at this time of the day to ask on behalf of the secretary that this revised copy should be typewritten. Mr. Taylor is a busy man, your publication committee is composed of busy men, therefore anything that will facilitate their work is not to be despised. Typing is not expensive, and fame, in the shape of a place in the year-book, is cheap at 1s. per thousand words. A word about the time for sending in. A paper to be read at any meeting ought to be in the secretary's hands within one month of the date when the preceding meeting was held. That only allows three months for the paper to be considered in committee, composed, if accepted, read in proof by the editor—I do not know who holds that post—the revised proof sent to the writer for corrections, which have to be carried out before it can be printed and copies prepared and despatched to the members. Three months may seem a long time—it would be in a newspaper office—but publications of papers such as we have here are mere incidents in an otherwise busy round of work, and as such the proofs demand prompt attention and speedy despatch when they come to hand. May I put in a word for a thoughtful revision of the proof? I am quite aware that when a piece of printed matter lies before its author for the first time it looks very different from the original. So much that might have been written is found to have been omitted, and much that is there seems indifferently well expressed when it is in black and white. The author should weigh well the reasons before interpolating a lot of new matter or making extensive corrections. Your secretary has probably carefully calculated the time your paper will occupy in preparing his agenda, and in any case the balance in the hands of your treasurer will suffer diminution exactly in proportion to your greed for corrections and alterations. You will have the right to reply to any criticisms, and that occasion affords an opportunity for elucidating points which may not be clear, or for supplementing the information imparted. There are two practical methods of reproducing sketches illustrating a paper. The simplest, least expensive to prepare and, when made, most convincing to a mechanically trained man is the block made from a line drawing. The sketch should be made on a Bristol board or a smooth drawing-paper with Indian ink of good colour and quality. The preliminary lines in pencil, and not inked in, need not be rubbed out if they are quite faint, but coloured inks of any kind are not permissible. Blue does not come out in the reproduced sketch at all, but red would appear black though not always of a good colour. Black lines on a white ground are all that are favoured by the blockmaker, though hatching may be indicated by blue pencil marks over the surface to be covered. What is known as a "tint"-dotted shading can be produced, also photographically, if the original is lightly shaded with a blue pencil. The fact that these "tones" can be made by means of screens is not so well known as it might be. In the preparation of a paper or the publication of a catalogue, knowledge thereof would often save a good deal of time in the drawing office. A popular and, with good paper, satisfactory way of illustrating any article is afforded by the half-tone block. This is made from a photograph of the article or articles to be illustrated.

\* From a paper by Mr. W. A. Young (Associate Member), read at the meeting of the Institution of Heating and Ventilating Engineers.



If you will examine some of the half-tone drawings which have appeared in the Proceedings, you will find there is an absence of background. That of the man standing beside the fan, which Mr. Yates used in his paper on the Ventilation of the House of Commons, is a recently-published example. It will be noticed from this illustration that the outline stands out clearly on the white paper. This is because the photograph was either carefully cut so as to remove all the extraneous surrounding details, or those undesired details may have been painted out with Albanine and Chinese white mixed in equal parts. When it is desired to have vignette shading round the object a little Payne's grey to tone down the contrasts may be employed. If, as sometimes happens, the photograph available is not sharp, or too much of it is in shadow, a good deal may be done to improve matters by retouching the surface with Payne's grey, in which a little carmine has been mixed to bring up the medium to a warm tint in accordance with the tone of the photograph. A brown print slightly leaning to a blue tone from a sharp clear negative with plenty of contrast in it reproduces as well as any, but good work is also obtained from bromide or platinotype prints. Our own blockmaker tells me that he has a liking for prints made with "Dekko," a gaslight paper. If the article to be photographed can be prepared specially for the work it may be painted French grey, the paint being made up without oil which will give a dull matt surface. Any letters on it should be picked out white. There are no better colours than these for getting good photographs of machinery. A third plan, which I am not going to advocate for illustrating a paper, though there is probably no better one for catalogue work, involves the cutting of a wood-block from a photograph reproduced upon it, and then the making of an electro from the matrix thus obtained. Illustrations of this kind have appeared in the Proceedings, but they have looked too much like catalogue blocks. I, for one, would bar their use. Still, the electro combines the good printing qualities of the line on practically any paper, with the faithfulness to details of the half-tone. Its first cost is against it, and therefore, when only one block is required, or only a small printing is necessary, the expense is usually prohibitive.

When a sketch for reproduction requires alteration or correction, the use of an erasing medium should not be resorted to under any circumstances. Such methods destroy the surface of the paper or board, and almost invariably the alteration produces a ragged line which faithfully reappears on the block, unless the graving tool is employed afterwards, of course, at an extra charge. If only a small mistake has been made, say by over-running a line, or by ruling solid where a dotted line was intended, a little Chinese white spotted on with a fine pencil (brush) will do all that is necessary. The white should be of such consistency as to cover the black ink with one application. When, however, the alteration represents a considerable proportion of the whole sketch, the plan to follow is to cover the part involved with a piece of good drawing-paper and work out the new details on that, taking care to connect the lines on the Bristol board accurately and completely with those on the patch where the joints are on the edges. This, of course, only applies to line drawings which will be made as zincographs. The colour of the patch need not be exactly that of the board, a piece of drawing-paper, even if it has a cream tint, will not make any difference to the result from a good white Bristol board on which it may be stuck.

Finally, it should not be forgotten that the quality of the lines counts for a great deal in the result. A thin weak line in the original becomes woefully attenuated in the reduction, and consequently a sketch for reproduction ought always to be heavier than would be deemed good practice in the drawing office.

#### A TRAFFIC BOARD FOR LONDON.

THE general purposes committee of the London County Council have issued a report in which they say:—We have to report that on July 1, 1907, we received a deputation representing the Browning Hall Conference on Housing and consisting of about thirty persons, including Lord Ribblesdale, Sir David Barbour, Sir John Dickson-Poynder, M.P., and the Right Hon. Charles Booth, with regard to the urgent need for the establishment of a Traffic Board for London, as recommended by the Royal Commission on London Traffic, appointed in 1903 to consider the question of locomotion and transport in London.

We desire to remind the Council of the circumstances

which led up to the appointment of the Royal Commission. The question of underground locomotion has upon no less than four occasions during the past fifty years been the subject of inquiry by Parliament through the medium of various select committees before which the late Metropolitan Board of Works and the Council were represented. Upon each of these occasions the need of a general comprehensive system, which should provide communication between the various main lines of railway has been fully recognised. In addition the necessity for having one permanent authority to deal with all underground railway proposals has been generally admitted.

In 1901 a joint select committee of both Houses of Parliament on underground railways, which had referred to them a variety of deep-level railway schemes promoted in that session, recommended, *inter alia*, in their report:—

(1) That all underground railways should be subject, within certain specified limits, to the control of a central authority; (2) that in some way there should be a more direct control and supervision of all projects for underground railways; (3) that the powers under the Light Railways Act, whereby a local authority may construct or assist in the construction of light railways, should be extended to the City Corporation and county councils with a view to lines being extended into thinly populated neighbourhoods, thereby relieving congested districts; (4) that the Board of Trade should hold an inquiry into a system of locomotion by means of subways or shallow tunnels.

In view of the fact that nothing was done by the Government to give effect to the above recommendations, an informal deputation from the highways committee waited in January 1902 upon the President of the Board of Trade and the Lord Chairman of Committees and urged that, in view of the fact that all the Bills introduced in the session of 1901 had been suspended until 1902, and that in addition a large number of new ones had been introduced, "some controlling authority should be established to which the question of locomotion, so closely connected with the provision of housing accommodation, the control of the increasingly congested traffic of London and other important problems should be referred, and that only such projects as might be approved by that authority should be allowed to be brought before Parliament."

The result of the legislation of the session of 1902 as regards underground railways in London was that out of 82 miles of proposed new lines the construction of only four miles was authorised.

Having regard to the urgency of dealing with the underground railway system of the county of London, the advisability of establishing a scheme such as would not only meet present but future needs commended itself to the Council, which, in October 1902, referred it to the Parliamentary, highways and finance committees to consider the advisability of the Council promoting, in the session of 1903, a Bill on the subject. As the result of a conference between the three committees above referred to it was found impossible for the Council to promote, within the time limited by the standing orders of Parliament, a Bill such as was proposed. On the other hand, it was felt that perhaps a more effective method would be to invite the assistance of the Government in a general investigation into the construction of tube railways and underground means of communication, and accordingly, on November 11, 1902, the Council passed the following resolution:—

That, in the opinion of the Council, it will be detrimental to the interests of London if any Bill for the construction of a tube railway is proceeded with in Parliament until a full inquiry shall have been held and a report presented upon the following questions:—

1. How far it is possible to adapt the provisions of the Light Railways Act, 1896, to underground railways in London as recommended by the Joint Select Committee of 1901.

2. Whether it is possible and desirable to formulate some general scheme of underground railway accommodation capable of serving the requirements of London as a whole, and if so what should be the main features of such general scheme.

3. Whether a system of deep-level tube railways will afford the best results, or whether it will not be preferable to adopt either wholly or partially the system of underground locomotion in operation in continental and American cities.

4. How and by whom such general scheme can best be carried out, having regard to the general traffic within London, the special need of supplying means of access to



the suburbs, the housing problem, the need for cheap fares, the raising of necessary capital, existing means of locomotion.

On February 7, 1903, it was announced that the Royal Commission had been appointed. The following were the terms of its reference:—

1. As to the measures which the Commission deem most effectual for the improvement of the same (locomotion and transport in London) by the development and inter-connection of railways and tramways on or below the surface; by increasing the facilities for other forms of mechanical locomotion; by better provision for the organisation and regulation of vehicular and pedestrian traffic, or otherwise.

2. As to the desirability of establishing some authority or tribunal to which all schemes of railway or tramway construction of a local character should be referred, and the powers which it would be advisable to confer on such a body.

The report of the Royal Commission which was issued in June 1905 is contained in eight volumes, and is a most valuable contribution to a subject of very considerable importance to London. Our consideration of the Commission's report has been rendered comparatively easy by means of a synopsis prepared by the clerk of the Council. The synopsis divides the report into three portions, and shows that—

Part I. deals with the general question of locomotion.

Part II. deals with the improvement necessary in the means of locomotion and transport, and contains recommendations under the following heads:—

1. Street improvements:—(a) Street improvements; (b) Building laws; (c) Main roads leading out of London.

2. Tramways:—(a) Tramways; (b) Procedure for obtaining authority to construct tramways and question of veto.

3. Railways:—(a) Railways; (b) Railways in shallow subways; (c) Operation of urban railways and tramways in large systems; (d) Other questions connected with London railways.

4. Traffic regulations and other matters.

(Under seventeen sub-heads.)

Part III. relates to the formation of a Traffic Board and contains recommendations under heads as follows:—

(a) The creation of an authority with limited and special powers; (b) The powers and duties of the proposed Traffic Board; (c) Other duties the Traffic Board may be required to perform; (d) The constitution of the Traffic Board; (e) The cost of the Traffic Board.

The Commission's conclusions may be summarised thus—

1. *Improvement of means of locomotion and transport* urgently necessary in the interest of public health and convenience and for prompt transaction of business and solution of housing question.

2. *Narrowness of streets.*—Comprehensive scheme of street improvement necessary.

3. *Building laws and regulations* dealing with preservation of forecourts, &c., required.

4. *Tramway development* urgently required. Termini in central streets to be avoided. East and west and north and south lines needed. Preference to be given to street improvements which will assist tramway extension. Absolute veto should be abolished and preferential rights in regard to tramway construction given to certain authorities.

5. *Further development of railways* governed by the features of existing and authorised systems which require to be extended and improved. Additional facilities required for suburban passengers arriving at termini outside central area. Railways should be underground in central districts and shallow in preference, generally speaking, to tube. Urban railways should wherever possible have four lines. Cheaper type of through tube lines coming to the surface in the suburbs is to be aimed at. Local authorities might, if necessary, be authorised to give financial assistance direct or indirect in the construction of lines. Local authorities to be empowered to make special arrangements for guaranteeing companies in regard to workmen's fares charged in new districts. Promoters to be enabled to purchase by voluntary agreement land in districts to be opened up.

6. *Traffic regulations.*—Special attention required in regard to (a) improved regulations for traffic; (b) the avoidance of certain oversights or defects in the construction and maintenance of the streets, the removal from them of fixed obstructions in certain cases, and the control in the future of the erection of such obstructions; (c) the introduction of a system for minimising the evils caused by the breaking-

up of the streets by persons and companies having statutory authority to do so; (d) the regulation of the use of the streets by costermongers and itinerant vendors; and (e) the removal of special obstructions to traffic.

7. *Main roads.*—A comprehensive plan for the improvement and construction of main roads leading out of London should be prepared, and arrangements made for carrying out such plan and for the proper maintenance of the roads when constructed.

8. *Improved building laws* required for application to districts not yet built over. Building plans might be prepared for particular areas.

9. *Law affecting traffic control*, and prescribing the respective functions and powers of municipal, local and other authorities, should be simplified and consolidated.

10. *Traffic Board.*—A Traffic Board with certain consultative and advisory functions should be appointed with jurisdiction over "Greater London."

The deputation which we received on July 1, 1907, represented that in the interests of people living in and around London, and with a view to providing a solution of the difficulty due to excessive congestion of the population, improved means of communication and the linking up of existing means of locomotion were necessary, and further that the solution of the housing problem was inseparably connected with the provision of a complete system of transport, and the deputation therefore desired to urge the Council to approach the Government with a view to the establishment of a Traffic Board on the lines recommended by the Commission. The deputation laid stress upon the fact that such a board would not interfere with the work of the Council or of any other local authority, as it would simply act in an advisory and not in an executive capacity, and would keep before it the needs of London as a whole in the matter of transit. The deputation did not propose that the Traffic Board should be a detached municipal body, but should be in conjunction with and subordinate to one of the public departments of the State, such as the Board of Trade.

As the result of a careful consideration of this difficult and complex subject we feel that the establishment of an authority competent to deal with the question of locomotion and transport in London is desirable, though we are not at the moment prepared to express any opinion as to the precise constitution of such an authority. We are supported in this conclusion by the circumstance that the President of the Board of Trade, in a speech on the occasion of the opening of the Hampstead, Euston and Charing Cross railway on June 22, 1907, made it evident that the Government were not opposed to the suggestion of the Royal Commission, but were in fact alive not merely to the importance but to the urgency of the problem. We recommend:— "That it be referred to the general purposes committee to arrange for a deputation to wait upon the Prime Minister to urge the necessity of His Majesty's Government securing the immediate establishment of a London Traffic Board upon the lines indicated in the report of the Royal Commission on London Traffic."

#### CLONMACNOISE, KING'S COUNTY.\*

CLONMACNOISE, or the "Seven Churches," a large and interesting group of early buildings, lies in the King's County, the barony of Garrycastle and parish of Clonmacnoise, on the south-east bank of the Shannon, some eight miles to the south-west of Athlone.

Founded about 548 at a place called Ardtibra, it owed its origin to the devout Kieran, called "mac an tsaor," son of the wright, from the trade of Boenan, his father. Kieran, aided in the building of his wooden church by the fugitive Prince Dermot, prophesied the latter's advancement, and the grateful monarch favoured and endowed the monastery of his friend when the prophecy was fulfilled. Kieran only survived a few months, and died at the early age of thirty-three. The monastic city grew ever in sanctity and importance. Lying at the actual centre of the island, its fame spread to the four coasts. It became a great college, but in the Norse wars its fame and accessibility exposed it to unusual suffering, not always at the hands of the heathen. In 830 the graceless king-bishop of Cashel, "Felim mac Criowhane," made a great slaughter of its clergy and burned its houses "up to the church door." He again plundered the

\* From the description by Thomas Johnson Westropp, M.A., M.R.I.A., prepared for excursion of Royal Society of Antiquaries of Ireland.



Termon in 843, it having meanwhile been spoiled and burned by the Danes in 834 and 839. The fierce Prince Tomar, of Dublin, burned it in 922; the Danes and Munstermen (unnatural allies) plundered it in 948 and 953; the Ferrals and Munstermen in 1044. In 1080 Donnel O'Melaughlin, king of Meath, made great slaughter, and also burned the houses in the nuns' churchyard. It was again and again plundered; in 1135 it was burned. Meiler fitz Henry and William de Burgo, with the Normans, spoiled it in 1200, 1202 and 1204, leaving it waste and void in houses and gardens. In 1227 O'Melaughlin broke the record by burning it thrice in three months. Cahall O'Kelly burned it in 1283, and its career closed by its sack by the garrison of Athlone in 1552, from which it never recovered.

We must with equal brevity note of its buildings that the great stone church was made by King Flan and Abbot Colman about 904, and rebuilt or repaired between 1089 and 1103, and again in 1336 and about 1460. The Little Church, or "Eaglais beag," is named in 947 and 977. Temple Cillen was built about that time, Temple Conor in 1010, Kill Kieran or the Hospital in 1087, and O'Kelly's Church in 1167. The Nunnery stood at least in 1026, when the great toghar or causeway was made; it was repaired by Queen Dervorgilla after 1172. O'Rorke's tower (perhaps the rude upper storey) was built in 1124. Liss an abaid, the abbot's fort, most probably where the castle stands, was burned before 1135. The castle itself was built by the Normans about 1208.

Clonmacnoise might well be called the central spot of early Christian Ireland, the great collegiate city—a focus of piety as well as of learning. It was not without deep and clear insight into Irish feelings and facts that the astute Norseman, Turgeis, presided at Armagh and set his wife Ota over Clonmacnoise; he had his hand on the head and the heart of the Irish Church. One must think of Clonmacnoise as a complex "city of God," not as a cloister. Nearly every writer about it alludes at some length to its loneliness and the sense of desolation hanging round its site, till they have impressed on it a character for seclusion that warps the clear understanding of its nature. "The secluded retreat of the sons of the noble," as some at one time mistranslated its name; the homely "Plain of Nos pigs" (or "sons") at least omitted this element of misrepresentation. It was no such monastery as that on the peaked rock of Skellig in the bosom of "the great endless deep," but rather a primitive Oxford, a city, see and colleges. The city of Kieran was in a central position, on the main waterway and safest road of the island, and accessible by water from all the monasteries of the Shannon and its tributaries. Indeed it suffered from its very accessibility and from lying on the track of hostile navies. Even in its present desolation it does not suggest the loneliness of Glendalough or Innismurray; how much less when its slopes were crowded with the huts and its river with the "currachs" of its countless monks and students.

It is, however, a very impressive spot; the great flats of marshes and water patches reaching northward and westward have nothing in them to distract attention from its ruins. Devoid of picturesqueness, they only emphasise and throw into relief the remarkable group of churches and towers spreading down the slope of the green "escar" till they almost reach the reeds and sedges of the Shannon. Very impressive, too, is the approach by water, as the confused masses of ruin and the round tower on its bold escarpment rise against the sky. This is far the best line of approach, for by land we drive through an unattractive country, losing sight of the distant towers across the bogs soon after leaving Athlone, nor do we see them again till we are within about a mile from them, when they look insignificant and soon disappear again behind the low green hills. Probably the finest views are those from the causeway to the Nuns' Church, and from the green ridge to the south-west of the main group.

There the shattered fortress with its leaning towers and green earthworks in the foreground; the river, winding through the endless flats from the distant towers and spire of Athlone; the bold round tower, its more perfect but less conspicuous companion; the cathedral, with its surrounding churches; the high crosses and thickets of tombstones combine to form a most striking view, which (glorified by non-existent rugged hills and by a sunset to the north) makes the beautiful but deceptive picture in Bartlett's work and the books of its many copyists.

The ruins consist of the main group with the outlying Nuns' Church to the east and the entrenched castle to the west. The central group includes—1. The cathedral, or

Coghlan's Church, once known as Temple mac Dermot. 2. Temple-Rí, or -Melachlin. 3. Temple Kelly (levelled). 4. Temple Kieran. 5 and 6. Temple Douling and Temple Hurpen. 7. Regles Finghin, with the attached round tower. 8. Temple Conor, now used as the Protestant church. 9. Site of Temple Killen. 10. Site of Temple Ganly. 11. Site of Bishop's Chapel.

Besides, there are the fine round tower, two high crosses, a lesser cross and many inscribed and carved slabs. There seems to have been a hospital on the site of which O'Kelly's Church was built. The two wells are Tober Kieran and Tober Finghin; the last is low-lying and frequently covered by the Shannon. In 610 Gorman, who had spent a year over Tober Finghin, died on pilgrimage at Clonmacnoiss. . . .

*Temple Finghin.*—On the northern edge of the cemetery, almost in the marshes of the Shannon, is perhaps one of the most exceptionally interesting churches in Ireland. It has been too often discussed with deep prejudice, which we must try and avoid. To Dr. Petrie and his more orthodox followers it afforded the most striking evidence for the late origin of the round towers; Brash examined the whole question, and arrived at an opposite conclusion, and after careful planning and examination on several occasions, we must confess ourselves converted from the view that the tower was an afterthought. However, we have not satisfied even ourselves on this problem, and must give it as we find it. We think that there was an existing tower of most unusual character, that a small church was attached, and that in the late eleventh century, or even later, an enlarged chancel was built; that then, so awkward was the effect of the tower bulging into the church, where an angle was expected, that a clumsy attempt was made to cut such an angle, and this work was continued till traces of settlement and collapse stopped this dangerous makeshift. It is almost a miracle that the half-undermined Cloictheach did not crash down into its intrusive neighbour.

When we examine the junction of the church and tower we find that the beautiful ashlar facing of the latter has been rudely hacked away; that the recess and corbelling were made as an afterthought, and that the tower cracked inside from this design; that a rude groove cut in a descending curve round a quadrant of the tower to allow the roof to set into it was also a clumsy makeshift; that the courses and masonry of the tower and church do not correspond; that, in short, whatever its age, the tower was adapted to suit the church, and neither contemporaneous nor later than the latter. Were it otherwise surely the tower would have been beside the church, as at Tamleacht Finlagan, or been decently embodied in the later walls as at Lusk, or built over some portion like at Ireland's Eye or Trinity Church, Glendalough.

Nevertheless the satisfactory conclusion seems as far off as ever. Why has the tower no upper windows below the cap, as all similar structures known to us (save the tower of Hythe, in Kent)? Why is the doorway on the ground-level and facing north? Why do all the apses face the south? Nothing more unsuitable for a castle, or a belfry, or an anchorite's residence, or, let us add, a temple, could well be designed. A store place is just conceivable; but what then about the unlighted top storey, and of course such a store could in no way be defended against attack.

## THESSALY.

A CORRESPONDENT of the *Glasgow Herald*, who is yachting near Thessaly, says the city is the largest after Constantinople. European Turkey is rarely visited by tourists. It lies off the usual track to-day, although the great road from the Western to the Eastern capitals of Imperial Rome ran through it in ancient times. The old name, Therme, was changed to Thessalonica about 400 B.C. by Cassander in honour of his wife Thessa, sister of Alexander the Great. In St. Paul's day it was the capital of the whole country from the Adriatic to the Black Sea, and it is the capital of Macedonia to-day.

Not even Constantinople itself presents more varied "street scenes" to reward the visitor. The Turkish masters swagger at the cafés, or ride their long-tailed barbs through the narrow thoroughfares. Greeks in their national garb, Albanians dressed in a general effect of embroidery and knife-handles, priests in tall caps and veils, Jews in elaborate and variously coloured costumes meet the eye wherever one may turn. Some of these Salonica Jews claim to have been in the city from earliest times, whilst many



took refuge here from Spain. The women wear their hair in a long green bag, ending in pearl embroidery and fringe. Sometimes this covering of the tresses is red, and then one recognises the wearer as a widow. Certainly their vivid clothing adds much to the interest of the scene—a thing one scarcely expects from Jews.

Old walls, whitewashed now, still bound the city, and on the high ground overlooking the harbour is the citadel, with its seven towers—once the Acropolis. On the shore is the picturesque White Tower built by Sultan Suleiman in the sixteenth century to command the port and roadstead. An arch, built to commemorate the triumph of an emperor (people dispute whether the victor was Gallienus or Alexander) spans the Roman road crossing the city from west to east.

Splendid churches built in the first centuries of the Christian era are now the Turkish mosques, but they are much less disfigured and disguised than are the churches of Constantinople. The round church of St. George, built probably about 400, is the most beautiful example of Byzantine mosaic in existence. The work is exceedingly fine; the cube used is smaller than that used in St. Mark's in Venice, or at Monreale, the smaller size giving a refined and beautiful effect, difficult to describe on paper. A ruined ambo from this church is now in the Imperial Museum in Constantinople, a superb mosaic indeed. The church of Holy Mary, now the mosque of Eski Djouma, is very large and magnificent, gleaming with marbles and glittering with mosaics.

#### HEIGHT OF BUILDINGS IN GLASGOW.

TWO appeals from the Dean of Guild of Glasgow were heard before the Lord President and Lords Dundas and Johnston in the Court of Session, Edinburgh, on Saturday. The Summerlee Iron Company possessed ground which faced to West George Street, and the rear of which was to West Regent Street Lane, which lane is parallel with West George Street. The company proposed to put up a high building extending over the whole of their property with an elevation to the street and to the lane. The height of the proposed building was affected by sections 60 and 62 of the Glasgow Buildings Regulation Act. The first sub-section of section 60 provides that "no building other than a church shall, except with the consent of the Corporation, be erected in, on or adjoining any street of a greater height than the distance between the building lines of such street and one-half more of such distance, and in no case except with such consent of the Corporation shall such height exceed 100 feet." The proposed building exceeded 100 feet. It did not exceed one and a half times the breadth of West George Street, but it did exceed in height one and a half times the breadth of West Regent Street Lane. Accordingly the company addressed a letter to the town clerk in which they enclosed a plan of the proposed building, and they asked for consent of the Corporation. That consent they got, and armed with it they asked the Dean of Guild for a decree in the ordinary way and the decree was granted. In terms of sub-section 3, section 60 of the Act, the Summerlee Company advertised that they had got the consent in order that persons who conceived themselves aggrieved might object. Messrs. Lindsay, Meldrum & Oates, solicitors, who had property in the immediate neighbourhood but not exactly touching the company's property, presented an appeal to the Dean of Guild against the consent of the Corporation. At the same time the same objectors appeared before the Dean of Guild and objected on the ground that there had been no proper consent given, and that the building was struck at by the provisions of sections 60 and 62. The Dean of Guild held that the objectors had no title to plead the provisions of the Act at all, on the ground that the privilege of pleading these provisions was limited to the Corporation. He accordingly granted the decree. In the appeal against the consent he said he saw no reason for disagreeing with the consent which the Corporation had given. Both these judgments were brought before their lordships by the objectors.

Their lordships remitted both cases to the Dean of Guild to proceed as should be just. No expenses were found due to or by either party.

The Lord-President said he could not agree with the ground upon which the Dean of Guild disposed of the objections. He could not think that the universal proposition that no private individual had ever any title to plead the prohibitions of the Act was a just one. So far as the ground of judgment was concerned he was unable to agree

with the Dean of Guild. But the only result of that was that one must look at the merits. The objectors said there was no possibility here of a dispensation because section 60 only dealt with buildings which were in a street, and this was not a building which was in a street, it was a building which was in streets—the plural instead of the singular—and that was regulated by section 62. His Lordship thought that was a completely erroneous view of the statute. It was perfectly clear that section 62 was not a code in its dealing with streets in the plural, whereas section 60 was a code dealing with streets in the singular. Having settled that there was a little doubt thrown upon the matter whether the consent of the Corporation had been here given, because the application bore to be for a building in West George Street, and not for a building in West Regent Street Lane, it was not too much to assume that the Corporation knew the circumstances of West Regent Street Lane, but his Lordship did not care to decide that question here, and what he proposed was that with the explanations of law which he had given the question should go back to the Dean of Guild in order that he might consider whether as a matter of fact the consent of the Corporation had been knowingly given to a building which, under section 62, must be held as abutting upon two streets. If that consent had been given and the Dean of Guild saw no reason to interfere then all was right. If that consent had not been given then, of course, the Dean of Guild in his turn would send it back to the Corporation.

Lord Dundas concurred.

Lord Johnston, while concurring in the course proposed to be taken, differed on the grounds upon which their lordships ought to proceed, his view being that the sections of the Act referred to related to the case of a main street and a side street, and not to two parallel streets as West George Street and West Regent Street Lane were. It seemed to him that the code in the sections was not complete, and he had very great difficulty in applying it to the present case.

#### SOUTH LONDON SCHOOL OF TECHNICAL ART.

PERHAPS the best indication of the continued usefulness of the modelling department of this school and its great influence on the art of sculpture in England may be found in the results of the annual competition for the Institute's Sculpture Studentship of 50%, and in the public work recently executed by its students of past years.

The studentship is only open to competition to students of the school who have attended the modelling classes regularly for three years and have contributed at least three designs to the sketch club during the year. It has the effect of attracting to the school many earnest young carvers, and of encouraging them to prosecute their art studies diligently and continuously over a period of at least three years, and in several instances over a still longer period. The subject set for competition is announced every year before the long vacation, together with the scale to which the model must be worked (usually about one-third). The models submitted are in clay or a plaster cast from it, and they are the original work of the students both in design and workmanship. The students of the school who are eligible to compete for this studentship have, therefore, about six months in which to study the subject for the year, to sketch out a design and to work out a model on a sufficiently large scale, usually from 3 to 4 feet high. In all this they are expected to depend solely upon their own abilities, unaided by their teachers. The subject of the competition is invariably a piece of architectural sculpture; last year it was a design for a doorway with metal doors for a national bank. The competition was judged by Mr. Pomeroy, A.R.A., himself one of the distinguished past students of the school. The models submitted were, if possible, somewhat above the average, both in originality and beauty of design and in workmanship, indicating that careful thought and observation had been bestowed upon them. The studentship was awarded to Philip Allen, and "Honourable Mention" to P. B. Baker and W. W. Wagstaff.

The new buildings of the Victoria and Albert Museum at South Kensington are nearing completion, and contain much external sculptured work, a great part of which has been executed by past students of the Institute's school. The sculptured panels over the principal entrance have been carved by Mr. Frampton, R.A., and eight of the statues along the front of the building have been executed by Mr. Goscombe John, A.R.A., Mr. Lynn Jenkins, Mr. A. Broad-



bent and Mr. W. S. Frith, the teacher of modelling under whom all the previously named sculptors had studied at the Institute's school. Again, two of the past distinguished students of the school have been engaged on the sculpture at the new Central Criminal Court in the Old Bailey, Mr. Pomeroy, A.R.A., and Mr. Alfred Turner. And nearly a quarter of the exhibits in sculpture at the last Royal Academy exhibition were by artists who had attended the modelling department of the Institute's school.

The drawing and painting classes have been well attended during the year, and the teacher reports that the work has been fully up to the high average of previous years. The majority of students attending this department are illustrators and designers by occupation, but many of them have risen to considerable success at the Royal Academy schools and exhibitions. To these must now be added Mr. Frank Craig, whose picture, "The Heretic," was purchased last year under the "Chantry" bequest.

The number of students attending the school during the session was 131, as against 137 in the previous session. The attendance fluctuates by reason of the nature of the occupations of the students. They are nearly all carvers or draughtsmen or decorators, and their work frequently carries them considerable distances from their homes or lodgings, sometimes for weeks or months at a stretch. As an example of this a recent case may be cited in which the committee granted an extension of time to one of the holders of the sculpture studentship who had been unable to make the required number of attendances at the school, having been engaged for over two months on some carving-work at Oxford.

### SARSEN STONES.

AN appeal has been issued by the National Trust for Places of Historic Interest or Natural Beauty in favour of protection for stones locally known as "Sarsen stones." They are, geologically, the hardened and solidified boulders of a stratum of Eocene sand formerly covering the chalk, which in the course of ages has been denuded of the softer portions. These Sarsens vary in size from small boulders to vast masses of sixty or seventy tons. They are found as scattered blocks over a wide area of the chalk country, but in the neighbourhood of Marlborough are in several places congregated together in such vast assemblages, following the windings of a narrow combe or "bottom" of the Downs, as to suggest the idea of a river of stones. Two of the most remarkable of these assemblages are those to be found in Lockeridge Dean and Pickle Dean; the latter collection, from the fact that the narrow valley containing the stones is actually crossed by the Bath Road some four miles west of Marlborough, has been known ever since the old coaching days more particularly as the valley of the "Grey Wethers," from the resemblance of the stones in the distance to a flock of sheep. Lockeridge Dean lies rather to the south, and in spite of much destruction of the stones in past days, still contains perhaps the largest Sarsens now to be found *in situ* anywhere. It was from this neighbourhood, perhaps from this spot, that the great Sarsen monoliths of Stonehenge doubtless came (for Sarsens do not now exist, and never could have existed in any number, on Salisbury Plain), as well as those of the Avebury circles near at hand.

For many generations these stones, scattered widely over the Downs, have been broken up and used for building and other purposes, mainly of a local character, but the "quarrying" (if the term is permissible) has not been on such a scale as to make any appreciable difference in the appearance of the Downs. In consequence of a recent change of ownership, however, there is every probability that the work of breaking-up the Sarsens will be undertaken on a greatly extended scale. In the ordinary course, the Grey Wethers in Pickle Dean and Lockeridge Dean would be the first to go, owing to their situation adjacent to high roads; while for the same reason their disappearance would be a greater loss to the public than the disappearance of those in more remote parts of the Downs.

Under these circumstances it was felt that steps ought to be taken to secure the preservation of some characteristic examples of the stones in their natural condition, and representations were made to the owner by the National Trust and by the Wiltshire Archaeological Society. Mr. Alec Taylor, the present owner, met the representatives of the two societies in a friendly spirit. He stated at once that he intended to preserve the dolmen known as the

Devil's Den, and after some further negotiations he has given the National Trust an option to purchase about 11 acres in Pickle Dean and about 9 acres in Lockeridge Dean for 500*l*.

For this sum, therefore, with some addition to cover legal and other necessary expenditure, an appeal is made jointly by the two societies. If the money is forthcoming characteristic examples of a unique geological phenomenon will be secured for the nation, and the Pickle Dean valley will remain in possession of those Grey Wethers which have for generations formed a curious and picturesque feature of the country traversed by the Bath Road.

### SOCIETY OF ARTS.

THE annual report of the Society of Arts says of the applied art section:—The first meeting of the section was held on December 18, when an instructive paper on "Basket Making" was read by Mr. Thomas Okey, who (himself a practical basket maker) was able to describe fully the technical points connected with one of the oldest of the arts. So little have these changed that the same "strokes" found in the oldest baskets discovered in the ancient Egyptian tombs are in use at the present time.

At the next meeting, on January 29, Mr. William Dale read an interesting paper on "The Artistic Treatment of the Exterior of the Pianoforte," in which he described some of the most remarkable examples of ornamental harpsichords and pianos, paying special attention to the beautiful modern instruments designed by Sir Lawrence Alma-Tadema, R.A., Sir Edward Burne-Jones and the chairman (Mr. T. G. Jackson, R.A.). Mr. Dale pointed out that improvements might be made in the form and decoration of the ordinary upright pianoforte without any great increase in its price. In the discussion attention was directed to the sound principle that the form of the case, however altered, should always follow the main lines of the instrument.

Dr. A. P. Laurie's important paper read at the third meeting, "Oils, Varnishes and Mediums used in the Painting of Pictures," was a complement to Professor J. M. Thomson's paper on "Artists' Pigments," read last session. The author described his original experiments on this subject, and illustrated his paper with a valuable series of micro-photographs. Sir Luke Fildes, R.A., presided at the meeting, and in the discussion the hope was expressed by the artists present that the further experiments on which Dr. Laurie was engaged would throw more light on the actual cause of the cracking of pictures.

Mr. A. Romney Green's paper on "Joinery and Furniture Making," read on April 16, contained a history of the art of joinery and a demonstration of the superiority of the older furniture by reason of the use in its construction of simpler tools than those afterwards introduced. The author drew special attention to the importance of the proper cutting of timber for the production of sound planks. The paper was illustrated by examples of old furniture from the Victoria and Albert Museum, lent by the Board of Education.

Mr. William Burton's paper on "Lustre Pottery" consisted of a brilliant exposition of the history of the changes in character of lustre from its origin, and the advances which had been made in the manufacture, especially in the case of the beautiful ware with its remarkable iridescence now made by Pilkington's Tile and Pottery Company. A singularly fine collection of historical and modern pieces from the Victoria and Albert Museum and many other contributors was exhibited.

At the last meeting of the session, on May 28, Mr. Sherard Cowper-Coles read an interesting paper on "Sheffield Plate and Electro-Plate," in which he traced the history of plating in metal from its practice before the introduction of Sheffield plate, which itself has been superseded by electro-plate. The chairman (Sir John Edward Bingham), from his great experience of the subject, was able to supplement the information given in the paper, and an important discussion was the result.

In the third course of Cantor Lectures, Mr. F. Hamilton Jackson dealt with "Romanesque Ornament," and to this subject he devoted three lectures. The course was in fact a comprehensive treatment of a large and difficult subject. The lectures were illustrated by a beautiful and original series of lantern slides of specimens of ornament taken from buildings in all parts of Europe. The author described the cloister as the cradle of Romanesque, and referred to the universality of the appearance of similar designs in the



various arts of architecture, miniature painting, textiles, ivory carving, &c. He laid special stress on the Oriental influence exerted on ornament in France and Italy. These lectures, as containing original examples of a great variety of Romanesque ornament, will help students to a clearer understanding of some of the difficulties presented in the history of this subject.

### CONCRETE ROOFS FOR INDIA.

A VERY useful and interesting note on the problem of roofs in the United Provinces of India has been written by Mr. H. S. Wildeblood, superintending engineer, at present Under-Secretary to the Government of India in the P.W.D. The question of the best form of roof for the plains of India, says the *Indian Engineer*, has lately been engaging the attention of the engineers of these provinces; and though the matter is still more or less at an experimental stage, certain definite conclusions have been arrived at, and the object of the note is, the writer says, to help junior officers who are interested in the subject, and who are willing to profit from experiments carried out by their predecessors without waste of time in traversing old ground. The writer also expresses the hope that it may lead to an exchange of ideas on this and kindred subjects, which would be of interest to the Consulting Architect to the Government of India and to others who are making a study of the improvement of house-building in India, though Mr. Wildeblood's note deals only with one small part of the larger question.

The writer briefly traces the history of the various forms of roof in use from the last century and of the attempts made to effect improvements in this direction. The serious disadvantages, not the least of which is its high cost, of the "jack arch" roof, perhaps the most permanent form of roof construction known till recently, are very clearly brought out. The writer then goes on to explain that the introduction in Europe and America of reinforced concrete gave engineers in India the idea of improving their roofs by means of this most useful form of construction. The experiments which have been carried out and which are described in the note have been attended by the most satisfactory results, and show that the reinforced concrete roof is by far and away the best in every way. It was found that with 40 parts of the ordinary pure kankar lime mortar of the plains and 100 parts of brick ballast, broken to a gauge of 1 inch, a concrete roof 8 inches thick, with seven strand wires running through it at intervals of a foot, and having a span of 6 feet between joists, was capable of bearing distributed loads of over 900 lbs. to the square foot. Larger spans, which are no doubt possible, are now being tried. Roofs made thus of reinforced concrete proved cheaper than those of jack arches, and flat ceilings can easily be given to the rooms by merely plastering the lower surface of the concrete slabs, while expansion joints, which are necessary to prevent irregular cracking, can very easily be arranged for. The concrete roof has also been proved to be infinitely cooler than the jack arch or any other form of roof in use in India.

For verandahs, where the chief function of the roof is to shade the walls of the main building at a minimum of cost, the light sloping roof of "lock" tiles laid on angle steel battens resting on steel joist rafters and light stone, or, where stone is too expensive, cast-iron columns is recommended.

### GENERAL.

**Admirers of the Works** of the great artist, Thomas Gainsborough, desire to erect a statue to his memory in the town in which he was born, Sudbury, Suffolk. A public meeting is therefore being held to promote this object at the town hall, Sudbury, to-day, the 19th inst.

**The Church** of Notre-Dame des Champs, near the Mont Parnasse railway station in Paris, is about to be removed in order to obtain a site for a post office.

**An Equestrian Portrait** of the Emperor Nicholas I. of Russia was lately stolen from the National Gallery of Berlin, but it has been returned to the director by parcel post.

**The West Front** of York Minster was cleared from scaffolding last week after a restoration under the direction of Mr. G. F. Bodley, R.A., which has been carried on during more than seven years.

**Messrs. Arthur & Walter Reid**, with Mr. Hubert S. East, architects and surveyors, of Cape Town and Johannesburg, have opened London offices at 837 Salisbury House, London Wall, E.C.

**The Late M. Dejean**, an architect, bequeathed twelve fountains to the city of Paris. The first was inaugurated on Sunday morning on the Boulevard des Filles-du-Calvaire.

**Mr. E. B. Martin**, deputy city engineer, Leeds, was on Tuesday appointed borough engineer for Rotherham at a salary of 500*l.* a year. There were 116 applicants, who were subsequently reduced to three—Mr. W. H. Elce, borough and water engineer, Bacup; Mr. Ernest B. Martin; and Mr. E. S. Pinkerton, chief assistant engineer, Belfast.

**The Purchasers** of the late church of St. Peter-le-Poer, Old Broad Street, E.C., for which Messrs. St. Quintin & Son successfully bid 96,000*l.* on their behalf at the recent auction, are the directors of the Anglo-South American Bank, of Bishopsgate Street. They propose to erect a handsome building on the site.

**The Birmingham Museum** and School of Art sub-committee have been informed that the trustees of the Griffiths Fund had presented a water-colour drawing by John Ruskin of Dumbarton Castle, and that Miss McGhee had presented a fine series of mezzotints and etchings by Frank Short, J. M. Whistler, Joseph Pennell, J. C. Watson and others.

**At Last Week's Meeting** of the London County Council Mr. J. Todd was appointed the district surveyor for the City of London, East, and Mr. C. W. Surrey for the City of London, West.

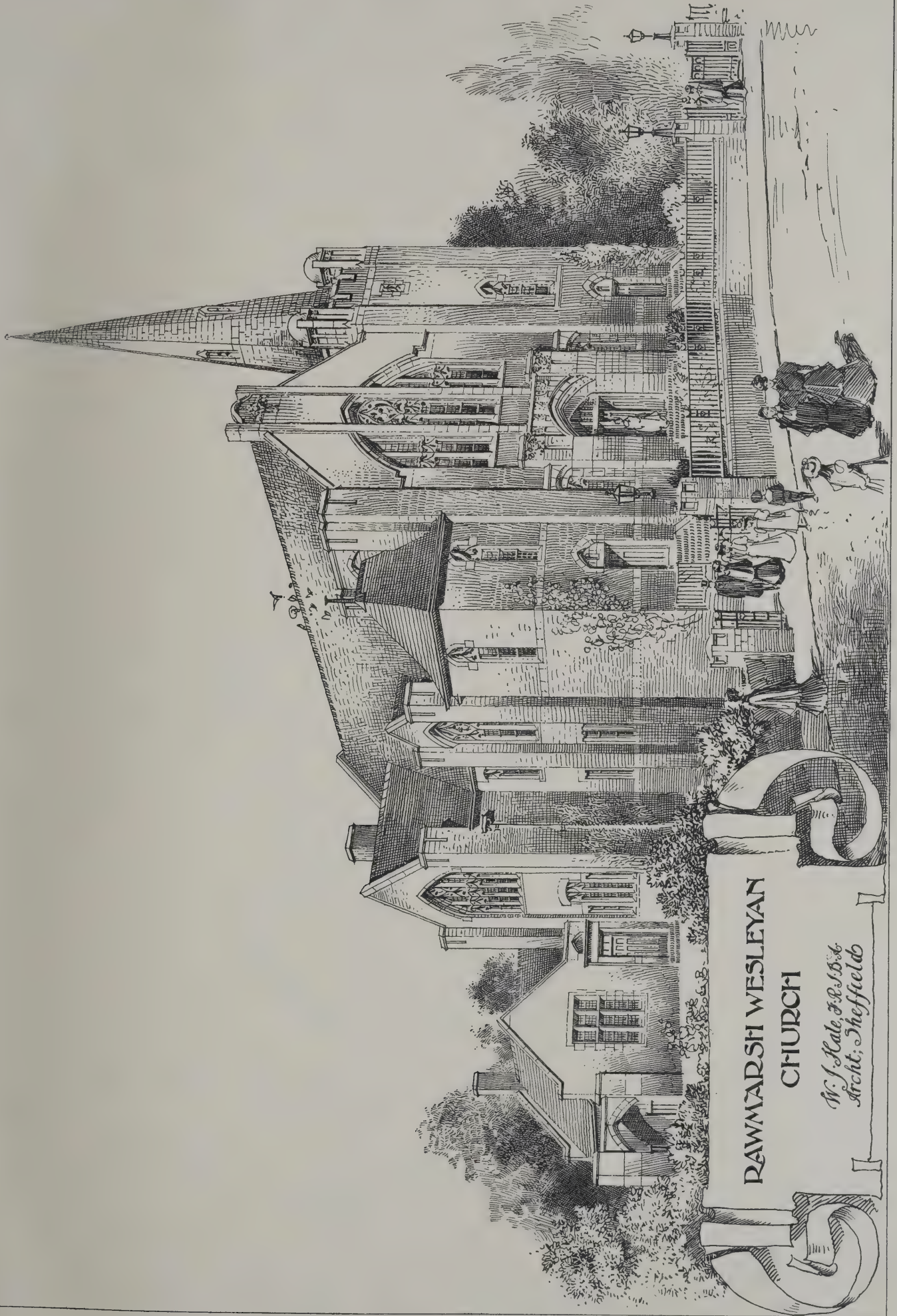
**The Court of Common Council** have adopted a report by the City lands committee which, among other things, recommended that a further section of the electrical rewiring of Guildhall should be proceeded with during the forthcoming recess, at a cost not exceeding 500*l.* (provided for in the estimates). They also asked for authority to expend a sum not exceeding 294*l.* on the construction of a new staircase on the south side of Guildhall, connecting the great hall with the crypt, and on other works to improve the service on occasions of public entertainments; and further recommended that certain structural alterations should be made to improve the service between the Guildhall Club kitchen and the luncheon-room, and that the service lift should be fitted with electric power at a total cost of 200*l.*

**At the Lord Mayor's Court** last week (before Sir F. Bosanquet, K.C., Common Serjeant, and a jury), Mr. George Stephenson, architect and surveyor, sued Mr. Thomas Satchwell, broker, for 26*l.* 5*s.* for professional services rendered. The plaintiff said that in 1902 the defendant requested his services for the purpose of obtaining a loan to enable certain shops to be erected on a building site at Wimbledon. The fees for the work he was required to do were agreed at 20 guineas. The defendant never carried through the building operations, but entered into a contract to sell his interest. The balance of the claim, 5 guineas, was in respect of a site at Tower Hill, which he had inspected on behalf of the defendant. The charges were fair and reasonable. The defendant stated that he had never retained the plaintiff. He was to survey the property on behalf of the person financing the builder and to receive his fees from the advances made. The defendant did not give evidence and the jury found a verdict for the plaintiff for the amount claimed, with costs.

**The South-Western** centre of the Sanitary Inspectors' Association will hold a meeting at Weymouth on the 20th inst. Mr. T. J. Moss-Flower will read a paper in the Guildhall entitled "Some Notes on Practical Sanitary Science, with special reference to Seaside Resorts."

**In the House of Commons** the Vice-President of the Board of Agriculture (Ireland) was asked whether the attention of his department had been directed to the wholesale clearances of ornamental and useful timber being carried out by landowners (mainly absentee) throughout the country; whether steps would be taken to check them, and whether the time had come when a scheme of reafforestation might be favourably considered and given practical effect to. Mr. T. W. Russell replied in the affirmative and stated that both landlords and tenants are cutting down timber in many parts of the country. The area under wood in 1895 was 308,928 acres. In 1905 it was 301,132, a decrease of 7,796 acres, and there is reason for believing that the rate has increased rather than decreased since 1905. Having consulted with the Chief Secretary, I propose to appoint a small departmental committee, not to consider the utility of afforestation, but to devise a scheme whereby, first, the mischief now going on may be checked, and, second, the best means of approaching the larger question of afforestation may be ascertained.





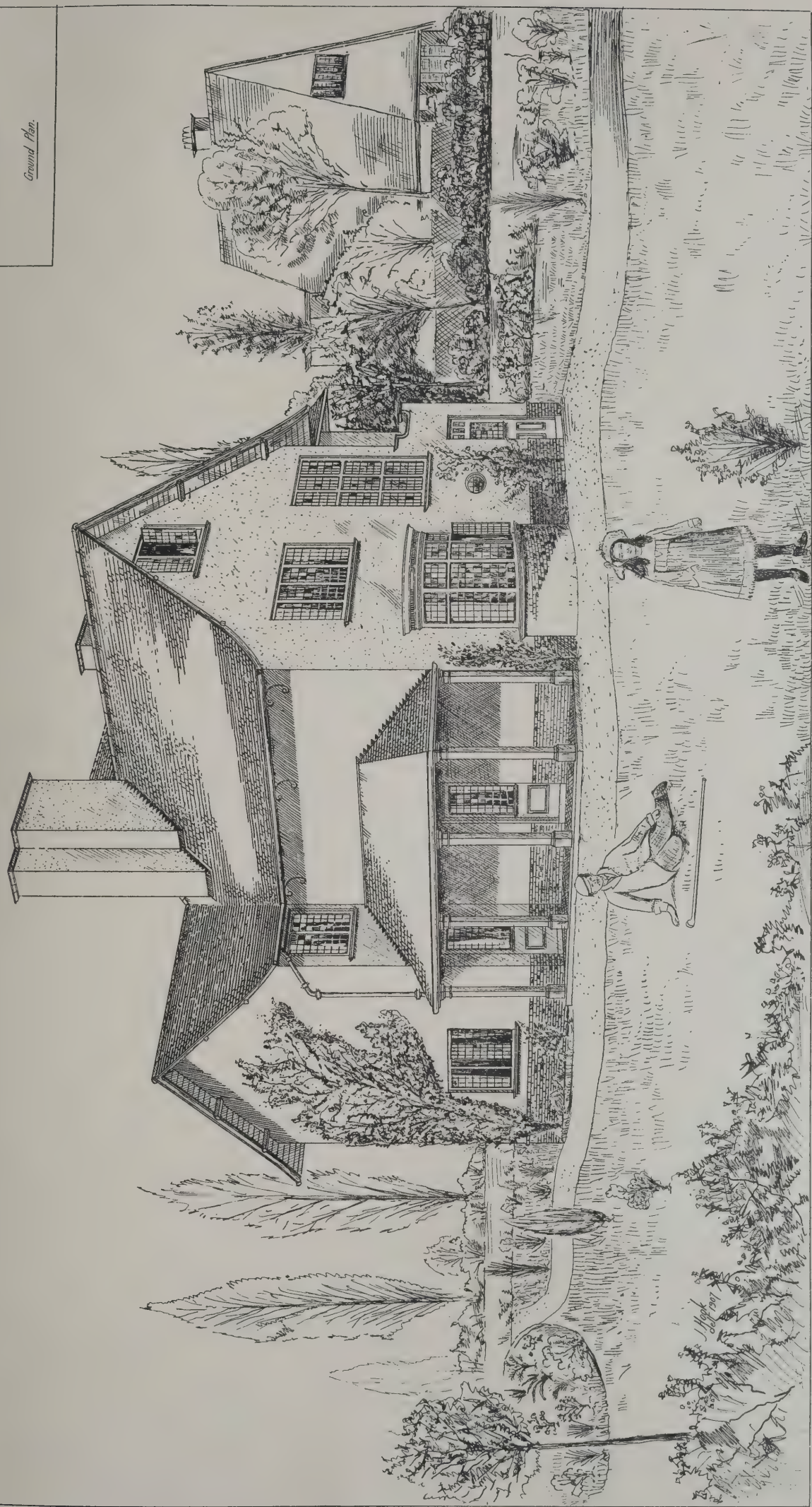


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Ground Plan.



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The Architect, July 19<sup>th</sup> 1907.

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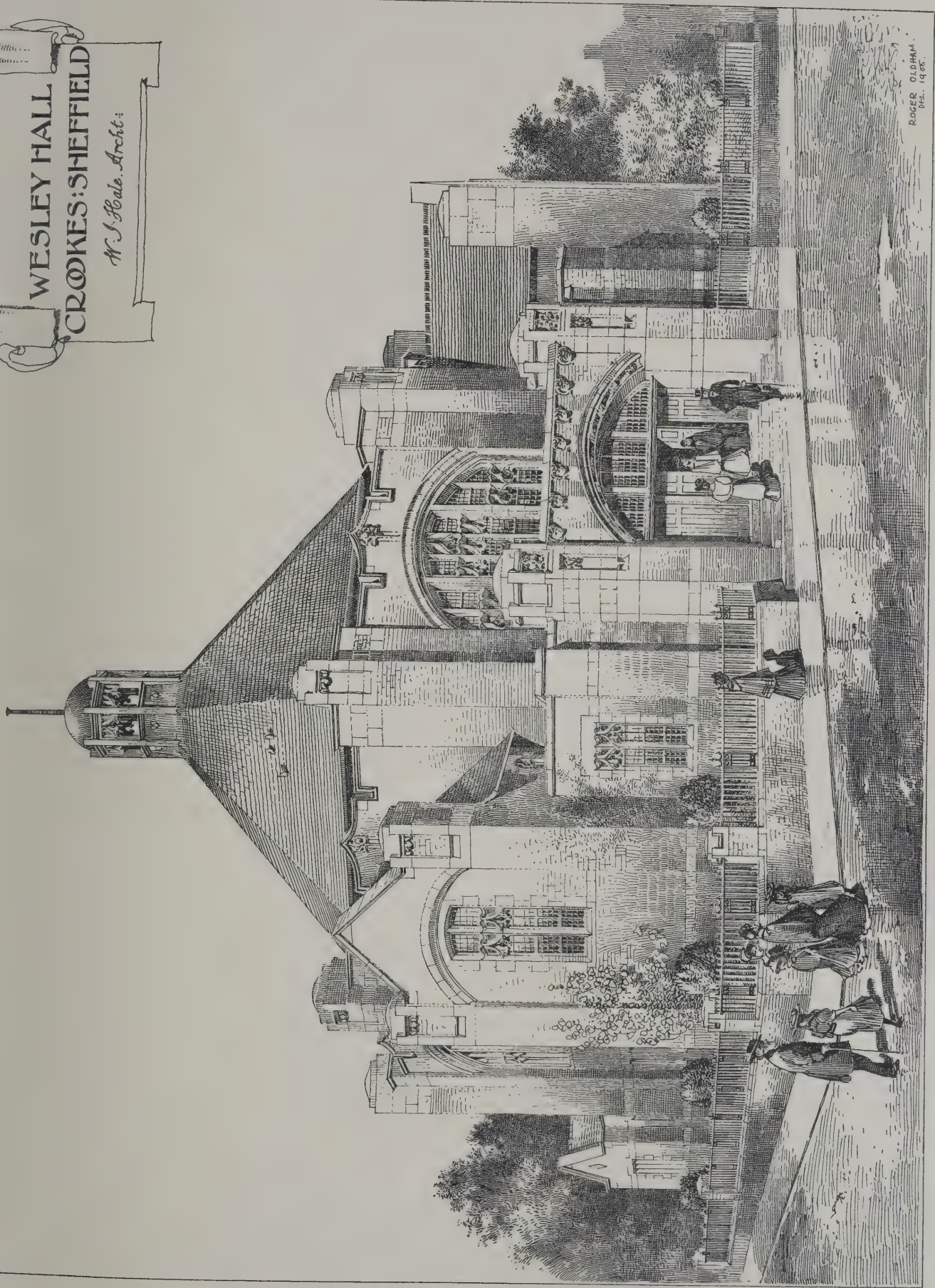
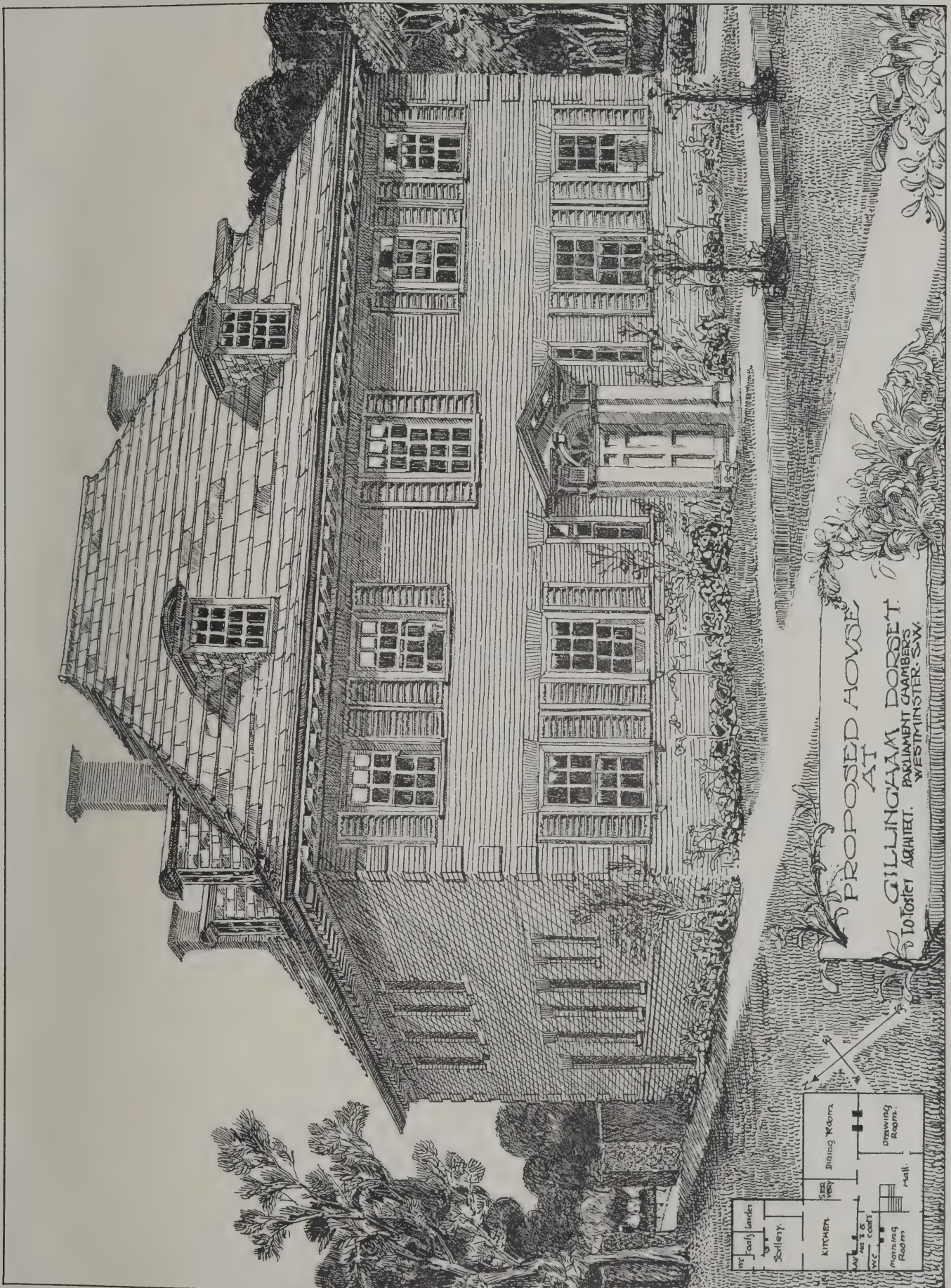


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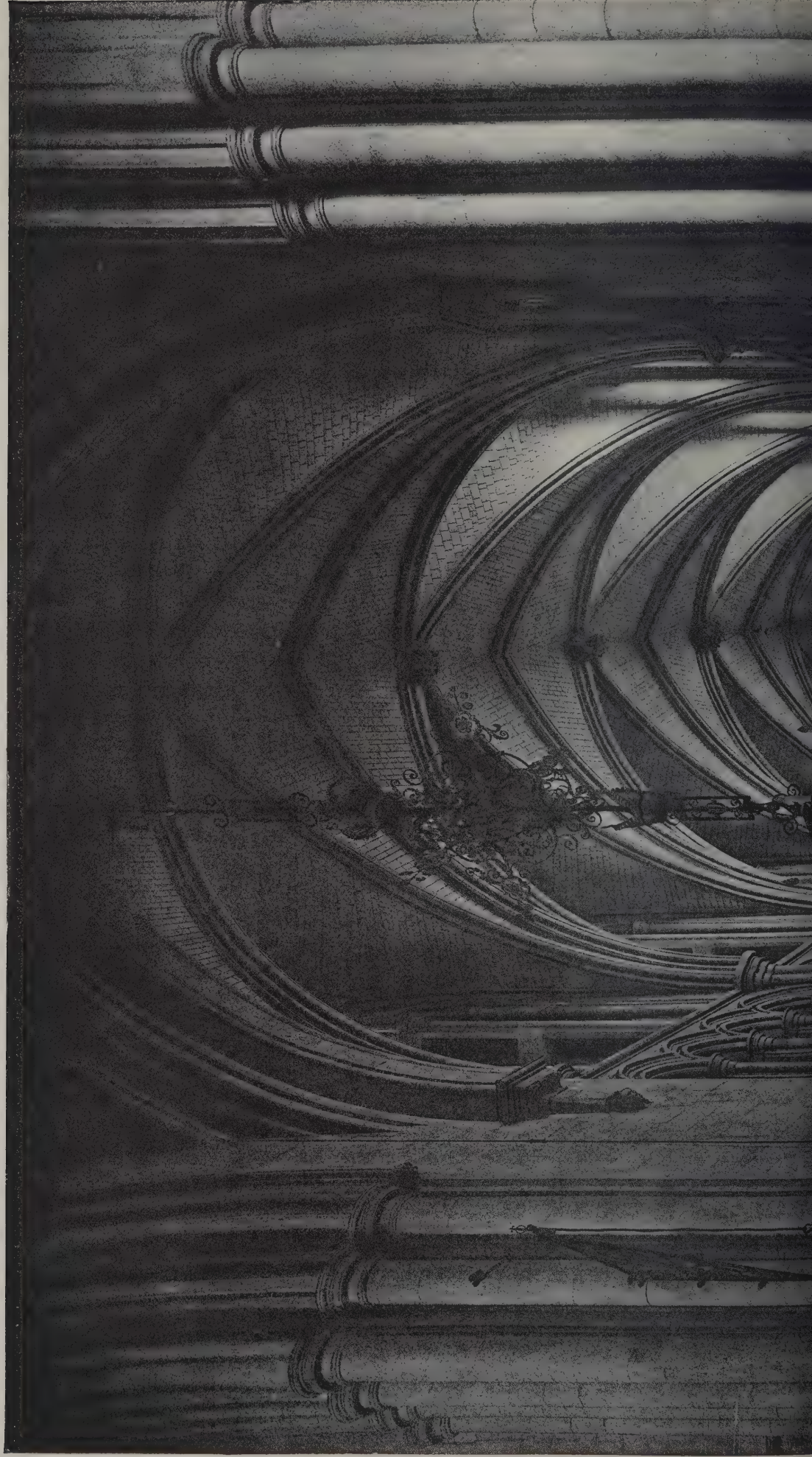
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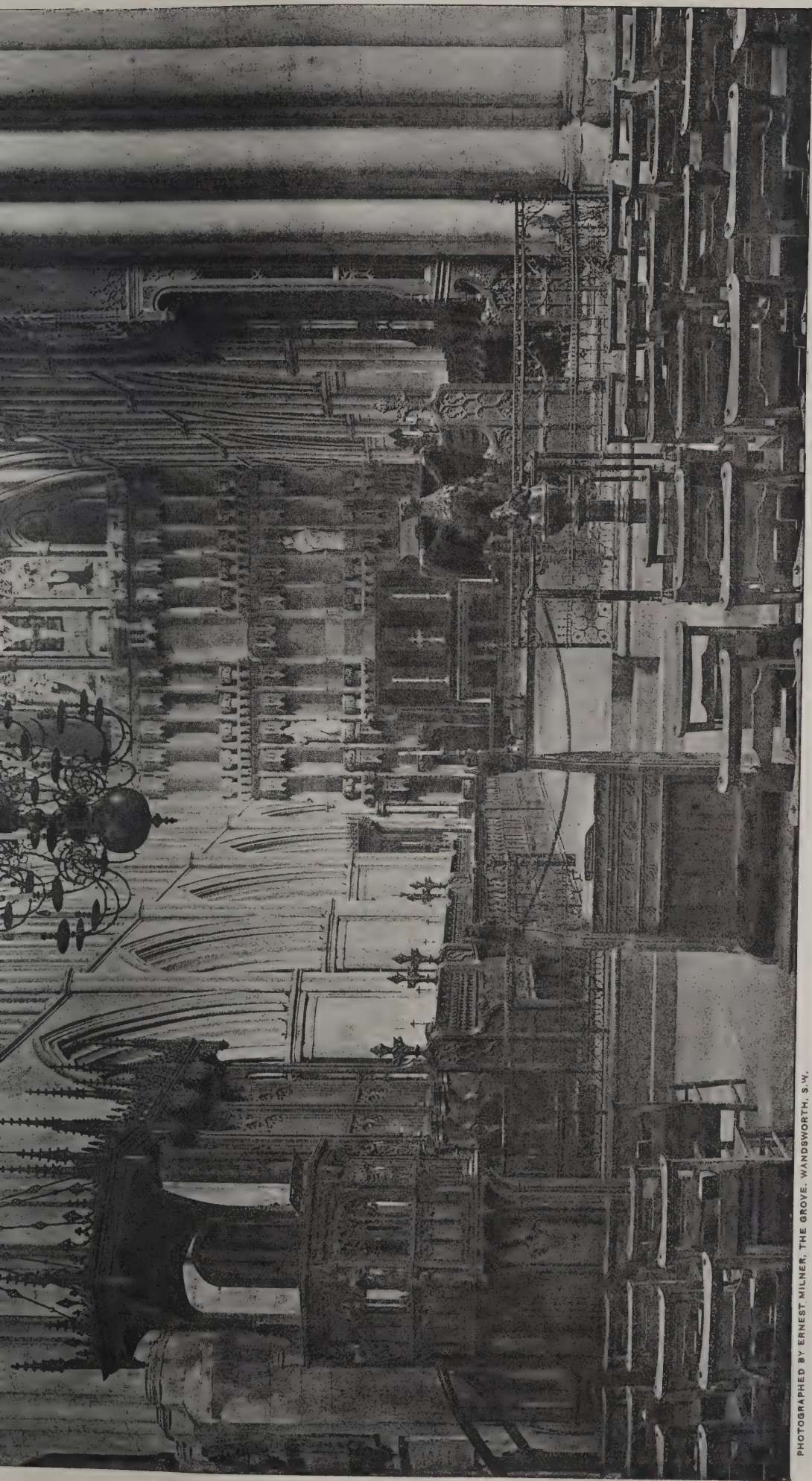
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CATHEDRAL SERIES, No. 607.—SOUTHWARK: VIEW OF CHANCEL.



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GLASGOW

Architect.



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# The Architect.

## THE WEEK.

IN the case of *EDEN v. North-Eastern Railway Co.* the House of Lords has decided a point of some importance to the owners and lessees of mines. The point arises upon the construction of section 78 of the Railway Clauses Act 1845. Under that section a railway company may require the owner of minerals lying under or adjacent to a railway to leave the minerals unworked, paying compensation. This, it has now been decided, means that the company must pay the full value of the minerals thus left unworked. The company cannot argue that, because the lessee of the mines is able during the period of his lease to work minerals in other parts of his mines, it is therefore only liable to pay the lessee for the difference in expense between working the minerals which it has taken and the substituted minerals, together with a sum to the lessor as compensation for the deterioration in the value of his reversion. The Act means that the company must pay down at once the value of the minerals upon which it places an embargo. If the mines are leased, the owner and lessee will get this value according to their several interests. The fact that the lessee may thus get "a windfall" by being able to work other parts of the mine with the machinery so set free is immaterial. But though, as against the railway company, who are under a statutory duty to pay, this matters nothing, it is conceivable that it might in some cases raise complicated questions between lessor and lessee as to the apportionment of the money so paid.

THE public works committee of the Birmingham Corporation recently formulated an important scheme for the improvement of the city. It provided for the extension of Paradise Street by cutting a new street through the Old Wharf, terminating between Berkley Street and Gas Street, a new wharf being provided in the Crescent on land to be acquired from the Governors of King Edward's School, at a total cost of 261,835*l.* In these days, when motor-cars are everywhere, Paradise Street has become a risky place; but apart from that evil the Old Wharf is an example of antiquity which fails to win respect, for not even archæologists would suffer by its removal. It is simply an anomaly in so progressive a city. The subject has been discussed with the customary earnestness of Birmingham men during several months. When it came before the City Council last week the members were aware of the state of public opinion. Birmingham is economical, and is not disposed to expend money on improvements which, with a little inconvenience, can be postponed to a more fortunate time. To the surprise of the promoters there were only eighteen votes in favour of the project, while the opponents numbered forty.

A RATHER novel action was decided in the Court of Appeal last week. It was brought by the lessee of a restaurant against the Marylebone authorities, and it arose out of the erection of workmen's dwellings adjoining the plaintiff's property. It became necessary to increase the height of the party wall between the premises, and in doing so it was alleged that the plaintiff's business suffered. The surveyors to whom the differences between the parties were submitted decided that the Borough Council should perform certain works for plaintiff's benefit. But as the Building Act only mentions payment of costs in obtaining the award, plaintiff brought an action to obtain compensation. In the Divisional Court it was decided that the surveyors were right in declaring they had no jurisdiction to award compensation. The plaintiff therefore appealed. Reliance was placed on sub-section 6, which declares that a building owner should have "a right to raise and

underpin any party structure permitted by this Act to be raised or underpinned, or any external wall built against such party structure, upon condition of making good all damage occasioned thereby to the adjoining premises, or to the internal finishings and decorations thereof, and of carrying up to the requisite height all flues and chimney-stacks belonging to the adjoining owner on or against such party structure or external wall." But it was argued that the first sub-section allowed the surveyors to deal with any other matter arising out of or incidental to the difference. Lord Justice VAUGHAN WILLIAMS, in his judgment, said that in section 87 the word "compensation" was used, and the amount was to be fixed by the surveyors who formed a tribunal. But damage appeared to be confined to walls, finishings and decorations, and did not include damage to trade. Such a claim as plaintiff set forth was beyond the jurisdiction of the surveyors. Lord Justice FLETCHER MOULTON and Lord Justice BUCKLEY having arrived at a similar conclusion, the appeal was dismissed. The London Building Act is far from being a perfect Act. But it was not likely that one or three surveyors should be considered qualified to adjudicate on matters relating to business of which they could have no special knowledge. The Court of Appeal had already decided that the surveyors had no power to award the payment of money for an increased use of a party wall.

THE Scottish Courts apparently are more disposed to recognise vested interests in houses as affording a claim to prevent the erection of other buildings which would interfere with their character. It was proposed to erect in Kelvinside Gardens, Glasgow, houses which would be arranged in tenements. Two of the residents in the place objected when the plans were submitted to the Dean of Guild Court for approval. They based their opposition on the condition imposed when the property was originally laid out, that villas only were to be erected. The Dean of Guild said it was too late to object, as similar buildings to those proposed were allowed to be erected without any protest. An appeal was made to the Court of Session. The Lord President set aside the decision of the Dean of Guild on the ground that the objectors did not forfeit their right by neglecting to exercise it on a previous occasion. It would require very explicit clauses in English deeds for a judge to interfere with a building scheme unless it was of an extraordinary character.

It will be interesting to discover what effect the union of Bruges with the sea will have upon the fortunes of the old city. At the present time most of the people appear to an English visitor as if they lived upon the alms which were bequeathed by wealthy citizens in the days when Bruges was prosperous. It resembles Sandwich on a large scale, and if grass does not grow in the principal streets it would not be difficult to grow weeds in any part. At the beginning of the fourteenth century Bruges contained a larger population than Paris, and every third man was a workman. In the fifteenth century it is recorded that 150 vessels entered the basins in one day. But the sea has its whims, and in Bruges as at Southport it receded, regardless of the loss which was to follow. A century ago NAPOLEON desired to restore prosperity to Bruges and to inflict a blow upon England by connecting the city with the sea. But it was not until 1877 that a definite plan was proposed. Many years were spent in opposing and supporting the details, and after a long struggle in 1892 the Government adopted the plans of two Frenchmen, M. COISEAU and M. COUSIN. The people of Antwerp and Ostend used all their influence to cause more delay. But at length it is possible to pass from Zeebrugge between Blankenberghe and Heyst to Bruges by water. Whether the gain will not be counterbalanced by loss to other parts of Belgium is a question which time will have to decide.



## UNDERGROUND WATER SUPPLY.

THE presidential address by Mr. BALDWIN LATHAM, which appears in the "Journal of the Institute of Sanitary Engineers," suggests that people are not generally acquainted with the risks which they sometimes incur when they depend on a subterranean water supply. It is not to be assumed that danger necessarily accompanies the use of water from such sources. But in a country like England, where the greater part of the land is inhabited, the conditions are not the same as those which prevail in places where there is no danger of contamination. Formerly much of the water which was everywhere used came from below. Old BURTON considered that rain-water was the purest, especially when the drops were small and it was used immediately. Next to it, he says, is fountain-water that rises in the east and runs eastward from a spring in flinty, chalky, gravelly grounds. Many, he adds, "make use of deep wells, as of old in the Holy Land, lakes, cisterns, when they cannot be better provided." He goes on to say, "Howsoever, pure water is best and which (as PINDAR holds) is better than gold; an especial ornament it is and very commodious to a city (according to VEGETIUS) when fresh springs are included within the walls, as at Corinth, in the midst of a town almost, there was *arx altissima scatens fontibus*, a goodly mount full of freshwater springs; if nature afford them not, they must be had by art." When we consider the consequences of drinking fouled water we can appreciate the reasons for endowing pure water with a religious character, in the hope that what the gods had sent men would be careful to preserve from whatever was likely to sully it.

It requires very little observation or reflection in order to realise the extent of the impurities which must descend with rain beneath the surface of the ground. Water is said to be sometimes hard, sometimes alkaline, sometimes organically impure—all of which is owing mainly to foreign matter which has been dissolved by it and continues with it. It seems incredible that on one occasion water from a London well was ascertained to have 148 grains of solid matter to the gallon, and a large part consisted of nitrate of lime. In other cases lead was found in the water in the neighbourhood of London, and much else which at first sight appears to be extraordinary. How far they were dangerous to those who drink the water was a disputed question. The late Sir WILLIAM FERGUSSON, the surgeon, maintained that a man might drink the water from below London Bridge with impunity. But few medical officers of health would now be found to agree with him. There may be saving advantages in the disturbances to which water in the Thames is subjected, and the atmosphere, with all its defects, may neutralise some of the evils. But too many cases have been investigated to leave any doubt about the belief that unless wells are properly sunk in safe positions the water is not always innocuous. Mr. LATHAM puts the case plainly when he says:—

"The use of water from surface wells in towns and populous places should be prohibited owing to the multiplication of sources of pollution, which it is impossible to avoid in all cases so as to get a safe water for dietetic purposes. There is no doubt that good water is procurable from the great geological formations of the chalk, red sandstone and oolites in this country; but even these sources of supply are all liable to pollution of a dangerous character if the site selected for procuring the water is not located in a favourable situation."

Matter which is an undesirable constituent of water easily sinks from above in a more or less vertical line, or, if the course is more clear of obstruction, it may be along the lines of the strata. But the water is liable to be attacked in other directions. Mr. LATHAM refers to an incident at Lausen, near Basle, where the morbid matter of typhoid was carried a distance of a mile or more through a hill to a village on the opposite side of the hill. Tests were arranged which demonstrated beyond all doubt the possibility of such a contagion.

Parts of the Metropolis are not free from similar risks. The effluent from the Croydon sewage farm at Beddington escapes through the beds into what are known as the Thanet Sands underneath, and it appears that from those beds some of the underground wells in the neighbourhood of London are supplied. They are not the only sources of danger which surround us.

It would be absurd to imagine that whenever an underground source is utilised danger is inevitable. Generally speaking, the water by sinking to a considerable depth has gone through a very elaborate process of filtration. It often is possible to bring water into the domestic cistern in as pure a condition as can be desired. According to Mr. LATHAM, "In single, isolated houses, by observing the direction of the underground flow of water we may always select a site for a well that shall be in the up-stream side of the flow, and the cesspool may be placed with impunity on the lower side of the well. In the course of the author's experience he has known houses very unhealthy that have been made healthy by moving the well from one side of the house to the opposite side, and so escaping the impurities from the cesspool passing into the well; and in one case—at the workhouse at St. Ives, Huntingdon—he was able to stop an outbreak of typhoid fever by driving a tube-well, from which a pure-water supply was obtained, in lieu of the supply procured from a well sunk in the midst of drains." The change that can take place in the quality of water along the line of delivery has been shown by an analysis of the supply for Caterham. In one place the proportion of nitrates was .027 parts in 100,000, while elsewhere it was .551 parts in 100,000, or twenty-six times as much. So great a difference is enough to demonstrate the variability which can arise and which should be reckoned on in arranging a supply. Nitrates, we need not say, are always risky constituents of water.

It is no doubt desirable to have water under observation from its first catchment basin until it passes into the reservoirs. In that way most of the dangers can be carefully watched and provided against. But it is readier and more economical to utilise for small supplies underground waters. If the town which has to depend on such a supply is large the outlay cannot fail to be expensive, for it may be necessary to form horizontal conduits also. But for villages and detached houses in the country there can be no question that a well is a great advantage, and by the exercise of good judgment risks may become infinitesimal. Cases have been known where the underground supply has been diminished in quantity and the quality has been altered. But, in spite of such possible if remote contingencies, it is doubtful whether springs and wells can be superseded.

It is necessary, however, to take a broad view of the subject. It may be possible to discover a supply with no more aid from science than a couple of hazel twigs. But that is not sufficient. There can be an abundance of water, and apparently it may possess all the characteristics of a potable water. Yet, although it is sparkling to the eye and agreeable to the taste, danger to the user may be lurking within it. The geological conditions which affect the beds from which it was derived must be carefully taken into account. The old inhabitants of the country were in this respect practical geologists. The positions of villages were often determined by facilities for obtaining water, and, if PRESTWICH is credited, London itself was no exception. Where there was gravel above London Clay it formed a natural reservoir, and water could be drawn from it. But houses could not be built upon the London Clay until JAMES I. passed the Act by which the "trunks," or wooden conduits, of the New River Company superseded the necessity for wells, when houses could be erected within the range of the company's supply. Where ordinary conditions prevail it is advisable to take pains in order to be assured that the water-bearing strata do not yield the elements of contagion.



It is not always easy to convince people that clear water can be dangerous to them. And they are no less sceptical about the fact that a peculiar flavour is evidence of the existence of foreign matters which to some extent are poisons. Hence it is they believe that a victory is gained when an abundance of water rises above the ground. But only those who have had special experience are able to judge how far all the conditions are favourable. We have known instances where the wells failed after a very brief period, and in some of them it was really an advantage than otherwise, for the supply was not adapted to use, and it was likely that the daily draughts of the water would sooner or later cause illness.

## THE ORIGIN OF OPERA IN FRANCE.

By Dr. JOHN E. BORLAND.

(Continued from page 38.)

OPERA in France, down to about 1750, was a distinct creation, notwithstanding all the external influences which played upon it. The early Italian influence, for example, acted as no more than a suggestion. Men who were interested in the entertainments of the Court said to themselves, "They have music drama in Italy, let us also have such spectacles, but in our own language and in our own manner." And thus it befell that the French Mascarade had more to do with the shaping of French opera into its ultimate form than had the Italian operas which Cardinal MAZARIN and his associates set out to imitate. The theory has been put forth that French opera had its origin in "l'épopée mise en action et en spectacle," and that "le merveilleux visible est l'âme de l'opéra français." In the earliest days the spectacle came first; next in importance was the plot, and quite in a subordinate position were held the claims or demands of solo vocalists to make personal display. In this last respect we find the most important point of difference between seventeenth-century opera in Italy and in France. In Italy, under the régime of SCARLATTI and his compeers, the vocalists were attaining more and more power, until in the eighteenth century an Italian opera was little more than a procession of opportunities for the display of vocal agility. During the same period there was practically nothing of this kind in France; definite airs were few in number, while on the other hand a fine level of elocutionary power was maintained in the continuous Recitative. The story of French opera is rather peculiar in another respect—its composers, with few exceptions, were entirely devoted to its cause and made little reputation outside its sphere. The exceptions, strangely enough, were men who also achieved something of a reputation in Church music. None of them had any lasting fame in the realms of secular absolute music—the exceptions to this statement being MARIN MARAIS, who is remembered rather for his solo music for viols than for his operas, and RAMEAU, whose works for the clavecin and researches in acoustics would by themselves have won him a niche in the temple of fame. Of the whole group of composers only two, LULLY and RAMEAU, have any existence in the mind of the average musical man of to-day, and even their personalities are but shadowy.

We have already seen that the true founders of French opera were CAMBERT and PERRIN, but it is quite possible, in the endeavour to do them justice, to err in the opposite direction and mete out to LULLY less than his due. There can be little doubt that he largely deserved the pedestal upon which popular imagination has placed him. While admitting that he gained his position by questionable means, it is necessary to admit, at the same time, that he could not have retained it without genuine musical ability and dramatic insight to back up his shrewdness. There is, moreover, a courtliness and dignity in his music, if not an actual

nobility, which command respect; and a measure of admiration is also surely due even to the less desirable aspects of his character. Cleverness, even in a rogue, still has its attraction, and LULLY certainly possessed this in a marked degree, or he could not have risen from his humble beginnings to the position he held during the last sixteen years of his life. His biography is too accessible to require noting at length here, and two facts suffice to prove his unbounded worldly success. He came from Italy as a poor boy, and he died one of the wealthiest and best hated of men in France. There is something even attractive about the cool impudence to which he owed so much of his advancement, and his relations with the king are well summed up in one little anecdote, which tells how a messenger came to him before the beginning of a performance to say that His Majesty had arrived and was waiting. LULLY's answer was:—"His Majesty is master here, and is perfectly free to wait as long as he likes."

LULLY's stage music offers a striking instance of the careful proportioning of means to an end. There is no wasted effort, and although on occasion he can rise to a height, this practical composer has no intention of spending labour to stay there at times when his achievement might pass unnoticed. We find this in his early ballet airs, which were never elaborated beyond the actual requirements of the dance, and the orchestral treatment of which was of the simplest character; and the same principle is maintained throughout the operas. These are cast in such a uniform mould that description is easy. The form of LULLY's Overtures is well known. They begin with a stately movement in chords, usually with a dotted rhythm. This is followed by a quicker movement of the Canzona type, but the imitative writing is of a curiously deceptive character. He keeps his string parts very busy, and the effect to a casual listener is that of fugal work; but closer examination shows that it is far from strict, and is as much a deception of the ear as painted scenery is of the eye; but it serves its purpose, and LULLY was not the man to use his best work merely to cover the noise of conversation and of late arrivals. Another slow movement follows the quick one and ushers in the prologue, in which mythological and other characters discuss in lively manner, with songs and dances interspersed, anything but the subject of the opera which is to follow. Then the overture is played again, as *entr'acte*—another example of economy of resources. The overture was probably not heard the first time, so it will do to play again, says the astute one. Then follows the first act of the piece proper. The libretto is completely set to music, and one of LULLY's merits is the way he seizes on important points and makes them stand out from less important surroundings. The supreme merit of all French opera, indeed, from CAMBERT to RAMEAU, is the continuity of the music. Whereas the Italians early forsook the dramatic ideals of MONTEVERDE, and made their operas mere occasions for the display of solo voices, to which were allotted strings of arias complete in themselves, and neither bearing any definite relationship to each other nor serving in any rational way towards the development of the plot, the dramatic instinct of the French people saved the national opera from that special form of degeneracy. Waves of Italian influence affected French opera from time to time, and LULLY himself was an Italian, but he became a naturalised Frenchman, and his operas only contain the Italian style of Aria at times in order to burlesque it and raise a laugh.

It is difficult to draw the line in the works of LULLY and his successors between Recitative proper and developed Aria. LULLY graded his music with such nicety and with such accurate fitting of the French language that in continuous scenes in which the vocal parts are ostensibly all in recitative style, he varies that style by imperceptible degrees, from the simplest monotone to completely articulated and balanced phrases, according to the importance of the words for the time



being. Of formal airs, apart from dance tunes, there are few, but such as there are show him to have had a fine ear for melodic outline and balance and an instinct for working up to a climax. The familiar "Bois Épais" in the opera "Amadis" (1684) is a good specimen of LULLY in his most serious and dignified mood. The funeral scene in "Alcécste" furnishes examples of a medium style, neither dry Recitative nor complete Aria. There is in this scene also a short but most impressive "Pompe Funèbre" for orchestra alone, full of fine discords similar to those familiar to us in the works of PURCELL. Another side of LULLY's versatile genius is shown in the "Air de Caron" in the same opera, where CHARON, the ferryman of the Styx, is made a *buffo* character, who haggles with the disembodied spirits over the fares for carrying them across the river, and is especially rude to one poor creature who has no money. This is a combination of Aria and Recitative, and the cynical remarks of the old curmudgeon are well contrasted with the pathetic appeals of the "Ombres."

LULLY and his followers employ the chorus in two ways. In the prologues and in some of the lighter scenes are choral dances such as the Gavotte and Minuet, sometimes accompanied by the orchestra and sometimes in alternate stanzas with it. The other employment is in a truer dramatic manner, where the chorus is the "crowd" and takes a share in the action, as in the Sacrificial scene in "Cadmus et Hermione" (1674). Here the chorus, singing antiphonally with the "Grand Sacrificateur," rises to a fine declamatory pitch. But the voices are never treated contrapuntally, solid masses of tone being entirely relied on for effect. It should be noted also that the voices are commonly in four parts, the present French custom of writing in three or six parts (soprano, tenor and bass) being more modern.

Besides the dances in which the chorus takes part these operas are full of other dance movements, including the Passacaille, Bourrée, Minuet, Gavotte, Loure, Canaries, Passepié, Rigaudon, la Forlana, Sarabande, several kinds of Branle; special dances for sailors, for savages, for soldiers and so forth; Gigue and Chaconne. All these dances with the exception of the last-named are very short, consisting usually of two divisions, and obviously they were to be repeated as many times as occasion required. The Chaconne nearly always occurs quite late in the opera, and was looked upon as a *pièce de résistance* to be saved for a final effect. The Chaconnes of LULLY and his imitators followed closely one model, being constructed on a "ground-bass" more or less freely varied, with modulations into related keys, and especially alternations from major to tonic minor and *vice versa*. The Chaconne persisted as a feature of French opera down to a late date, and it will be remembered that even GLUCK, a century later, had to give way to the importunities of the famous dancer VESTRIS and allow a Chaconne to be interpolated in "Iphigénie." Said GLUCK, "This opera is a tragedy of ancient Greece; it is impossible that it should contain a Chaconne." VESTRIS replied, "You should know that I am the god of the dance, and a Chaconne must therefore be included." "If you are the god of the dance," said GLUCK, "go and dance in heaven, not in my opera." But VESTRIS had his way.

It is no disparagement to the genius of LULLY to say that he was helped throughout his career by sheer good luck. The king's favour was the first and most important item in the catalogue of fortunate events, and this he was able to retain until his death. It was not merely his talents as a violinist nor his gifts as a composer which secured this; LOUIS XIV. was undoubtedly attracted by his general cleverness as a man and by his vivacity as an actor. In the last capacity, there is little doubt, LULLY might have made a noise in the world if he had had no other source of reputation. He not only provided music for the comedies of MOLIÈRE between 1664 and 1671, but also acted as stage-manager and filled several humorous parts in inimitable manner,

especially in "Le Bourgeois Gentilhomme" (1670) and in "M. de Pourceaugnac" (1669). With regard to the latter the story goes that LULLY, having temporarily incurred the displeasure of the king, played the title-rôle with such comic *abandon* that in the scene where he was surrounded by the apothecaries he jumped clean into the orchestra, and came to earth in the middle of the ruins of the harpsichord. The king nearly died of laughing and LULLY was restored to favour.

It was, of course, a piece of good fortune for the young musician to be associated both with the Court ballets and with the plays of MOLIÈRE; later, when he plunged into serious opera, he was equally lucky in having as an associate for the libretti PHILIPPE QUINAULT, a dramatist of real merit, and at one time said to be "the only European writer who has made the opera libretto a work of literature." Though very successful in his own comedies, his posthumous reputation rests entirely upon his long association with LULLY. He developed a remarkable facility for lyrical drama, his libretti in this field being among the very few which are readable apart from the music. QUINAULT hit the happy mean of retaining literary merit without overweighing the musician, and also showed a unique instinct for dramatic climax and for the full utilisation of the possibilities for effect offered both by the music and by stage machinery.

LULLY was fortunate also in having at his command, from 1673 to his death in 1687, a fully-equipped theatre, the death of MOLIÈRE in 1673 enabling the king to hand over to LULLY the theatre which until then had been occupied by MOLIÈRE, and which was fully stocked with all needful accessories, possessed a spacious stage, and was situated in the most brilliant part of the newer Paris of the day. LULLY's predecessors had not been so fortunate; PERRIN was obliged to hire the tennis-court of JEAN BÉQUET in the Rue de Vaugirard, where extensive and costly alterations were needed before "Pomone" could be produced. Through some trifling informality this house was closed by official order, and just then the quarrels began between PERRIN and his associates. This order was irrevocable, notwithstanding PERRIN's plea that he had been put to great cost and had been nearly ruined in making the necessary alterations. Another tennis-court was secured for the continuance of opera by PERRIN's associate SOURDÉAC, situated in what is now Rue Mazarin. Nothing is certain as to the architectural features of these places nor concerning the details affecting stage management. Reasoning, however, from customary laws of progress, it is not likely that these "Jeux de Paume" can have been particularly admirable in either respect. They served their purpose, however, and no doubt audiences accustomed to plays produced in ordinary halls or in the open air, with a minimum of stage accessories, were not very exacting in their demands. It is known that the second house had a stage opening of 30 feet. Some verses dated 1671 describe this house as possessing three tiers of boxes and a very commodious amphitheatre, from which all could see the stage well. The "parterre" was not yet in existence. It is possible to form an idea of the size of the house from the records of the Comédie Française, which occupied the premises from 1673 onwards. On great days they accommodated more than 200 persons in the second tier of boxes, and nearly 600 in the "parterre," for the comedians, addressing a different audience, had gradually reduced the amphitheatre of SOURDÉAC until it finally disappeared about 1681. MOLIÈRE's theatre in the Palais-Cardinal, afterwards the Palais-Royal, had also a stage opening of about 30 feet, and here it was that LULLY's most notable works saw the light.

In this case, again, much of the detail must be left to the imagination. There are pictures in the engraved full scores of LULLY's works which may or may not be quite reliable. Much is doubtless due to the artists' ideas of what might be rather than what was; but in the opera of France, where the spectacle meant so much, it



may be safely inferred that the productions were really on a scale of magnificence and dignity which would by no means be despised to-day. There is an engraving of a scene in "Le Ballet de la Princesse d'Élide" which was produced in the park at Versailles in 1664, before the Court. According to the picture, a handsome stage front had been erected at a point where a beautiful vista with the palace at the far extremity was revealed on the raising of the curtain. The orchestra, which seems to consist of forty or fifty players, is in front, but screened stage-high from the onlookers, who include the king and his party, in the centre facing the stage, flanked by a brilliant company on either side. Other pictures, in the scores of "Phaëton" and "Persée," give an idea (if they approach anywhere near to accuracy) of the problems propounded by the librettist for solution by the stage manager and machinist, and of the way they were carried out. JUPITER'S vengeance upon PHAËTON'S temerity, and the rescue of ANDROMEDA by PERSEUS, do equal credit to the stage management of the time and the skill of the artist, possibly not unassisted by some imagination on the part of the latter, as to which we are without information.

With two documents bearing upon the unique relations between LULLY and his patron we bring this part of the subject to a close. One is a typical dedication, taken from LULLY'S "Ballet du Temple de la Paix," produced in 1685. It runs thus:—

Sire,—Of all the works which I have produced, and which I have had the honour of offering to your Majesty, this is the one which most legitimately belongs to your Majesty. These new "Concerts" (Entertainments), Sire, are not only yours as the production of a genius which is entirely consecrated to you, but still more as it is a "Divertissement" arranged by a Prince of your Royal and August Blood, who at a time when the peace which you have established takes from him the opportunity of signalling his *valour*, occupies himself in preparing for you spectacles and fêtes which may cheer you amid the cares which you bear for the happiness of France. The Peace which your Majesty has so generously given to your enemies is the subject of this Ballet: Your Praises, Sire, form its chief part: the joy which the several Races there make vocal is caused by the blessings which they owe to you: everything in it speaks of your Glory; . . . I shall be too happy if your Majesty but judge this Ballet not unworthy of your pleasure, and receive it as a new mark of the very ardent and respectful passion which I shall experience throughout life.

Sire,

of Your Majesty,

The very humble, very obedient, and very faithful Servant and Subject,

LULLY.

The other is an extract from some letters patent granted by the king to LULLY'S son, insuring the copyright of his father's works for fifteen years beyond the thirty years granted to LULLY himself. The conditions seem ideal from the composer's point of view, and might form the basis of some legislation in England to-day. LULLY junior is allowed to print everything of his father's, viz. 19 operas, several ballets, Church music, &c., as detailed in a list appended. He is allowed

to sell them through all persons that may seem good to him in all places of our dominions, in such forms, characters, volumes and extracts as he pleases, during fifteen consecutive years . . . during which period we make very express inhibitions of all printers, copyists, engravers, librarians and booksellers and all other persons, that they neither print, sell nor distribute the said works . . . under forfeiture of the copies and of ten thousand livres for each offence, of which one-third shall go to the Hôtel Dieu of Paris, one-third to the informer, and one-third to the said Lully, besides all expenses, damages and interest.

Such words are calculated to make an English composer of the present day long for the beneficent government of an autocrat rather than that of a free constitution under which music pirates have so gay a time.

(To be concluded.)

## RESTORATION IN GERMANY.

OPINION was at one time so strongly in favour of the theory of Gothic and Germanic being alike that the Germans were perhaps justified in believing they were the inventors of Pointed architecture. The French, who should be proud of their connection with the early manifestation of the style, have allowed themselves, by their manner of considering it, to become supporters of the German view. For many reasons Gothic is well adapted to suit German peculiarities. Although it may be an evolution of Southern Romanesque, the style assumed Northern characteristics. There cannot be at heart much sympathy between the Northern and Latin races, and this can be expressed by the adoption of different architectural styles. It is true there are a great many buildings in Germany which may be described as Romanesque, but when they were erected the influence of the Empire continued to be irresistible in the arts, and German-born princes esteemed themselves as the successors of the CÆSARS.

It cannot be said that the peculiarities which differentiate German from French and English Gothic are always improvements. The German craftsmen, and the carvers especially, appear to have been allowed unusual independence, and they exercised it to an extent which suggests their indifference to unity or general effect. Many modern tourists can, however, find more pleasure in such examples than in the buildings as a whole, and we may suppose the contemporaries of the craftsmen resembled them. The porch, pulpit and clock in Strasbourg Cathedral seem to be the principal attractions for most visitors, and few believe there is any more to be seen in St. Lorenz, Nuremberg, besides the Sakramenthaus and one window. So long as the popular interest in a building is a reality it is of little consequence how the feeling arose, and in Germany even those who profess to be philosophic, and are indifferent to the use of Gothic churches, believe in the duty of conserving them. Hence we can so often see several old altars in a Lutheran church. They are useless, but it would be impolitic to remove them. The same affection is shown towards old secular buildings. The various controversies about Heidelberg Castle are evidence that not even imperial desires can interfere with public opinion when antiquity is supposed to be at stake.

At the present time there is some agitation in progress concerning ruins in the little town of Altena in Westphalia. They are parts of an old castle which are much frequented by the inhabitants of the town, and it has been proposed to add to their attractions by expending money on the restoration of the building and by introducing additions similar to those found in tavern gardens throughout Germany. Unimportant as Altena may appear to strangers, already influential bodies of restorers and anti-restorers are contesting about what is to be done and avoided in dealing with the old habitation of the rulers. In such cases there is always a danger of endeavouring to impart a world-wide interest to what is a simple affair, and in that way haziness is sure to follow, and the true conditions of the subject are overlooked.

The history of German restoration supplies many an example of the kind. Take Cologne Cathedral as an instance. ZWIRNER, the architect who was entrusted with the commission, proposed to erect a great central tower over the crossing. The walls were so slight it was evident such a structure was not originally contemplated. The Royal Technical Commission came to the conclusion that if the laws of statics were to be recognised as having influence the tower must be abandoned, as the substructure was inadequate. But ZWIRNER preferred to any statical law his belief that central towers were to be found in buildings erected about the same time, and therefore one should be found at Cologne. He was able to persuade the king to adopt his theory, and the strengthening of the piers was commenced. Common sense, however, prevailed, and a



catastrophe was avoided by the substitution of a *fleche* for a great tower on the four insignificant supports, and that addition does not increase the effect of the two flanking towers.

Idealism is so powerful with Germans, it becomes easy to imagine that an architect contemplated a different arrangement of materials from that he was compelled to carry out. The original intention is supposed to be evident to other idealists, and consequently a proposal like ZWIRNER'S is not uncommon. LESSING must have had the weakness of his countrymen in his mind's eye when he said:—"Not all that art can accomplish ought she to attempt. It is because we have lost sight of this principle that art among us has become more boundless and difficult, but less effective and perfect." But if ruins are regarded as if they were only slight indications of an architect's intention, their restoration may be said to offer unlimited opportunities for novel creations.

The anti-restorers at Altena are against such an interpretation. They rely on advice given by Professor GURLITT. He recommends when dealing with ruins to first remove rubbish which obscures the appearance of the buildings. If walls appear likely to fall supports should be employed, but of a kind which all can recognise as temporary auxiliaries. If any part which has fallen can be replaced it is wise to do so, but if there are doubts about the position the stones should be left. In other words, the conclusions of an individual are not always safe. Fine trees which are much older than a building he would respect, especially when they are in groups, but trees which conceal masonry or vegetation which is injurious to it should be removed. Exact drawings should be prepared, and restoration on paper is worth attempting. Descriptions which would inform a visitor are useful. It is also advantageous to collect models, old views, or documents which serve to illustrate the history of the place. If new buildings are required in the grounds, as at Altena, then they may be made to assimilate in style to the former appearance of the ancient remains, but care should be taken to make it plain to all that they are modern additions.

A great many buildings, and notably churches, which are now in use throughout Germany would be deserted if similar rules were always observed. Probably it was economy which dictated the vamping of new work with the old in them. But ruins can have their use. While Heidelberg Castle continues as we now see it, some of the horrors of war are suggested as forcibly as could be done by any sermon. If the buildings were repaired and used for Government offices they would become less eloquent, to rhymsters particularly. No doubt sobriety has been often exercised, but German churches at least make the visitor doubtful whether such an air of coldness could have prevailed in Mediæval times. The German notion of restoration does not correspond with that of French architects where renewal was allowed, but they have not yet attained the ideal limit which can satisfy the present without disturbing antiquity and depriving it of its characteristic qualities.

#### THE ROMAN VILLA AT PETERSFIELD.

ON Monday in last week a party of members of the Hampshire Field Club visited Stroud Green, about a mile out of Petersfield, to inspect the remains of the Roman villa in course of excavation by Mr. A. Moray Williams, B.A., whose work at the Roman villa at Lippen Wood, West Meon, has had such valuable results and has attracted much public attention. The excavation at Stroud has now reached an interesting stage, says the *Hampshire Advertiser*, and one wing of what must be a very large house has been laid completely bare. This wing contains about a dozen rooms, three of which were heated by hypocausts, and in one may be seen the rare feature of a wall still lined to an extent with large and unbroken flue tiles. Many of the floors are still well paved with tesserae. Several coins of the late Empire have been found, and various small finds of an interesting nature, including objects of iron, glass and

pottery. From the latter it has been possible to reconstruct almost completely a fine vase of New Forest or Sloden ware 12 inches high—a thumb-pot. The excavation, as it stands, covers an area of about half an acre, in which space, in addition to the wing already mentioned, two long walls of the courtyard have been laid bare, while more rooms and foundations are every day being brought to light. One long corridor has a mosaic pavement. The site is now open to the public, and will remain so probably until the end of August. Towards an estimated expenditure of 23*l.* the Society of Antiquaries has subscribed 5*l.*, and some other sums have been received which will enable the work to be carried on for a time, but the misfortune is that the site is in a cultivated field, that the farmer wants his land, and that unless some definite arrangements can soon be made for preservation the remains will be destroyed.

The villa lies a short mile west of Petersfield, one field back from the main Petersfield-Langrish-Winchester road. On arrival in the field, Mr. W. Dale, F.S.A., hon. secretary of the Club, introduced the visitors to Mr. Moray Williams, and then read a brief paper on the excavations, in the course of which he said:—

"We have journeyed a long way to see these foundations, but I think you will all admit when we have heard Mr. Moray Williams's explanation of them that we have not come so far for nothing. A new era in Roman research was begun in 1890, when the systematic investigation of the area within the walls of Silchester commenced. That work will be concluded this year, and I hope it will be possible for us to pay a final visit to the site. The Silchester excavations have taught us much more of the inner life of the Romano-British than we knew before, and have also taught other explorers wisdom in conducting kindred excavations. The examination of what was once thought unworthy of investigation has revealed to us what the Romans ate, the plants they cultivated, and what fruit and herbs grew wild where they lived, as well as some of the trades and industries at which they worked. We have also got a far better idea of the houses in which they lived, and have new data to guide us in realising what the superstructures of these houses were like. Nothing, I venture to think, is more interesting than this, and it is surprising how little we know about the dwellings of ancient races. The most interesting part of Professor Flinders Petrie's exhibition this year is that which bears upon this subject. He is able to show the plan of a house such as that which Joseph managed, and also to give an excellent idea of the dwellings of the ordinary Egyptians, by which we learn for the first time that the living-rooms were on the first floor and the bedrooms on the ground level. So, although we may not see here any very elaborate tessellated pavements, nor many of the pretty things such as at one time were the sole object of search, yet we have before us the ground-plan of a very fine house and its courtyard—the house in which a Roman colonist, who cultivated the farm and ground around it, lived, together with his servants and probably his slaves. Incidental evidence of his prosperity is given by the abundance of oyster-shells which have been found and the various kinds of pottery he used, some of which is our New Forest or Sloden ware, as well as in the usual arrangement of rooms for winter and summer use. May I be permitted to call your attention to the location of the house. Round about us are the grand chalk hills, covered with velvety turf, over which Kingsley went into raptures, and which Gilbert White called 'Vast Mountains.' The latter, living as he did when geology was an unborn science, spoke of the mighty force which had upheaved them like huge masses of dough under the influence of leaven. We now know that the power which moulded these hills came from without; the slow action of sub-aerial denudation continued through incalculably long periods of time. Where we stand is the fertile soil, made by the sands and clays of the greensand. All around us on the high ground is the chalk. We stand at the western end of the great area known as the Wealden. From Buster Hill the chalk extends right away to Beachy Head, cut through here and there by a river valley. The northern range of hills goes along from Guildford and Dorking to Dover, also interrupted by river valleys. These two ranges form the North and South Downs bounding the Wealden area. That great tract ends here in a semicircular sweep, the escarpment of which is not so marked as in other parts because the strata are not so much inclined. We believe that the chalk once extended right over the Weald, joining the North and South Downs together, and covering the place where we are to-day. Modern geology teaches us



that this dome of chalk has been removed solely by the long-continued action of water, and thus the softer beds below are exposed. This is the lesson we learn by a glance at the natural features of the country around us. I would like to remind the members that Mr. Moray Williams is responsible for the considerable financial outlay connected with this excavation. I have been able to procure a grant of 5% from the research fund of the Society of Antiquaries and some of our members have contributed already, but more money is needed." Mr. Dale added that the thumb-pot of Sloden ware was one of the largest he had ever seen. Mr. Moray Williams's excavations at Lippen Wood had been brought to a successful issue, and the results had been published by the Royal Archaeological Institute.

Mr. Moray Williams extended his hearty welcome to the visitors, and also his sympathy, for, he said, they had come very far to see comparatively little, and no sooner had they arrived than Mr. Dale began to suggest they should part with their money, but he hoped that as the result of their visit that afternoon they would come to the conclusion that in anything they did they were not rendering him personal assistance, but helping to continue the most interesting piece of work with which it was his good fortune to be connected, and helping to add evidence to the history of an obscure period. The Romans were in Britain for nearly 400 years, and systematic investigation had done much to make that period less obscure. The only way was to go on with the work quietly, not making a great fuss about their excavations, but taking care that the results were placed before the public in the smallest detail, for it was by details that they pieced together history. The house which stood there was built towards the end of the Roman occupation, and was a house of the late Empire. Evidence of this was furnished mainly by the coins found, of which they had some twelve specimens of, roughly speaking, the era of Constantine the Great. It was an age of toleration and peace, and it was small wonder that during such a period peaceful villa life flourished to the extent it did. The house was what was called a courtyard house, with a system of wings flanked by corridors. They had before them only one wing, but he believed from the great foundations that investigations would prove it to have been a very large house. He hoped they would not be disappointed at seeing so little mosaicwork, but that was the north-west part of the house, and he believed that more interesting remains would be found on the south side. The foundations were very close to the surface, and therefore it was not surprising that so little mosaicwork remained. The walls were very strongly built, not of stone found actually on the spot, but brought, as he believed, from about a mile away. Several refuse pits had been found, which had yielded some objects of interest, one of which was a piece of inscribed pottery, "Æ," but there was little of the inscription left. The greater portion of the soil removed had been put through the sieve, and had yielded the coins referred to. Trial trenches were still being made, and to show the solid character of the work done, he might mention that only on Saturday he was able to bring to light one of the most interesting parts of the villa, in the shape of a heated bath. He pointed to a chamber in which was a hypocaust where six whole box tiles had been found, three of which were in their original horizontal position.

Mr. Dale said that was a most interesting point. He had never seen box tiles laid horizontally at Silchester; they were always in an upright position there.

Mr. Williams said the tiles had "windows," so that the heat escaped in whatever position they were placed. The excavations were only in an initial stage, and he hoped to bring them to a conclusion next year. It was, however, discouraging work, for the farmer wanted to know when he could have his field as he wanted to use his pick and destroy the walls in order to make use of the land. It might be possible to rent the field for a year or two.

Mr. Lashmore said that renting the field would be of little service, as it would mean bringing to light much interesting work simply that it might be destroyed, though, of course, it would have historical value. What was really needed was an effort for permanent preservation, and the County Council had powers in that direction.

The visitors then inspected the excavations and the "finds," and then contributed among them nearly 2% to the excavation fund.

Mr. Dale, in proposing a vote of thanks to Mr. Moray Williams for having received the party, expressed deep regret that there was a probability of these interesting

remains being given over to the pick-axe. Mr. Lashmore's suggestion that representations should be made to the County Council was a good one. They all knew that Sir William Portal, who was vice-chairman of the Council and a past-president of the Society, took a great interest in the preservation of works of antiquity in the county.

The Rev. F. G. Wright, of Netley, seconded the motion, which was carried by acclamation, and Mr. Moray Williams, in reply, said he thanked them for their encouragement.

## THE CRYSTAL PALACE SCHOOL OF ART.

THAT the Crystal Palace has now become a great teaching centre, as well as a place of amusement, was strikingly manifest at the opening ceremony on Monday last of the exhibition of pictures by professors and students, past and present, of the School of Art, Music, Science and Literature, at the capacious and well-arranged studios in the south wing.

The proceedings commenced with the reading by Miss L. L. Roberson, principal of the school, of the art examiner's report as follows:—

"The examiner, Mr. Robert Harris (art master of the St. Paul's School) reports that the standard of the work in this school is above the level of that of the average art school. He considers that the following subjects should be specially encouraged:—1. Memory drawing from the antique. 2. The use of the sketch book. He recommends every student, whatever her capacity, to make a habit of note-book record, availing herself of the unusual opportunities afforded by the Crystal Palace for such study. He thinks that, although the design class is small, the average of the work is exceedingly good. The value of this class with its living model should be appreciated by the students, as in it is utilised the study made in other classes."

The distribution of art awards to the successful students was made by Captain Adrian Jones, who, in his preliminary address, advised the young students first of all to form an ideal, a motive, according to their inclinations, and in working it out the craftsmanship they learned at this school would carry them through.

A vote of thanks to Captain Adrian Jones for his services on the occasion was proposed by Mr. G. Starr, the general manager, and seconded by Mr. Matthew Webb, who reminded the audience that the group of "Duncan's Horses" and the recently erected Duke of Cambridge statue were the work of Captain Jones.

Among the large number of drawings on exhibition we may mention that there are several by Mr. S. J. Hodson, R.W.S., including two interior views of St. Bartholomew's Church, besides views of King's Gate, Winchester, Saumur, Verona, Toledo and the tomb of Emperor Maximilian. Nor should mention be omitted of the very fine representation in gesso of the daughter of the warrior Gileadite, Jephthah, by Mr. Matthew Webb. It may be added that the Fine Art Courts form the unique feature of the Senior School Art Section, of which Sir E. J. Poynter, P.R.A., is visitor, and in the Pompeian House, the Egyptian, Greek, Roman, Alhambra, Renaissance and other Courts students are presented in chronological sequence of styles with excellent examples of the various phases and developments through which the arts of architecture, sculpture and mural decoration have passed. The collection of statuary, too, is unique, and comprises copies of the best works by the old masters, besides reproductions of the most celebrated modern statues by well-known sculptors.

The War Office having called attention to a defect in the round tower at the south corner of the outer wall of York Castle, the question of the advisability or otherwise of demolishing this tower has arisen. The Prison Commissioners have inquired whether any historical and archaeological value is attached, locally, to this tower and the adjacent walls. In reply it was resolved by the Yorkshire county committee "that the Prison Commissioners be informed that the round tower at the south corner of the outer wall of York Castle and the adjacent walls have great historical and archaeological value, and that the Prison Commissioners be requested to remedy the defect in the round tower referred to in their letter with the least possible delay." The tower and the walls were built during the reign of King Edward I.



## NOTES AND COMMENTS.

BIRMINGHAM is fortunate in possessing many citizens who are distinguished for their public spirit. Among them is Alderman KENRICK, who has been connected with the City Council since 1870, and whose name is a household word in Birmingham. It is not for us to refer to all his public services, but it was in a large measure through his influence and exertions that art—and especially industrial art—was revived in the city. He has founded scholarships, and has induced several fellow-citizens to likewise aid the art schools. Among his gifts to the Art Gallery are the following pictures:—*Martyr of the XVI. Century*, by W. GEETS; *The Blind Girl*, by Sir J. E. MILLAIS; *Sweet Water Meadows of the West*, by J. W. NORTH; *The Portico of Octavia, Rome*, by SAMUEL PROUT; *The Birmingham Reference Library*, by E. R. TAYLOR. The purchase of the cartoons by Sir EDWARD BURNE-JONES, of *The Last Judgment*, and of drawings and designs by BURNE-JONES and ROSSETTI was inspired by Mr. KENRICK. He has also offered to give 5,000*l.* to the Picture Gallery Fund. A meeting was lately held to take measures for obtaining a portrait of Mr. KENRICK for presentation to the Art Gallery, and the proposal was unanimously adopted. It has been decided that the commission is to be given to Mr. JOHN LAVERY, R.S.A., and there is no doubt he will do justice to the subject.

THE appearance of the vacant land in the Strand is a satire of municipal ways, and no one should be surprised at the efforts which are made to dispose of it. Although one French syndicate was unable to carry out its arrangements, the London County Council on Tuesday accepted the proposal of M. ERNEST GERARD to take a lease of the central part at a rent of 55,000*l.* a year. It is proposed to erect a building which is estimated to cost 500,000*l.* Canada has shown remarkable enterprise in proposing to erect offices which would be in front of the French building at a cost of 400,000*l.*, and which will be designed by Messrs. A. MARSHALL MACKENZIE & SON, of Waterloo Place and Aberdeen. By that arrangement the French building will not be too obtrusive, for the Columbian building will front the Strand, with the church standing before it.

ANYONE who met THÉOBALD CHARTRAN would have considered there were many years before him. He suggested a vigorous athlete, and his success as a portraitist did not make him discontented with the world. He was one of the painters selected to adorn the Mairies of Paris, and at one time it might easily be imagined that he was destined to be a painter of ecclesiastical scenes on the walls of churches. Born in 1849 he entered CABANEL's studio in 1867, and ten years afterwards he won the Prix de Rome. M. NÉNOT, the architect of the Sorbonne, had predicted the success of his painting, and the two artists went to Rome together and in the course of their term travelled to Venice and Capri. He could not resist the temptation to become a portrait-painter, but it must have given him more pleasure when M. NÉNOT sought his co-operation to paint several of the panels in the Sorbonne. His work is also to be seen in the Hôtel de Ville of Paris, and in some of the Mairies. He was supposed to have been more a favourite of fortune when American ladies were fascinated by his portraits. He was paid liberally, and he made it a rule to visit the United States every year. When illness attacked him nobody believed it could be serious, and a voyage to Egypt was supposed to have restored him to health. But he gradually declined, and his death last week has caused almost dismay among French artists. He had to endure few trials, and until quite lately seemed to be little changed from the gay student who brought additional life into CABANEL's studio.

ACCORDING to the *Architects and Builders' Journal* of Baltimore a good illustration of the way in which coloured men of the present time are making their mark in the world is afforded in the career of W. SIDNEY PITTMAN, an architect of much prominence at the national capital. The United States Government accepted his design, offered in competition, for the negro building at the Jamestown Exposition. This is the first time a coloured man's plans have been accepted by the Government. PITTMAN's parents were formerly slaves. He was educated in the public schools in Montgomery, Ala., at Tuskegee Institute and at the Drexel Institute in Philadelphia, having been aided to take a course in architecture at the latter by BOOKER T. WASHINGTON. After graduating from the Drexel, PITTMAN took charge of the department of architecture at Tuskegee, where buildings costing 250,000*l.* were erected after his plans.

## ILLUSTRATIONS.

ECCLESIASTICAL COMMISSION BUILDING, GROSVENOR ROAD, WESTMINSTER.

ADDITIONS TO WICKHAM HALL, KENT: ENTRANCE FRONT.

THE additions to the above shown in our plate were carried out in 1892-4. A portion of the already existing house is represented on the right hand of the perspective view. On to this was built the projecting tower, to contain a main staircase and an upper smoking-room, and to carry on its summit a small observatory. Beyond this tower is the breakfast-room, with a bay window, and over it the boudoir. Next to that comes the schoolroom, with the butler's pantry on the ground floor beneath. To the left of these is a servants' staircase, housekeeper's room, servants' hall, &c. The drawing was made by the late Mr. A. E. PERKINS. The architect is Mr. W. MILLARD.

BURLEY CROFT, NEAR RINGWOOD: NEW EAST WING.

BURLEY CROFT, originally a four-roomed cottage with rooms under 8 feet in height, has been enlarged by successive alterations and twice by the present owner, Admiral PROTHERO, further additions having been made since the building last year of the east wing, shown in the illustration, a new staircase having been put in and the hall and west front extended. For the last two alterations Mr. W. E. ALEXANDER, of Ringwood, was the builder, and Mr. R. MACDONALD LUCAS, F.R.I.B.A., the architect.

ST. GEORGE'S CHURCH, FORDINGTON, DORCHESTER.

ST. GEORGE'S CHURCH, Fordington, is one of the most ancient, even if not the earliest, of the churches in England dedicated in honour of our national patron saint. Formerly it served for the inhabitants of a country village out in the fields just outside the walls of the ancient Roman city of Dorchester, Dorset. Now, owing to the sale of so large a part of the estates of the Duchy of Cornwall and of the Ecclesiastical Commissioners for building sites, the old parish of Fordington contains over 7,000 inhabitants, and old St. George's, so noted for its unique tympanum portraying St. GEORGE fighting for the Christians at the battle of Dorylaeum, July 1, 1097, is just being restored and enlarged by the energy of the present vicar, the Rev. R. GROSVENOR BARTELOT. The excellent perspective of the church as it will be, which we reproduce in this number, has been drawn by Mr. J. FEACEY, to whom modern Dorchester and Fordington owes so much for his originality and taste in the matter of Domestic architecture. The work is being carried out and will be completed in seven years from the seventh day of the seventh month of the seventh year of this century, when it was begun in accordance with the vicar's Biblical plan, and it will cost 7,770*l.*



## SOMERSET ARCHÆOLOGICAL SOCIETY.

AFTER a lapse of twenty-four years the Somerset Archæological Society held its annual meeting—the fifty-ninth in its history—at Shepton Mallet and district, and the visit to a locality of much interest to antiquarians was a most successful, pleasant and profitable character. The following account of the proceedings is derived from the ample report in the *Somerset County Gazette*:—

The proceedings commenced with the annual general meeting in the Council Hall at Shepton Mallet at noon. The Right Hon. Henry Hobhouse presided at the beginning of the meeting, and in introducing the new president (Mr. F. Somerville) remarked that the latter was no stranger to them. He could not conceive anybody better fitted by his position and public work to take the chair. It was most appropriate that he should succeed his uncle, Mr. Luttrell. Mr. Somerville would be able to tell them of all the attractions of that neighbourhood. It was more than twenty years since the Society met there last, and on that occasion they had the advantage of the presence of Mr. E. A. Freeman and a good many other members who had passed away. He could only hope that their places would be filled as time went on with worthy successors, and among them he was sure they would find no one who surpassed the president of this year. He proposed the election of Mr. Somerville as president.

The Dean of Wells seconded, and said that nobody knew at district so well as Mr. Somerville.

The Rev. F. W. Weaver then read the annual report, which stated that since the last report sixty new members have been added to the Society. The loss by deaths and resignations was thirty-nine. Altogether the net gain was twenty-one. The total membership of the society at date is 691. The total cost of vol. lii. (for 1906), including printing, illustrations and delivery, has been £13*l.* 16*s.* 10*d.* The thanks of the Society are due to Mr. Bligh Bond, F.R.I.B.A., the Rev. F. W. Weaver, F.S.A., Mr. Arthur Bulleid, F.S.A., and the Glastonbury Antiquarian Society, for their help in defraying the cost of some of the illustrations. Next year the Society celebrates its diamond jubilee. The committee are considering a scheme for annexing the apartments at present occupied by the curator for the purpose of the extension of the museum and library. One of the chief archæological discoveries in Somerset during the past year is the existence of a stone circle on Withypool Hill, Exmoor, not marked on the Ordnance sheets. It has been surveyed by Mr. H. St. George Gray. Previously in the county stone circles were represented only by the famous Stanton Drew group. It having been brought to the notice of the owner, Sir C. T. D. Bland, Bart., that the inscribed "Caractacus stone" on Winsford Hill, Exmoor, is rapidly becoming defaced, owing to weathering, he has promised to build a shelter for it on the spot. During May and a part of June the curator, jointly with Mr. A. Bulleid, completed the long series of excavations at the Glastonbury lake village. Structurally the excavations this year were of great interest, but the number of objects found hardly came up to the average. A large quarto work on the whole subject, copiously illustrated, is in preparation, but its appearance must be somewhat delayed owing to the illustrating and the enormous amount of detail such a record entails. Intending subscribers should communicate with Mr. Gray. The price will probably exceed a guinea, but it will be regulated according to the comprehensiveness of the book and the number of subscribers. A second grant of duplicate specimens from the lake village was made in 1906 by the excavation committee, both to the museum and to the British Museum.

Mr. Hobhouse, in moving the adoption of the report, said it was the most interesting statement ever submitted to the Society. It was perfectly clear that the money spent in the past on Taunton Castle and its collection was now being thoroughly appreciated, and the steady flow of donations and most valuable contributions of all kinds of archæological and other Somerset objects was most satisfactory. He was sure each addition to the museum would tend to attract more additions. The number of visitors needed to be increasing steadily, and he was sure more people would be induced to visit that most interesting place. He mentioned that the County Council had adopted the golden dragon of Wessex in its device. That had been the acting under the best advice of leading members of the Society, and he hoped none of the archæologists present would criticise that action of the County Council favourably, and he sincerely hoped that in taking that

step the Council would be supported by the general opinion of those most qualified to judge.

Mr. C. E. Burnell seconded, and said the officers were to be congratulated on the good work they had done, and he hoped they would get increased support from the county financially and otherwise, to render the Society more useful than at present.

*The President's Address.*

The President next delivered his address. He acknowledged the honour conferred on him, and remarked that June 6, 1907, would be hereafter a red-letter day in their calendar, denoting the date on which the Bishop of the diocese, through the generous terms offered him by a newly-elected member of that Society, acquired, on behalf of the Church of England, the stately ruins of Glastonbury Abbey. To whom the charge of the abbey will be entrusted, and what will be done to secure the ruins from further decay, will be a matter for anxious consideration, but we can rest assured that this matter is in safe hands, and we can congratulate ourselves, as well as the Bishop of the diocese, on the success of his appeal for contributions to the purchase fund. Passing on to welcome the Society to Shepton, Mr. Somerville remarked that how long it had been a town, and when it ceased to be a hamlet of Pilton, he had failed to discover. Shepton Mallet owed, no doubt, its first name to the sheep whose wool built up its future prosperity. The second name was connected with the great family of Malet, who owned such large estates in Somerset and Devon in the Norman period. Turning to a consideration of the district they were about to visit, he said there were features connected with it which made it one of the most interesting in the county. The geologist, botanist, archæologist and historian could each find subjects worthy of his attention. In his "Reverie on the Mendips," Professor Lloyd Morgan took them back to an age when the Mendip Hills, once mighty mountains, were being built up by those tiny denizens of the clear blue sea which overlay the older red sandstone. Now that new terror, which threatened to destroy the charm and peace of rural life, had compelled them to investigate a far older formation than even the old red sandstone in search of a harder stone for their roads, and by calling to their aid the ghosts of extinct volcanoes they hoped to lay that dust fiend which the twentieth-century motor-car had raised. In connection with geological matters, he drew attention to the splendid beds of oolite to be found at Doulting, and the valuable building stone which had been used for some of the older work of Wells Cathedral. He added that the coal measures so well known on the north side of the Mendips extended, so geologists told them, on the southern side for a considerable distance, and some day their peaceful rural villages might become centres of an important mining industry. The botanist was much indebted to the local Natural History Society, which for the past seven or eight years had investigated the flora of the neighbourhood. Rare plants were to be found there, but their habitat they had kept secret, lest there were too many inquirers after them, and their existence became there, as elsewhere, but a memory of the past. The archæologist might, under the guidance of Mr. St. George Gray, explore the camps of races whose history had to be built up out of earthworks, pieces of pottery and a few other mementoes of a bygone age. In the local museums, thanks to the generosity of the late Mr. Phyllis, could be seen many mementoes of Roman occupation at Shepton, but they regretted the disappearance of the potter's kiln, which was shown to the Society on the visit of 1865, and the site of the Roman villa near the Charlton railway station. The Fosse road was, however, still with them, an interesting paper on which, by Mr. McMurtrie, was read at the Society's second visit in 1884. Wool and the trade in woollen goods were for many centuries the chief source of the national wealth and had an important bearing on our domestic, political and economic history. Those Mendip Hills must have carried many thousands of sheep, whose wool not only supplied the local demand, but also the foreign market. In Saxon times, and for some time after, there appeared to have been no separate craft of weavers, no mention of them appearing in Domesday. Probably at that time each family made its own woollen cloth and garments in the long winter evenings. Contemporaneously with the rise of craftsmen's guilds they found the formation of merchants' guilds, which, like the former, were at first mere voluntary combinations, and subsequently received recognition by an authority from the Crown, which granted them charters confirming their rights and liberties. While the object of the craftsmen's guild was to control the craft



to which they belonged, that of the merchants' was to secure a monopoly of the trade of the district. At an early date the functions of the court leet must have been transferred to and amalgamated with these merchants' guilds, which thus became the foundations of municipal government. The President gave interesting details concerning the cloth trade in the past centuries and the operations of guilds. The fourteenth century was a time of great prosperity, and much money was spent on the rebuilding of churches which had fallen into disrepair during the stagnation in trade and depression caused by the long wars and the "Black Death." Croscombe Church was rebuilt at this time. On two of the bosses in the nave roof of this church might be seen figures of a man and a woman kneeling, with rolls of cloth-like scrolls round the edges, no doubt denoting the benefactions of some wealthy clothiers who were then living at Croscombe. Shepton Mallet Church, whose magnificent roof was perhaps the finest example of its kind, was a rather later restoration than Croscombe, but if they had the records of its rebuilding they would find on them the names of wealthy clothiers. He alluded to the guilds and to the settlement of Flemish weavers at Glastonbury in 1551. Alluding to the revival of trade in Edward VI.'s reign, he said they found Taunton holding a very important position as a manufacturing centre, its trade in woollen goods being almost equal to that of Bristol. He traced the history of the clothing trade through subsequent periods, and said that gradually that industry in the West had passed away, one cause being that the manufacturers did not keep pace with the times as did the men in the North by the introduction of spinning and other machinery. A few old people remained in the neighbourhood who could remember cloth and silk mills at Shepton and Croscombe and a hat factory at the latter. He could himself remember the last silk mill at work at Croscombe and a few weavers' looms in the cottages. There was now a thriving velvet factory at Bowlish, a hamlet of Shepton, and there were some indications that at some future time Shepton might regain its position as a manufacturing centre. Still, their old churches, some interesting old houses and charities remained to tell them of a prosperity which had passed away.

The Dean of Wells proposed a hearty vote of thanks to the President for his interesting address, and

The Rev. C. W. Whistler, in seconding, said the President had brought before them a subject they ought to know more about—the history of the old industries of the county. The motion was heartily agreed to.

#### *Shepton Mallet.*

The archæologists afterwards visited the parish church at Shepton Mallet.

Dr. F. J. Allen explained that the church was one which had suffered very severely from vandalism, both at the Restoration and still more during the Victorian period. The church was restored in 1837, and in 1850 the chancel was reconstructed. The oldest visible part of the church consisted of the two side arches nearest the chancel. The arches were of the date about 1180, and were cut through what was previously a solid wall. Whether there were any aisles to the original church was not known; there were no signs of anything of the kind. If there were no aisles the nave consisted of a building only 14 feet in width, 25 feet in height and 40 feet in length, which were proportions of an early Norman or early Saxon age. The chancel arch was Early English, and of the period between 1190 and 1200. The next oldest part of the church was the tower, which was about the period of 1375, or shortly after, and it was the oldest and the parent of all the great towers in the county. Dr. Allen also drew attention to the magnificent roof, which, he said, was a waggon-head roof of the period of 1500; and by a long way the best of its kind in England. It contained 350 panels, each one of a different design, and there were no two bosses alike. There were eighteen angles on each side of the roof, besides other ornamental details. The beautifully-carved pulpit of the post-Reformation period was also described, and an interesting fact was noted that the recent cleaning off of old plaster had revealed, amongst other things, an ancient squint on the south side of the chancel arch, also fragments of niches between the windows of the clerestory which formerly contained statues. The alterations also made it apparent that the nave and the tower were at one time separate buildings.

The company then inspected the fine old market cross in the centre of the town, and also the shambles in close proximity, Dr. Allen pointing out that the latter were the rarest thing of the kind in the kingdom.

The members drove to Dulcote Quarries and afterwards visited Dinder Church, the ancient architectural features of which were described by the President. The also visited Dinder House, the residence of the President of the Society.

When the members returned to Shepton Mallet the party, under the direction of Dr. Allen, were escorted around the old town and shown several interesting features. The annual dinner was held at the George Hotel, and this was followed by a meeting in the Council Hall, at which a paper by Mr. F. Bligh Bond, of Bristol, on "Screen Work in the Churches of North-East Somerset" was read. The Rev. D. Melville Ross gave some interesting information as to the former Corporation of Langport (1596-1886). Mr. H. St. G. Gray showed some lantern slides of Sma Down Camp, Evercreech, and a lantern exhibition of photographic studies of Shepton Mallet Church by Dr. F. Allen and the Rev. R. L. Jones (vicar) included details of the famous carved panels in the roof taken at close quarters during the restoration. Some of these showed the shoe marks of the iconoclasts of Cromwell.

#### SECOND DAY.

The programme was an exceedingly interesting one but unfortunately heavy and frequent showers considerably detracted from the pleasure of the day's excursions. A party of about eighty left the George Hotel, Shepton Mallet, at 9.30 A.M., and a few miles' drive through a picturesque country brought the archæologists to the extensive parish of Doulling, containing many places of deep interest to the antiquarian. The parish church was first visited.

#### *Doulling.*

The Rev. F. W. Weaver read a paper on its history. He pointed out that they were now in the Glastonbury country, Doulling Church, with others, having been formerly attached to the abbey at Glastonbury. Such churches were usually very fine, and there was no doubt that prior to its restoration Doulling Church was a magnificent edifice. There was hardly any part of the church that had not been taken down stone by stone and built up again. One of the few things allowed to remain in its original state was a beautiful Norman door. The church was practically rebuilt in the year 1869, and it was extremely pleasing to think that the Somerset Archæological Society visited the church four years before it was touched, and they had recorded a very valuable article, written by Professor Freeman, who told them exactly what the church was like before it was restored. Professor Freeman, speaking of the original church, said its history was pretty plainly written in its stones. Sir Richard Paget had also contributed some interesting details concerning the restoration which sought to reproduce the church in exactly its original form. All the old material, however, was not reused, and the party would be able to see in the vicarage garden several fine portions of the south doorway, &c., which were discarded, he thought, unwisely. The chief point of interest in regard to Doulling, however, was the fact that it was the deathplace of St. Aldhelm, Bishop of Sherborne, in 709. St. Aldhelm, who was trained in the abbey of Malmesbury, was the great apostle of the neighbourhood at a time when heathenism was rampant. He was in the habit of planting his cross in different parts, and around the cross was built a little wooden church, which was eventually replaced by nobler structures. St. Aldhelm was buried at Malmesbury, and Saxon stones were said to mark each seven miles the distance his body was taken. The Bishop of Bristol had been able to identify several of these stones, whilst (the speaker) had recently discovered another. In the vicarage garden was St. Aldhelm's Well.

Mr. F. Bligh Bond said, considering the extensive restoration, the result might be considered very satisfactory for it was gratifying that they could see so much of what was really there before. The tower and a great deal of other carved work was retained. The two especially fine transept roofs appeared hardly to have suffered at all in restoration. With regard to the nave, that was entirely modern, but in other parts the original work was well retained.

The Rev. E. H. Bates commented upon the unusual size of an octagonal tower in Somerset, and said such towers appeared to be confined to about a dozen churches in a well-defined belt through the county.

The Rev. J. Derbyshire, the rector, also gave some details concerning two brasses in the church, several tombstones in the churchyard, the bells and the churchwarden's accounts.



After the archæologists had examined the interior of the church and had visited the rectory garden and St. Aldhelm's Well, the tithe barn next claimed attention. Dr. F. J. Allen briefly explained the points of interest, observing that though not as ornate as some of Somerset's tithe barns, it was yet one of the largest. Much of the original style of roofing was visible, whilst attention was directed to the somewhat unusual height of the doorways, admitting the entrance of waggon-loads of hay.

A short drive brought the party to the famous Doulting Quarries, the stone of which plays so important a part in ecclesiastical buildings. The geological formation of the East Quarries was explained by the Rev. H. Winwood, of Bath, whilst Mr. Staples, a member of the firm owning the Quarries, gave details of their modern working, illustrations being afforded of the ease with which slabs of the stone were cut.

#### *West Cranmore.*

Another stormy drive through well-wooded country brought the party to West Cranmore, the church (a chapelry of Doulting) being the chief object of interest. Before entering the building Dr. Allen pointed out that the tower was considered the feature of the church. The tower had always been much admired, being picturesque and standing well. In point of outline it was an imitation of the tower of Shepton Mallet Church, but although the details were so similar to those of the tower at Shepton Mallet, yet the tower of Cranmore Church was much later. The details were imitated, and yet with considerable degeneration. The tower belonged to the late fifteenth century, about 1460. The tracery of the windows considerably resembled that of Bruton and Evercreech. It was said to be the smallest tower of the important towers of the county, except that of Wilsington, near Taunton, its height being 64 feet 10 inches.

On entering the church, the Rev. E. H. Bates had several interesting things to say about the interior, especially drawing attention to a brass to the memory of the Strode family. It was curious, however, that the brass commemorated their birth instead of their death.

#### *Leigh-on-Mendip.*

Leigh-on-Mendip was the next place of stoppage.

Mr. Bligh Bond gave a brief review of the architectural features of the church, pointing out that there was hardly a feature in it that did not belong to the fifteenth century. The roofs were exceedingly fine, and from their form recalled the handsome specimens in the transepts of Doulting Church. A doorway in one of the walls suggested an entrance to a former rood-loft. The woodwork was very fine, the fifteenth-century benches being especially worthy of notice. His attention had been called to the last bay of the nave roof, but he might say that it was frequently found that this part of the nave roof was canopied and enriched.

The Rev. J. E. W. Honeywill, the vicar, read a paper on the history of the village, and also gave details of the church. He mentioned that the plaster on the north and south transept walls had been stripped off, with the result that in one wall an entrance to the old rood-loft was found. The pulpit was remarkable from the fact that it was the ankofering of the people of the parish for the escape of a former vicar, who was shot at whilst preaching by some one who disagreed with the introduction of surplices.

The Rev. E. H. Bates called attention to the beautiful glass in the west window. It was the finest piece of glass in a church window, in its general design, that they had in the county. Dr. Allen, outside the church, pointed out the beauty of the tower, which, he said, belonged to the Glastonbury school of construction. What the tower lacked in delicacy of detail it made up in beauty of detail.

#### *Moon's Hill and Maesbury.*

The next stoppage was at Moon's Hill Quarry, where the Rev. H. Winford once more delighted the party with a paper and interesting sketch of the geological aspect of the Quarries. He pointed out that the stone was of volcanic origin, its proper name being andesite and not basaltic. The quarry was discovered by the late Chas. Moore, and in his researches since made by Professor Reynolds it had been found that the stone extended right through the Mendips. The stone was particularly suitable for road construction, being dustless, and in a motoring age the demand for it was beginning to be very great. At the Moonhill Quarries, on the opposite side of the hill, Professor Reynolds had discovered silurian fossils, and geologically this was considered a discovery of premier importance. At Maesbury Camp Mr. H. St. George Gray pointed out that the name of the camp was pronounced in three ways. Although it covered some seven acres the

camp was not of a rare type, and its chief claim to popularity was the marvellous view which could be obtained from it of the surrounding country. Indeed, it commanded the finest view of any point on the East Mendips.

#### *Croscombe.*

The President gave a description of the church, remarking that he was secretary of the committee which in 1891 undertook the very careful restoration of the building. The village itself was a very interesting one in many ways, at one time carrying on a thriving woollen industry. An old church was there before the present Perpendicular church was built. There was very little of the old structure left, but at the south porch there was an interesting old doorway, the date of which could not be put later than the early part of the fourteenth century, or possibly the latter end of the thirteenth century. During the fourteenth century the church got into a very dilapidated condition, and a priest who was offered the living refused on the ground that the chancel was in a ruinous condition and that the glebe and parsonage were in the same state. Like many other churches, its condition was largely brought about by the long wars with France and the Black Death. The present church was built some time between 1400 and 1440—probably between 1410 and 1430. The roof over the nave, the pulpit and the very handsome screen were Jacobean, the pulpit bearing the date 1616. The church also contained a number of very fine fifteenth-century benches. The bells were of particularly rich tone. There were formerly a number of guilds in Croscombe, and these used to take a very active work in the church's life.

Mr. Bligh Bond called attention to the fact that in the handsome screen the royal arms were substituted for the usual cross.

A short time was spent in admiring the interior, special interest being taken in the "treasury," an annexe to the church, a building in which it was thought the vestments and other treasures in the time of the chantries were stored.

In the evening the Shepton Mallet Natural History Society entertained the members of the Society.

#### THIRD DAY.

Chesterblade Church (chapelry to Evercreech) was first visited, and after a preliminary inspection of this quaint little building the party gathered around the churchyard cross, from which the Rev. W. T. Dyne, vicar, gave an interesting description of the church, which is dedicated to the Virgin Mary, a figure of whom occupies a niche above the south porch. Having drawn attention to the surviving Norman work, the vicar mentioned that the font in the church was pronounced by Bishop Hobhouse to be rude enough for pre-Norman times. There was formerly a Norman band around the font, but about fifty years ago that was removed. The windows of the church were of later insertion. The bell turret was admired by a great many people and was one of the features of the church, which had been attached to Evercreech from earliest times. The chancel was pulled down in 1767, and Mr. Bligh Bond was of opinion that some of the old material was reused. The carving at the end of the nave was said to resemble that in a Kent church. The pulpit was modern, but the church possessed an interesting Elizabethan chalice. The registers had been kept with those of Evercreech.

#### *Small Down.*

The next place seen was Small Down Camp, which a few years ago was partially excavated by Mr. Gray, who gave a comprehensive description of its plan. He pointed out that Roman relics had been found at Chesterblade, but not in the camp, and this led him to believe that possibly a Roman villa or encampment once existed near the village. The entrance to the camp on the east was 33 feet in width, the same as that of Maesbury. There was a triple line of earthworks on the weak side of the camp, but as they followed around to where the approach was more precipitous there was but a single rampart. Excavations were made to the depth of seven feet, when it was found that the former inhabitants of the camp had excavated the solid rock to the depth of several feet, which was remarkable, seeing that in that age iron had not been discovered. The work was probably done by deer horn implements. Excavations in the ditch had revealed fragments of bronze and flint implements. In another cutting a few fragmentary human remains were discovered. The chief feature of interest in the camp was, however, the row of eleven barrows, some of which had been disturbed prior to his excavation. In his opinion the barrows were raised before the earthworks were made. In one undisturbed burial-mound there was



found evidence of a cremated interment. Having given other interesting details concerning the camp, Mr. Gray said the date of its creation was not later than 400 B.C., and was probably much earlier. Although the atmosphere was not favourable yet the party much enjoyed the view to be gained from the summit of the camp.

#### Batcombe.

At Batcombe the church is a large and ancient building of stone, chiefly in the Perpendicular style. Dr. Allen described the magnificent tower, which he characterised as one of the finest in the county. It bore a resemblance to that of Leigh-on-Mendip, but its features were chiefly derived from that of Bruton. It was distinguishable from the fact that it bore no pinnacles, but from its construction it seemed as if it were intended to carry a spire. Although the tower derived its details from Bruton tower, yet the treatment of its windows was derived from the central tower of Wells Cathedral. It was a triple windowed tower, but the lines of the window were carried down to the lower stage, as was the case in the central tower of Wells Cathedral. The tower had been classed as of the Wrington type, but he differed from that view, believing that it was the work of the Glastonbury school of masons. If the date of Bruton tower was 1460 he believed that Batcombe tower was built almost immediately afterwards, as it bore no trace of degeneration in detail.

The Rev. F. W. Weaver described the carved accompaniment of angels surrounding the figure of Christ in a canopied niche on the west face of the tower.

The vicar (the Rev. W. C. Baker) also added some interesting remarks concerning his ancient church, which he remarked was greatly in need of restoration.

On entering the building the Rev. F. W. Weaver read a paper relating to the church and its history. He remarked that most of his information was derived from a paper written by the Rev. E. H. Bates. He called attention to the beautiful external staircase leading to the rood-loft, and the chancel and nave roof. The font was a good specimen of the Perpendicular period. The church also contained a number of monuments and commemorative tablets, there being one to Philip Bisse, who was rector for forty-five years and also Archdeacon of Taunton.

#### Evercreech.

After luncheon the party at once proceeded to inspect Evercreech Church, which is dedicated to St. Peter. Dr. Allen remarked that at first sight they would hardly think that the tower was related to that of Batcombe, as a different impression was given at the first glance. Yet the two towers had many details in common, and there was no doubt they were built by the same school of architects. The point in which the tower most resembled that of Batcombe was in the way in which the line of the windows was carried down to a lower stage. There was more excuse for calling Evercreech tower of the Wrington type, inasmuch as there was considerable similarity between Wrington tower and Evercreech, but he saw no reason whatever for the suggestion that it was a copy of the Wrington tower.

The Rev. W. T. Dyne, the vicar, gave a short account of the church, which, he said, was described by Bishop Hobhouse as a typical Somerset church, and the glory of the village. He mentioned that the handsome cross was removed from the churchyard to a place outside late in the eighteenth century.—Mr. Bligh Bond shortly drew attention to the chief architectural features of the church.

#### Pilton.

The last place of visit was Pilton. The party at once proceeded to the large and handsome church. The Rev. E. H. Bates detailed the chief features of interest. He observed that when the church was restored very little of interest was left by "the destruction committee." An ancient church formerly stood on the site of the present building, but all trace of it had disappeared. Pilton was formerly the centre of an enormous parish, which included Shepton Mallet, Croscombe and other parishes. There was a Norman doorway in the south porch, whilst an unusual feature was the two-storey chancel. There were also very interesting churchwardens' accounts, one of the few pre-Reformation accounts preserved. The register went back to 1560, and mentioned the names of the last English serfs.

Mr. Bligh Bond described the remaining screenwork in the church.—The vicar (the Rev. Preb. C. W. Bennett) subsequently conducted the party over the edifice.

Tea having been partaken of at the church house, the tithe barn was inspected. The party then returned to Shepton Mallet, all agreeing that the 1907 meeting had been one of the most successful.

### NORFOLK CHURCHES.

THE members of the Norfolk and Norwich Archaeological Society, to the number of about sixty, visited last week the south-eastern part of the county. Under the guidance of Dr. Godfrey Bately and Mr. W. H. Jones, Yarmouth, visits were paid to eight of the churches which stand on the high lands bordering the marshes of the Waveney, Yare and Chet, and also to Langley Abbey and Claxton Castle. The churches are chiefly remarkable, some of them, for the beauty of the Norman doorway, and in two cases for the apsidal chancels, evidence of the great antiquity of the ecclesiastical edifices in that part of the county, which appear not to have been superseded by later erections to so great a degree as in the remainder of Norfolk.

#### Haddiscoe Church.

The members went to Haddiscoe Church, over the dam constructed by order of Dame Margaret Hobart in the reign of Henry VII. It is built on an eminence, the natural strength of which has every appearance of having been improved by artificial means, and the finding of the handiwork of neolithic man in the churchyard may be taken as evidence that the site was utilised so far back as prehistoric times. The round embattled western tower has ungainly angular architraves over the windows of Early Saxon or Norman workmanship. The south doorway is a beautiful example of Norman work, with zigzag and billet moulding, and has a niche over it containing a seated figure in episcopal dress. Symbols of the Evangelists are carved upon the font. A double piscina in the chancel has trefoil arches. In the nave is a stone commemorating the wife of Jan Piers Pie, a Dutchman, who was dyke-grave in the vicinity in the middle of the sixteenth century. The church was restored in 1861, when some interesting mural paintings were discovered. In the time of Henry III. there was in Haddiscoe a preceptory of Knights Templar, who had in the church a chapel dedicated to St. John.

#### Thorpe-next-Haddiscoe.

Owing to some misunderstanding the church, which has been newly thatched, was not open, and consequently of the exterior could be examined. Dr. Bately read a paper showing that there was probably a church here before the Norman Conquest. It has a low round tower with very early windows, probably Norman, and a thatched nave and chancel, the latter erected about seventy years ago. During the ravages of the Black Death three clergymen were presented to this living in one year.

#### Thurlton Church.

This church, which is also thatched, has a square embattled tower. It contains a massively-bound Bible dated 1613, and the plate is of particular interest, as Mr. J. Walter—whose wide experience renders the statement remarkable—asserts that the chalice, dated 1554, was the smallest he had ever seen. There is also an interesting fresco of St. Christopher.

Mr. W. H. Jones read a paper, in which he said that there were in this parish several lordships at the time a grand survey was made. The fabric existing here originally was so entirely transformed and rebuilt about the middle of the fourteenth century, i.e. soon after St. Giles Hospital had acquired possession of it, that very little of distinctive features of the old church remains; but of the little the Early Norman masonry forming the arch and sides of the south entrance is in beautiful preservation. What we see to-day everywhere else is Perpendicular character. The tracery of the screen is very fine, although the painted panels and canopy supporting the rood-loft are gone. The north entrance is particularly good. Immediately over the arch is a representation of the Trinity, the Father supporting with both hands the Cross, on which is suspended God the Son, while in the spandrels two angels censing. In the moulding on each side of the entrance and running up over the arch is a succession of crowns. The tower, containing a peal of bells, is square and noble, but it has been robbed of its pinnacles; a portion of one of them is inverted at the head of a rustic's grave, which serves as a gravestone. There was formerly the Guild of All Saints in this church, and the image of St. Mary has been placed by the north wall. The register dates from 1558.

#### Norton Subcourse Church.

This is a large and unusually lengthy church, with a low, round tower. The windows are mostly Early Decorated, the tracery in the east window being particularly noteworthy.



Mr. W. H. Jones, in the course of a paper, pointed to various considerations which led to the conclusion that the tower was of very ancient erection, and was a part of the church recorded as being here in the time of Edward the Confessor, its foundation being undoubtedly due to the Abbey of Bury St. Edmund, the monks of which held the manor. Their under-tenant was one Goscline, who, being so lord of Loddon, subsequently took his surname from that town. The last of the family of De Loddon dying without male issue, his inheritance came to his three sisters, and as his property and patronage became vested in several families. In 1387 the College of Raveningham was removed by the King's license, and that of Henry Spencer, Bishop of Norwich, and by Sir John de Norwich's will, to this parish. There were then thirteen chaplains, and a new fine chapel was built. It would seem that this church may be the chapel alluded to. It is 106 feet long, and although devoid of aisles, is as wide as many churches having those appendages. Its size would indicate that it was intended for some use beyond that of an ordinary parish church, and the conclusion that apparently obtains as to its dedication—some books stating its patron saint as St. Margaret and others as St. Mary—points to the same conclusion. There was in this church St. Margaret's tabernacle, and he would suggest that its original dedication, in Saxon times, was to St. Margaret, but that when the college of St. Mary was transferred here from Raveningham, and the nave and chancel of this church rebuilt, it was dedicated to St. Mary, and a tabernacle to St. Margaret kept in remembrance of its original patron saint. There is here, beneath a canopied recess in the north wall of the chancel, the tomb of Sir John de Norwich, the translator of the Raveningham College, and the heads of windows in the nave, shields containing the arms of England and of the families of Hales and Otteburt. This last family was a very ancient one. The chancel is very spacious, and on each side of it formerly were the stalls of the master and brethren of the college. In the north wall still remains a very handsome double piscina and sedilia. The beam of the roof-loft is still in position, and a holy-water stoup exists in the south wall of the nave, whilst in the wall opposite are three niches where probably saints once stood.

#### *Heckingham Church.*

Finely situated on an eminence close to the border of the marshland, this church has an interesting apsidal chancel and magnificent Norman south doorway, which has been restored, and is a gem in the eye of antiquaries. The base of the tower is round, on which an octagonal structure has been erected with ancient red bricks for pinnacles, giving a very pretty result. The apse is supported on the outside by buttresses, considered by Dr. Bately to be Saxon, being practically the same as those at St. Martin's, Canterbury. There is no Norman window, the lights being of Early English. In the north aisle is a sepulchral slab to the memory of Hugo, abbot of Langley in 1283. On the south wall in the north aisle there are shields to the memory of the Erpingham, Clifton and other families.

#### *Hales Church.*

This church is also thatched, and has a lofty round tower with curious cheques in flint, brick and freestone on the parapet, and narrow slits for windows. All the beautiful features of the building are on the exterior. The chancel, which is somewhat lower than the nave, is apsidal, supported by Norman buttresses, and having Norman arcading round the apse and continued for one arcade on the north wall. Both north and south doorways are of magnificent Norman work, which, though unprotected by any arches, is in almost perfect condition. Most of the windows are Early English. The only other striking feature of this most interesting church—interesting because the ground plan appears hardly to have been altered since Norman times—is the remains of the entrance to the rood-

#### *Loddon Church.*

This proved a most interesting example of Perpendicular work. In the churchyard at the foot of the tower are two massive uninscribed tombstones traditionally said to mark the graves of a man and a boy who were killed by a fall from the scaffolding during the erection of the church in the fifteenth century. The following paper was read by Mr. W. H. Jones:—

In many of the rambles of our Society amongst the churches of Norfolk we have met with problems of architecture, in structure and in detail, which have been as instructive; but here in Loddon we have a

church the well-defined features of which are as clear to us as an open book. It is not the original church of the parish; that was cleared away, owing most probably to its decay, and of it we have nothing to remind us save an allusion to it in the Liber Albus of St. Edmundsbury Abbey, which refers to it as having been one of the earliest foundations in England, owing its erection to Felix of Burgundy, the first bishop of East Anglia; but the font, the remaining portions of the screen, and one of the brasses, dated 1462, may be late vestiges of this older church. But of the present church, dedicated to the Holy Trinity, we need not search for evidences of its date. Not only is the style of its architecture apparent, but we have precise record of its foundation. Until recent years a portion of a painted window remained here, an account of which Mr. Copeman communicated to our Norfolk archæology, and which bore an inscription to the effect that Sir James Hobart, of his generous benefaction, completed the building of this church in three years, the eleventh year of Henry VII., 1495. Only a few words are necessary concerning the personality of this knight. He had close ties of relationship with Norfolk ere becoming connected with Loddon, but he lived in London, and rose to eminence in his profession until he was appointed Attorney-General to Henry VII. He appears to have acted as legal adviser to some of the prominent families of Norfolk, amongst them the Pastons, of whom John Paston, writing to his mother concerning the family troubles in 1478, tells her that there will be no further difficulty in seeing James Hobart, because, he says, "He purposeth from henceforth during his life to be a Norfolk man, and to live within two miles of Loddon." He purchased Hales Hall in this parish, and principally rebuilt it. He had married, firstly, Margaret, sister of Bishop Lyhert, of Norwich, who was the builder of the screen in Norwich Cathedral, of the beautiful vaulted roof of the nave there, to the cost of which Hobart was a considerable contributor, and of the great west window; and Hobart himself is memorialised in the nave by the altar tomb which still stands there. When we remember that these great works in the cathedral were in progress, and that many of the parish churches of the city, including that of St. Peter Mancroft, which this church so much resembles, were constructed during Hobart's life here, we need not look far to discover whence he gained the taste for building which led him to the construction of this church. In all its detail the Perpendicular style is complete and fully developed and the church is a fine specimen of the architecture of the period. We may conclude our reference to Hobart by observing that he was knighted in 1502-3, and that he married, secondly, Margaret, daughter of Peter Naunton, of Letheringham, Suffolk. On the south wall of the church is a quaint painting which has been judiciously framed and glazed in recent years, and containing portraits of Sir James Hobart and his second wife. They are represented kneeling at a table, between their heads being two shields, the one bearing the arms of France quartering those of England, and the other those of Hobart. In the left-hand corner is a picture of this church, and in the right-hand one a view of St. Olave's, or Tooley's Bridge, over the Waveney, which, the inscription beneath records, were respectively built by Sir James and his wife, although a similar picture at Blickling of a later date ignores the companionship of Lady Hobart with her husband in the building of the bridge.

The details of the church are many and interesting. The well-preserved pulpit is Jacobean. Beneath it has been fixed the panelling of the Perpendicular screen, all that remains of what was once one of the glories of the church, but which was subsequently employed for seat backs, and only quite recently arranged in the form in which it now appears. It is noteworthy because of the elegance of its paintings. Principal amongst these is a representation of St. William, whom you will remember as the boy who early in the twelfth century suffered martyrdom at the hands of Jews in Thorpe Wood, near Norwich. Here he is depicted wearing a loin cloth, and is attached to a pole placed transversely in the forks of two rough uprights. His body presents the appearance of a saltire cross—the hands above the head, the legs apart. The left hand and right foot are bound, and the right hand and left foot nailed, to the uprights, details which show a perverted knowledge of the true story of the martyrdom, which would have been properly represented by the right hand and foot being bound and the left hand and foot being nailed. On the left of the picture are three men and on the right two; the foremost of the latter pierces the boy's left side with a knife, and



holds a basin to receive the blood, intimating a belief on the artist's part that the Jews would use the blood for ritual purposes. It is believed that this is the best of all the ten or eleven paintings of St. William which have been identified. The other panels of the screen bear representations in the life of Christ, viz. the Nativity, the Adoration of the Magi, the Circumcision, the Presentation and the Crucifixion.

The east window, of graceful proportions, has recently been thoroughly repaired, in common with much of the fabric of the church, and its glazing has been rearranged by the Ecclesiastical Commissioners. In the former arrangement the figure of Our Saviour held a prominent position, but the painting has now been inserted in the east window of the north aisle. The ancient glass representing the Apostles has been preserved in the top smaller lights of the east window. The shields of arms are so numerous that time would fail us to-day to enumerate them, but those of the Hobarts, the Bacons, Fastolf, Drury, Harbord, Howard, Spencer, Berney, the Palmers of Loddon and Yarmouth, and of the see of Norwich, will be recognised amongst many, but none of unusual interest. In the north aisle is a beautifully carved marble tomb with recumbent figure of Lady Dionis Williamson, of whom it records that she gave two thousand and one odd pounds towards the rebuilding of St. Paul's Cathedral. Amongst the many brasses there is an example of the shroud brass in the north aisle, bearing the figures of Katherine Hobart and John Blomeville, 1546, precisely similar in design to the shroud brasses of Richard and Cicely Howard at Aylsham. This ghastly style of memorial is more general in the eastern counties than elsewhere, and was frequently laid down during the lifetime of the persons who were intended to be commemorated, in order that they might constantly be reminded that they were but mortal. The stone coffin lids in the north-west corner are noteworthy, one of them bearing a cross having a rounded head instead of the usual square head. Close by them are the old-time and interesting bench and desk long used by the archdeacon during his visitations.

The font is but a dilapidated relic of what was once a splendid octagonal specimen, and which bore on its panels representations of the seven sacraments, the eighth bearing a representation of the Crucifixion. Baptism was on the left of the Crucifixion, being the first sacrament that we can receive, and the series is completed by the "extreme unction," which, as Bishop Forbes has it, is "the lost Pleiad of the Anglican firmament." But these panels have been hopelessly obliterated; and if it will be of any satisfaction to you to know who committed this outrage, you may be told that it was a gentleman named Rochester, the glazier who was paid 6s. by the churchwardens for his work of vandalism in 1642. The base of the font is marvellously developed, throwing the font itself quite out of proportion, but this may have been by design, so that the ceremony of baptism might be seen as impressively as possible by the congregation. During the recent restoration of the church the font was removed considerably westward from its earlier position. The ancient poor's box is most interesting, though not unique. Hone describes and gives an engraving of it. He speaks of it, as you find it to-day, as "two separate boxes, each secured by two padlocks; over these is a hole in the lid for offerings." He continues:—"When a sufficient sum was collected, it was taken out and placed in the adjoining box in the presence of two churchwardens."

In the parvise there was long carried on the school of the parish, over which, it is stated, the father of the poet Crabbe once presided. At present this quaint little chamber contains some of the time and weather-worn stones taken from the exterior of the porch during restoration. Viewed from the font the beautiful proportions of the church, with its lofty east window, its lightsome windows and its graceful clerestory, may be well appreciated, and I think it only remains for us as a Society to offer our congratulations to the vicar and churchwardens upon the exceedingly careful manner in which this ornate church has recently been repaired, and the excellence of the work which has been introduced in the seating and other new features around us.

#### *Chedgrave Church.*

This is a most remarkable architectural conglomeration, consisting of a north aisle, a nave and chancel, a truncated square tower with a conical thatched roof at the north-east corner, and a modern south porch erected to the memory of General John Barrett of the Indian Army, who died at Rawul Pindi, Punjab, December 15, 1880. A slab in the

tower reads, "This Church Repaired and Beautified 1819, but evidences of the latter were not very apparent. In the east window is some curious Flemish stained glass.

#### *Langley Park and Abbey.*

From Chedgrave the party proceeded through Langley Park, redolent with the scent of hay and glorious with fine foliaceous trees, to the hall, where, by the kindness of Sir Reginald Beauchamp, Bart., afternoon tea was provided for the company. The hall, built in 1740, has not a beautiful exterior, but the interior amply compensates for this, and the visitors found much enjoyment in inspecting the picture gallery including works by Vandervelde, Murillo, Bartolommeo and Sir Joshua Reynolds, and a bronze statue of Louis XV. by a French artist. After tea and a few minutes on the lawn watching the fountain playing, seats in the brakes were again taken, and the party moved on to Langley Abbey. Excavations have recently been made here, under the supervision of Mr. W. H. St. John Hope, and the ground-plan of the abbey has now been fairly well established. On the west, and now forming part of the farm-buildings, are fine groined kitchen and abbot's parlour, over which was the library (now a hayloft), while to the southward was the guest-chamber. In the church a big rubbish heap has been removed, and bits of carved stone, with colour and gilt on them, have been moved, the tomb of a knight and his wife discovered, while human remains have also been disinterred. Among the ruins of the church, ivy-covered, with stonecrops and wallflowers growing thereon, Dr. Bensly read a paper written by the Rev. Dr. Cox, F.S.A.

#### *Claxton Castle.*

This was the last stopping-place. The remains of the castle chiefly consist of a lofty ivy-covered wall with bastions, overhung with branches of the horse chestnut affording a lodging-place for roses, growing quite on the summit of the wall. It was erected by Walter de Kerdiston who in 1333 obtained a license to castellate, and in 1345 obtained permission to alter the course of the highway as to make an extensive moat round his castle. It is often mentioned in the "Paston Letters," was visited by Edward III. and is said to have at one time been the residence of Anne of Cleves. On the northern side of the wall are doorways leading into the bastions and the remains of an Elizabethan mansion erected on the site.

The company subsequently proceeded to Buckenham Ferry and then walked to Buckenham station, returning to Norwich after an excursion of ten hours' duration.

### YORK MINSTER.

THE latest "Occasional Paper" on the restoration of York Minster issued by the Dean relates to the completion of the West Front, under Mr. Bodley's direction, and to undertaking other necessary works, as will be seen from the following statement:—

There is little doubt as to what will be the verdict of intelligent and unbiassed persons, for the marvellous intricate details of the structure are once again seen almost all their original beauty. The grand façade which the Yorkshiremen, and indeed all men of taste and culture have valued for so many generations is once again presented for their pleasure and gratification, and the labours of devoted and skilful men for the glory of the House of God are seen free from the decay of time and the ignorance and careless treatment of those who either knew not or depreciated the intrinsic merits of what they handled. It has been asserted that, under the plea of restoration, many details of antiquity and taste have been destroyed, and genuine old work removed for the sake of replacing it with the new. But those who allege this must be unaware that some hundred years ago, a well-intentioned but mistaken attempt at restoration was carried out so effectually that little of the old work really remained unblemished through the lack of real knowledge in what had been handled. The appreciation of true Gothic work was then only in its infancy, and the national taste was then only beginning to wake up from a long period during which Gothic architecture was not appreciated, but rather regarded as a effete style of building, and unsuited to the climate and requirements of Englishmen. To the former we owe the ruthless destruction of many beautiful Gothic buildings of much exquisite Mediæval detail; to the latter we trace the feeble efforts made to restore or reproduce features or ornamentation of which the spirit had scarcely



evived, and the real knowledge of which was to many a sealed book.

The west front of the Minster is a not inapt illustration of this; the veriest tyro in Gothic architecture can see that much which exists in the details thereof is so manifestly devoid of the spirit and tone of Mediæval work as to be but a poor reproduction of what existed before, while additions have been made which in form and style are in discord with the school which they are supposed to represent. Great care has, however, been taken in the present restoration of the building to preserve as far as possible everything evidently original, and, where insecurely bedded, to replace it in a more permanent way. Whatever, from partial decay, could not be retained with safety to the public has been carefully removed and placed in the grounds behind the deanery, where, on application to the Chapter Clerk, those interesting survivals can always be seen by architectural or archaeological students.

Some discussion has also been raised as to the expediency of restoring the flying buttresses. It was alleged that either they never had existed or that they had been taken down because they were not required. As regards the former, the exhibition of "Ancient York" held some two years ago presented engravings which showed that they were actually in existence as late as the close of the seventeenth century, while sufficient fragments have been found, built into other portions of the building or neighbouring walls, which conclusively confirmed these illustrations. As regards the latter, viz. that they had been removed when the original idea of a groined roof for the nave had been abandoned as never being required for a wooden roof, this has been disproved, first by the existence of flying buttresses in many buildings where only wooden roofs exist throughout England, and especially in the chapter-house of the Minster, where they are still *in loco*, and which has never had any other than the wooden roof, which exists at the present day. Secondly, the careful examination of the walls of the nave aisles by Mr. Bodley has shown that, by the pressure of the wooden roof, they are seriously out of the perpendicular, and that the original builders realising their great height and the thrust which any roof would have upon them, wisely provided this additional security at the beginning. The flying buttresses were evidently taken down at a period when there was a general indifference to Gothic buildings, and the materials used up for the sake of economy, or for such purposes as required attention either in the Minster or in the property of the Dean and Chapter. But fortunately, in so doing, sufficient portions have been preserved to enable the complete and faithful restoration of the whole, not only for the sake of their architectural beauty, but for the stability of the building. And it will be a source of satisfaction to all who contributed to the restoration fund to feel that they have assisted in the revival of these graceful and essential adjuncts to the Minster.

They will also be interested in knowing that through their munificence during the last eight years a staff of masons and labourers averaging thirty in number has been kept in constant employment and thus preserved from adding to the large number of those who have been out of work. We feel sure also that all will join with us in thanking God that during that time no serious accident has happened to any of the workmen and that no portion of the elaborate scaffolding has suffered from the many violent storms of wind nor a single spar been carried away.

It has been seen by the accounts referred to above that the funds so generously entrusted to the Dean and Chapter have proved sufficient for the work, which has been conducted with a strict attention to economy combined with efficiency. Messrs. Barron & Barron, chartered accountants, have carefully checked all payments, and Messrs. Northcroft & Neighbour have also carefully examined the amount and price of the material supplied and the labour expended thereon, and have expressed themselves quite satisfied that the money has been properly laid out and that the result of the work, both as to quality and quantity, leaves nothing to be desired.

The last restoration of the west front was completed rather less than 100 years ago, so the disintegration of the stonework has been rapid, and as ancient buildings of the same stone (viz. Tadcaster) in this neighbourhood are still as fresh as the day on which they were completed, this disintegration is due from some cause peculiar to York, and doubtless that is the action of the sulphurous smoke upon magnesian limestone. We have taken care to carry out the restoration with Ketton stone, which being an oolite sill, we hope, prove invulnerable to this influence, but as

the number of smoke-emitting chimneys throughout York has increased it is evident that unless some measures are adopted to mitigate the smoke the disintegration will be even more rapid in the future.

And this is no mere ecclesiastical question, but one which affects commercial and sanitary interests. We have read lately of the manifold danger of ignoring or neglecting this important subject. It is often said, we have been reminded, "Where there is smoke there is money," but science and practical experience teach a diametrically opposite creed, viz. "Where there is smoke there is waste of money," and Mr. Edward Atkinson, president of the Mutual Boiler Insurance Company, Boston, U.S.A., says, "Smoky chimneys give evidence of waste of fuel, because the existence of smoke is evidence of bad methods of firing and of incomplete combustion," which in London alone has been estimated at nearly two millions sterling per annum; while Messrs. Crosfield & Co., of Warrington, have stated that they save 2,500*l.* per annum on their coal bill alone by reason of the steps which they have taken to secure perfect combustion, and Messrs. Newnes, of Cardiff, have estimated their savings from similar means at 25 per cent.

But it is not only wasteful, it is detrimental. The Houses of Parliament in London, being built of dolomite limestone, are seriously affected thereby. And not only this, but Faraday, before a Royal Commission, testified to the injury done to the pictures in the National Gallery. Sir William Richmond states that the frescoes in the House of Commons, the priceless marbles in the British Museum, the public monuments in Trafalgar Square and on the Embankment, and the very bricks and mortar of the houses are being disintegrated and dissolved by the all-pervading and destructive smoke. The serious action of the acid upon the ironwork in the roof of Charing Cross station undoubtedly caused the late terrible accident.

Sir Frederick Treves further states that the health of men and animals is injuriously affected by the fogs caused thereby, filling the lungs with small smoky or sooty particles, which are hydrocarbons, with an excess of sulphuric and sulphurous acids to add to their ill effects. In 1880 the death-rate in London rose to forty-eight per thousand. And Sir Oliver Lodge firmly but justly denounces the amount of wasteful incombustion. Indeed, another writer says that the iniquity of depleting the air we breathe must be increasingly inculcated as a foul habit, just as offensive to the general welfare as contamination of drinking water by sewage, while the distinction between the respective evils of black, grey-blue or yellow smoke seems to be exaggerated.

The prevalence, therefore, of smoke not only affects the Minster, which to some, who have no taste for Gothic architecture or no sympathy with the purpose thereof, may seem immaterial, but it affects the health of the city, and it is useless to take measures for good drainage and pure water if we neglect this. It will be well, therefore, if for some time to come the condition of the fabric is regarded not only for ecclesiastical or archaeological reasons, but as a token to the citizens generally of what is really the prevailing condition of the atmosphere which they are compelled to breathe and in which they have to live.

At the present moment (continues the Dean) our funds for further progress in the work of restoration are nearly exhausted, and though the interest on the munificent legacies which we have lately received will eventually enable us to continue to do something, it will not be sufficient to enable us to make any very rapid progress, and we trust, therefore, that it may be supplemented with continued contributions. The Duke of Westminster's seasonable donation of 200*l.* enables us to carry out the much-needed restoration of the "Five Sisters" window, where the strong iron stanchions, contracting and expanding under the changes of temperature in the atmosphere, have broken the thick plates of glass put up years ago for its protection, and materially cracked and injured the stonework. These will be carefully repaired, and an outer covering of plain white glass in quarries with lead glazing substituted for the present thick green plates, but we are waiting for summer weather and still, calm days, as the ancient painted glass has become so thin that if exposed to a strong wind it might be seriously damaged.

The great east window must not be forgotten. The condition of the glass there is very similar to that of the "Five Sisters," and the repair of the stonework and the substitution of white quarried glass for the green plates should not be delayed longer than we can help.



The windows in the clerestory throughout the nave and, indeed, throughout the whole building, both as regards the stonework and the glass, should be attended to as soon as possible, not only for the preservation of these matchless specimens of Mediæval glass, but also for the safety of persons walking or worshipping beneath.

The parapet of the central tower also claims our attention, as it is in a very insecure condition, and many of the stones require to be replaced or made fast. Indeed, the whole tower requires treatment, the walls repointing and many of the gargoyles which have fallen off to be restored.

And, finally, the beautiful mortuary chapel or canopied tomb of Archbishop Bowett should not be left any longer in its present dilapidated state. The elaborate canopy was much injured by a fall of timber during the fire of 1829, and it has been entirely neglected since then. The memorial of so great and good a man deserves to be differently treated. To him we are in a great measure indebted for the grand central tower, and his courage in leading the army to repel an invasion of the Scotch, although so ill as to require to be carried on a litter, entitles him to our grateful and abiding remembrance.



#### The Contractor's Magna Charta.

SIR,—I was deeply interested in your article on "The Examination of Materials in Bulk." The question therein dealt with is one of the greatest moment to contractors generally, and it seems to the writer that the action of the Acme Flooring and Paving Company in this case may lead to the Magna Charta of contractors generally, inasmuch as it has called attention to what is undoubtedly a most iniquitous form of contract. I do not know whether you have seen the form which was the subject matter of this action; but I am personally well acquainted with it, and it does seem a most extraordinary thing that any official called upon to supervise and direct a public work should not only have the most drastic power under the contract itself, but that he should also be constituted sole arbitrator with regard to any difference of opinion or matter of fact, and even of his own actions and conduct between himself and the contractor—the arbitrator whose opinion, to use the words of the contract, "shall be binding, final and conclusive."

The writer, who has had many years' experience in this particular class of contract, has for several years endeavoured to arrange a conference of contractors in order to deal, and deal effectively, by a resolution to studiously refrain from tendering where such conditions are imposed, and I trust that now the Acme Company will use their powerful influence to bring about such a conference, in which case, heavy as the cost must have been to this company, it will be well worth the cost, if it should result in the contractor's taking at last a firm stand, and establishing his right to at least "be on the earth." It is not every man who is capable of exercising the impartial mind of a judge, and yet the powers given under such contracts as the one in question are as great and of quite as much importance to the parties concerned as those vested in a judge.

I trust you will excuse my writing at such length, but it seems to me that your article deals with a very serious question, and it is one of such moment that it would be highly interesting to hear the views of contractors generally.—Yours faithfully,

The Zeta Wood-Flooring Company, Ltd.,  
WILLIAM J. BENNETT, Managing Director.

#### Ventilation at the New Bailey.

SIR,—The grave reflections which the Recorder, Sir Forrest Fulton, K.C., expressed concerning the "ventilation" of his Court at the New Old Bailey is enough to make architects timorous in dealing with new systems and to adhere to the old. According to the Judge:—"It is impossible to open the windows. I am told that if a window is opened the ventilating and warming system is thrown out of gear. It is the most extraordinary system ever heard of since the world began. The officials have to work here all the year round, and I am astonished that they can survive it. When I came here at nine o'clock this morning the pressure was quite overpowering." The public must also suffer as well as judges, counsel and officials. Is it not the duty of the

Corporation of London to institute inquiries at once, and if there is no exaggeration in the Recorder's allegations to adopt remedies which are not impossible to discover?—  
Yours, &c.,  
COMMON SENSE.

#### GENERAL.

**Sir Thomas Drew, LL.D.**, has been appointed one of the visitors of the Museum of Science and Art, Dublin, in the room of the late Dr. John Kells Ingram.

**Dr. Hoyle**, director of the Manchester Museum, has received the 500*l.* for which he asked for the purpose of purchasing the tomb group recently discovered by Professor Flinders Petrie at Rifeh.

**The Annual Exhibition** at the Government factory, Sèvres, will be opened on August 3.

**The Nottingham Chamber of Commerce** have been considering the subject of an exchange of Nottingham and Paris Schools of Art students, with the object of widening their view and contributing to broader and more cosmopolitan methods. The question of the practicability and desirability of the suggestion has been discussed by the school of art committee, but in view of the fact that the schools are closing down for the summer vacation this week, it was decided not to take any definite steps at present, but to leave the matter in the hands of the chairman, the vice-chairman and the principal of the School of Art.

**A Copy** of G. F. Watts's painting, "Time, Death and Judgment," was presented and hung in St. Paul's Cathedral a few years ago. The artist's widow has announced that she will give another of his pictures to be placed facing his other work. Mr. Charles Booth has also given to the cathedral a replica of Holman Hunt's "The Light of the World."

**Lord Wenlock** has received the following letter, in connection with the Selby Abbey Restoration Fund, from Sir Dighton Probyn:—"I am commanded by His Majesty the King to send you the enclosed cheque for 100 guineas towards the required sum of 50,000*l.* The King was very pleased to learn that the appeal of the restoration committee had been so generously and promptly responded to, and that the balance required, which only now amounts to 16,000*l.*, may shortly be forthcoming." The Prince of Wales has contributed 50 guineas to the fund.

**The Dean and Chapter** of Truro Cathedral have decided to increase the insurance of the building from 70,000*l.* to 100,000*l.* They consider that the proximity of a large number of houses and other buildings exposes the cathedral to great risks in case of fire.

**The Burntisland Town Council** have purchased the historic castle of Rosend and the grounds connected therewith for 3,500*l.* The castle has historical association with Mary Queen of Scots having spent a night there in her flight from Loch Leven. The resolution to purchase was arrived at recently, when a special emergency meeting, convened by representation to Provost Wallace, was held and the resolution was carried by a majority of seven votes to three. Thirty-five years ago the Town Council bought the property from its owner at that period, and after reserving the rights of foreshore, sold it to the late Mr. Shepherd, from whose trustees they again acquire it.

**The Curators** of the lectureship in archæology, recently established in Glasgow University by Mr. J. D. Dalrymple of Woodhead, have appointed Professor Bosanquet, of the University of Liverpool, lecturer for the first year. Professor Bosanquet will deliver his lectures early in the spring on a date yet to be fixed, and the course which will consist of five or six lectures, will probably be devoted to the provinces of Greece, their physical characteristics, mythology and cults.

**Mr. Drinkwater Butt, F.R.P.S.**, for the better conduct of his practice in the design and arrangement of artists and photographers' studios and the restoration of old domestic work, has removed from St. Stephen's Avenue, W., to St. Anthony's Studio, 24 Queen Street, Hammersmith, where among other work he is at present engaged upon a painting studio to be erected at Cropthorne, Worcestershire, for the well-known landscape artist, Mr. T. Hodgson Liddle, R.B.A.; and, together with Mr. W. Ashworth, architect, Dublin, with the design and fitting-up of a photographic department for the new premises of the Irish Lace Depot, Molesworth Street in that city.

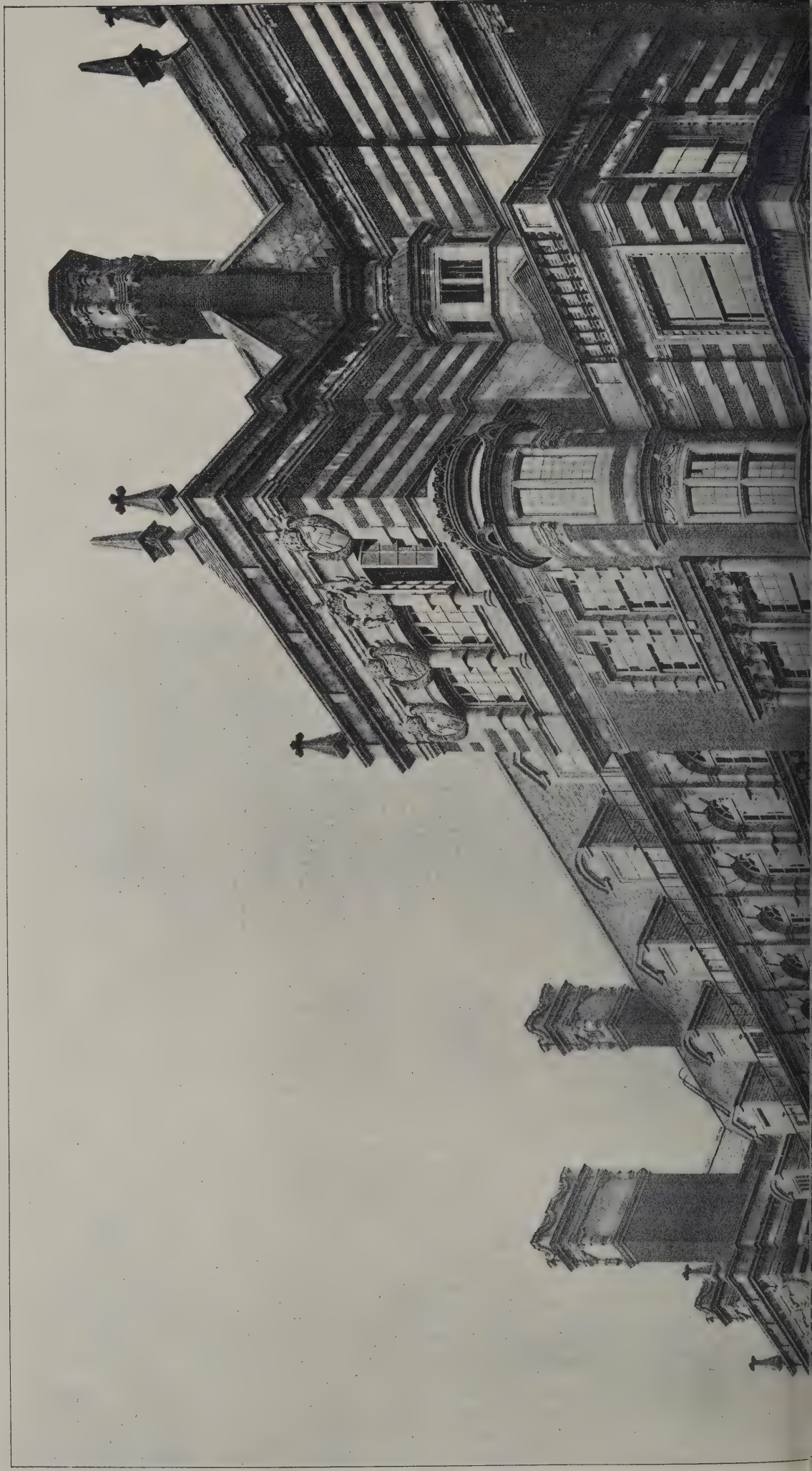
**Mr. Dudley Newman, F.R.I.B.A.**, late of Tooley Street, where he was, until the partnership was dissolved, in practice with the firm of Newman & Newman, has opened offices at Queen Anne's Chambers, Westminster, S.W.







The Architect, July 26<sup>th</sup> 1907.







PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

# ECCLESIASTICAL COMMISSION BUILDING, GROSVENOR ROAD, WESTMINSTER.

W. D. CARÖE, M.A., Architect.











Additions to  
Wickham Hall.  
Kent.  
Entrance Front.

Walter Millard. Architect







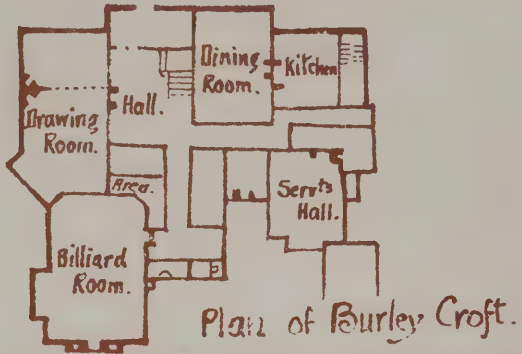












BURLEY CROFT, NEAR  
R. MACDONALD



th 1907.



"INK PHOTO" SPRAGUE & CO LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

NEW EAST WING.

Architect.















Aug 26<sup>th</sup> 1907.



"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ST. ANDREW'S CHURCH, DORCHESTER.

St.







# The Architect.

## THE WEEK.

THE second International Congress of School Hygiene will commence at the University of London, South Kensington, on Monday, the 5th inst., and will continue until the 10th inst. To-morrow, Saturday, there will be informal receptions in the University and a reception at Londonderry House. Sir LAUDER BRUNTON will deliver his address on Monday. On Tuesday at the general meeting methods will be discussed for the first and subsequent medical examinations of school children. Bishop WELLDON will also lecture on "The Effect of School Training on Mental Discipline and Control in Adolescence." The subject for discussion at Wednesday's meeting will be the lighting and ventilation of classrooms, and it will be opened by Sir ASTON WEBB, R.A. On Thursday the subject will be "The School and its Relation to Tuberculosis," and on Friday on schoolwork. Papers will also be read, and there will be visits to important schools and other places. An exhibition of school appliances has been arranged. Among the delegates who will attend is Mr. ARTHUR H. REID, architect, of Capetown. He will represent Cape Colony and the Transvaal.

It is remarkable how many different ways are proposed for dealing with the Infirmary site at Manchester. The Manchester Society of Architects recently considered the subject and arrived at the following conclusions:— (1) That it was impossible from an architectural standpoint to convert the present Infirmary buildings into a satisfactory art gallery and free reference library; (2) that the site should remain as an open space in perpetuity; and (3) that the art gallery and reference library should be placed on either side of Oxford Road between the railway bridge and All Saints Church. A meeting of citizens was lately held which was attended by representatives of various societies. The following resolution was moved by Mr. T. C. HORSEFALL, who has been strenuously endeavouring to secure an art gallery which will be worthy of Manchester:—"That this meeting is strongly of opinion that without a large extension of gallery space the educational work of the art gallery committee will be greatly crippled, and urges the importance of the erection of a building architecturally suitable on the site of the present Royal Infirmary, to be devoted to the purposes of a central free reference library and art gallery and museum of the most comprehensive kind." The resolution was passed, but so many other views were expressed the following amendment was accepted as a rider to it:—"That without the express sanction of a majority of the citizens it is not desirable that the present Infirmary buildings should be demolished for the erection of an art gallery." What will be the issue of the discussions it is impossible to foresee.

TURNER died in December 1851, leaving most of his property to the public. It was not until March 1856 that the Court of Chancery arrived at the conclusion that "all the pictures, drawings and sketches by the testator's hand, without any distinction of finished or unfinished, are to be deemed as well given for the benefit of the public." There were a hundred finished pictures, 182 unfinished, while the drawings and sketches in colour and pencil amounted to 19,049. At the time the depository for the public was considered to be the National Gallery. TURNER himself wished that some of his paintings should be exhibited in positions which would compel visitors to compare them with works by CLAUDE which were in the Gallery. There could be no doubt therefore that the public in TURNER'S mind signified visitors to the National Gallery. Although we can see several works of TURNER in one room, the Trustees,

owing to the limitation of space at their disposal, have not been able to display more than a comparatively small percentage of the paintings and drawings bequeathed by this artist. Recently some examples were sent to the Tate Gallery for exhibition. Nevertheless, it is doubtful whether the arrangement was legal. Probably nobody would have the courage to vindicate the law, and as much may be said about another incident relating to TURNER which is now under consideration. An admirer of the artist has offered 20,000*l.* for the erection of a building in which more justice could be done to TURNER. But it would have to be erected in connection with the Gallery of British Art at Millbank. There can be no question that TURNER'S works have a claim to a dominant position in such a collection, but the legal obstacles are difficult to overcome. TURNER'S manifest intentions with respect to the National Gallery and the Royal Academy have been frustrated, and it is difficult to see how they can be realised without obtaining a special Act of Parliament. One should have been passed half a century ago.

A CASE was heard last week at the West Hartlepool County Court which suggests that the responsibility of architects has ceased to be nominal. Mr. JAMES GARRY, architect, of that town, claimed 31*l.* balance of his commission for services in connection with the erection of a house. A counterclaim amounting to 99*l.* for alleged negligence was put in by the defendant, a medical doctor. The architect's claim was admitted; the counterclaim was for loss arising from the introduction of a beam which was not of sufficient strength, and which failed to support the wall above it. The Judge said he believed the building owner had sustained damage due to want of that proper supervision which he had a right to look for from the professional gentleman engaged. After considering each item, his Honour gave judgment for 28*l.* 17*s.* 5*d.* on the counterclaim. The architect declared he visited the building at least twenty times, and no sign of any defect in the beam was apparent until after the final certificate was granted. The decision is important because the architect's responsibility has been supposed to come to an end with the completion of the builder's contract.

THERE is a great difference in the requirements of local authorities concerning the kind of plans which have to be deposited. One of the by-laws of the Local Government Board says that they should be complete plans and sections of an intended building showing the sanitary arrangements, with a description in writing of the materials and the mode of drainage and means of water supply. As borough surveyors are allowed to become rivals to architects and to accept ordinary commissions, it is only natural that architects should be chary of giving up more drawings than are required by official regulations. On Tuesday there was an application for a mandamus calling on the Urban District Council of Holyhead to show cause why they should not pass the plans of a church. Complete plans and sections were duly deposited, but the Council declined to express approval because elevations were not supplied also. Counsel who made the application described elevations as mere sketches which were intended to enable a building owner to realise the appearance of his property when completed. The Lord Chief Justice suggested that it was desirable for a local authority to realise what was contemplated. But at the same time their Lordships granted a rule. The principle involved is important. Hitherto construction and the preservation of health were the objects supposed to be within the capacity of ordinary authorities. But if they are to decide on the architectural appearance of a building, some precautions will be required. In London there is an architectural department, and there may be valid grounds for the objection to appearances. But can we expect similar security in every small town in the country?



## CUBICAL CONTENT OF BUILDINGS.

EVERYONE who is acquainted with the streets of London is aware that in certain districts the occupiers seem to follow classes of business which are closely related. Take Clerkenwell as an example. In many of the small dingy streets each house will be found to have a brass plate on the door which suggests that the tenant is connected with some branch of the trade in clocks, watches or metalworking. Makers of springs, dial enamellers, engravers, gilders are found to be congregated within a short distance, and a careful examination of the announcements would be enough to reveal the processes of watch or clock-making or of the reparation of plate. An American would be amused by such a simple system, which has no apparent controllers. He would be sure to contrast the mean houses with the colossal factories of the States, in which infallible watches can be produced (if the advertisements are to be credited) at a nominal cost. Clerkenwell, he will say, is England on a small scale; everything is cabined, cribbed, confined, and trade especially cannot attain expansion.

There are, of course, extensive factories and manufacturing in and around London. But the newspaper reader is continually startled by announcements of the owners of one large manufactory after another having resolved to abandon the Metropolis and to erect new buildings elsewhere. The cause is sometimes said to be oppressive taxation, which undoubtedly handicaps both wholesale and retail trade. But probably a more potent obstacle arises from the rigorous law which prevents the enlargement of premises beyond the size which was conformable to arrangements for production on a limited scale. According to the London Building Act the normal cubical content of buildings is 250,000 cubic feet. If a greater area is needed party walls and iron doors are to be introduced in order that no division is to exceed the 250,000 cubic feet. The rule applies to all buildings within two miles of St. Paul's Cathedral. Larger dimensions are possible on the report of the superintending architect showing he is satisfied that risks from fire are diminished. Then the cubic area is raised in special cases up to 450,000 feet, but the buildings must not exceed 60 feet in height.

We need not enter into further particulars of the rules and exceptions, as every architect in the Metropolis must be familiar with them. All who were in practice before 1894 are also aware that 216,000 cubic feet was the limit imposed for warehouses and manufactories. In other words, the ideal building was 60 feet in length, 60 feet in width and 60 feet in height. That was the rule arrived at in 1855, and if an owner wished to exceed the dimensions he was compelled to divide his buildings with one or more party walls with iron doors in them in order that no division could exceed the limits enacted. The Act of 1894 undoubtedly was a great improvement, but as the world has since advanced it is now found to be obsolete in its regulations.

The recommendation of the Building Act committee, which will be found on another page, would by itself be evidence that a much larger type of building has become necessary. The London County Council are not remarkable for anticipating the necessities of those who live within the metropolitan area. It may, therefore, be taken for granted that the subject of a change was not entertained until there was a certainty that the Council were about to lose an important class of rate-payers. Three months must elapse before Parliamentary powers to authorise buildings of a larger area can be sought, but the time is barely sufficient to consider all the points at issue. In dealing with such a subject the means for combating fire in a more extended area have to be taken into account. The 216,000 cubic feet was really the measure of the power of the Metropolitan Fire Brigade system in 1855. But in course of half a century not only have engines and appliances improved, but the organisation of the brigade is nearer perfection.

It must also be remembered that fire-resisting construction is more generally adopted for building, and would not be omitted from large-sized factories if the law made such an arrangement obligatory. When FAIRBAIRN proposed to substitute cast or wrought-iron beams for timber he was anxious to have appliances introduced in every factory which would prevent the metal from becoming heated. The varieties of them which are now to be obtained are more effective, and beams and columns can be protected by several efficient systems. In America, where fires seem to be inevitable the insurance rates are low for all kinds of buildings in which fireproofing is employed, and consequently there is no limit to the size of industrial buildings. The largeness of the majority of those lately erected is among the first of the constructive phenomena which strike an architect when he visits the United States.

Although British workmen are strong in prejudices they also have had to admit the advantages which the Americans possess in the commodiousness of their workshops, and for which no manual dexterity was an equivalent. This acknowledgment of the superiority of plant and buildings is repeatedly expressed in the pages of the reports of the delegates of the Mosely Industrial Commission. The necessity for capacious work-places is so general, we must conclude that if Americans were hampered by the building regulations of England their success in the production and disposal of goods would be diminished. The delegates were not able to discover any superiority in the American workmen, except what was derived from the advantages of the improved plant and the facilities for carrying out work by the capaciousness of the buildings. In a fortnight one delegate said English workmen would be on an equality with the Americans if their surroundings were similar. In one report we read:—"There is a state inspector for buildings of a large character, and all the plans for new buildings have to be passed by him, and I was assured that he looks well after all the requirements necessary for the health of the workers." At one factory the sanitary arrangements cost 20,000/. Having space at command the American owner is not obliged to adopt the shifts to utilise holes and corners which are evident in many English establishments of repute.

Whether production on a large scale is more advantageous for a country like England than the old-fashioned methods is a point on which economists do not agree. Having a larger population in proportion to area than America, it is sometimes more economical here to employ hand labour than costly machinery. But all such questions cannot be determined by the agency of words alone. Shrewd people are eager to make experiments through the agency of large factories, and as the loss, if any, will fall on them they should not be obstructed. At present many of them believe they must remove to a distance from London or they cannot have the freedom which is desirable for their enterprises. But the consequences which would follow must affect many classes, including operatives. It is for the London County Council to decide whether larger buildings can be erected with safety. In deciding such a question the evidence on which the Act of 1855 was framed is nearly useless. Safety is now a certainty to an extent which could not be then foreseen, for the principal aim of modern construction is security against fire at an economical price.

Methods of production are on their trial, and undoubtedly those which are most modern are as closely connected with efficient buildings as with efficient machinery. Changes are inevitable, and it would be absurd for English manufacturers to close their eyes to the advantages which their rivals derive from manufacturing which are specially planned to suit particular businesses. Still more grave would be the creation of obstacles by authority through a fear that humble voters would have to suffer in the impending alterations of processes.



## THE ORIGIN OF OPERA IN FRANCE.

By Dr. JOHN E. BORLAND.

(Concluded from page 53.)

MONOPOLIES, however profitable to their owners, are seldom or never of advantage to other interests. Two forms of monopoly were connected with French opera in the seventeenth century, one being the patent which, as we have seen, was granted to LULLY for the production of the operas, and the other the privilege accorded to the BALLARD firm as printers. This turned out disastrously for the typographic art. Having no opposition, the BALLARDS did not trouble to renew their music-type often enough, and the result was many poor specimens of opera-scores, in which irregularity of alignment and indistinctness of impression were notable features. But BALLARD prospered, as did LULLY. The latter also was that rare combination—man of affairs as well as artist. His successful ballets and operas provided him with the means of speculating in houses and land in the best suburbs of Paris; his successful speculations gave him capital for further operatic ventures. M. EDMOND RADET, in his valuable work, "Lully, Homme d'Affaires, Propriétaire et Musicien," writing as an architect, draws a happy picture of the association of music with architecture in connection with LULLY's ventures. He writes:—

The myth of Amphion building the walls of Thebes to the strains of his golden lyre has always charmed us. We find in the harmony of sounds presiding over the harmony of the lines of architecture a mysterious agreement which satisfies at the same time our professional taste and our ardent love of music.

Thus, when a happy circumstance put into our hands the care of the ancient Hôtel de Lully in the Rue Sainte-Anne, we seized with eagerness the opportunity of making several sketches of the old stones and some researches about the old musician who had raised them, like Amphion, thanks to his songs.\*

On another page M. RADET writes:—

Like all celebrated men in brilliant epochs of art, Lully . . . has left his trace in all the arts of his time. Painting, engraving, sculpture and architecture offer to us interesting artistic manifestations which he has provoked, or which his reputation has rendered valuable. In the domain of architecture we find especially his house and his tomb.

Architect readers will find matter of absorbing interest in M. RADET's handsome volume. At this moment we must content ourselves with his summary of LULLY's property in houses, lands and movables. These he estimates to have reached the enormous total value, for those days, of 800,000 livres. Of silver LULLY possessed at his death 16,000 livres, of precious stones 13,000, fifty-eight sacks filled with Louis d'or, "Doublons d'Espagne" and many securities for investments. He died at the early age of fifty-four years, as a result of a slight injury to his foot caused by his own conducting staff. His illness was of brief duration, and his will, made in those last days, showed by its exactness the clear-thinking man of business, as well as the considerate husband and father, who desired to give little trouble in the settlement of his affairs. "One sees," says M. RADET, "that to his last breath LULLY was *l'homme de tête et de sang-froid* which he had been all his life."

The Lullian monopoly, we have seen, kept other composers out of the opera-field—for there were others—but with his death came their opportunity. First appeared PASCAL COLASSE (1636-1709), a pupil of LULLY, who is said to have filled up many of his scores, and who now added four acts and a prologue to a single act which LULLY left on the subject of "Achille et Polyxène." COLASSE wrote a prelude of his own, and had LULLY's overture played only once before the first act. This work, like many under similar circumstances, had little success. No better fate was in store for an opera-

ballet by two of LULLY's sons, "Zéphyre et Flore" (1688), but COLASSE had a great success with his tragedy, "Thétis et Pélée," in the following year, and it was restaged at intervals down to 1750. Many other attempts were made by COLASSE, LOUIS LULLY, MARAIS, GERVAIS, LACOSTE, DESMARETS and CHARPENTIER to fill the place of the great LULLY, but M. LAJARTE'S "Bibliothèque de l'Opéra Français" records but poor success for most of them, while LULLY's best works continued to be produced again and again, so that he not only kept the stage during his lifetime, but remained a serious rival to successors after his death. The finest musician in this group was undoubtedly MARC-ANTOINE CHARPENTIER (born 1634), but he despaired of rivalling the great monopolist, and only one opera is placed to his credit, namely "Médée," which had a single performance in 1693, and the composer devoted himself mainly to the service of the Church. He had been a pupil of the great CARISSIMI, and his Motets show him to have had serious aims.

It was about ten years after LULLY's death when the younger composers, so long prevented from gaining practical experience, were able to break away from the Lullian thralldom. The year 1697 marks the beginning of a new epoch. There was no revolution to take place, for the LULLY model was too firmly established to be cast aside easily, and composers still continued on the same main lines; but important modifications were introduced. ANDRÉ CAMPRA'S "L'Europe Galante" was the first of a long series of operas of a new type, having the flimsiest of plots or sometimes no plot at all, each act or "entrée" being complete in itself. These "spectacles coupés" were somewhat like the lighter kind of musical comedies of the present day, inasmuch as they could be altered to an unlimited extent to suit changing fashions. CAMPRA began life as a Church musician, and for a time found it necessary to conceal his identity under a brother's name, when he took to writing for the stage, on account of the prejudice of the clerics against the theatre. A popular rhyme of the day runs—

Quand notre archevêque saura  
L'auteur du nouvel opéra  
M. Campra décampa.  
Alleluia.

However, in a short time CAMPRA was able to become independent of Church patronage through the enormous success of his operas, and more especially the famous "Fêtes Vénitiennes," which made its first appearance in 1710 and held the stage for nearly fifty years, achieving no less than thirty performances so late as 1759. CAMPRA had a real gift of melody, especially of the light, piquant variety, and his treatment of the orchestra was varied and skilful. He was undoubtedly the most gifted of the composers of the intermediate period, and it is pleasant to add that he was so far unspoiled by his success that he warmly advocated the cause of RAMEAU, who in his early days met with much opposition on account of his innovations. When questioned as to his opinions on RAMEAU's opera "Hippolyte," he replied, "There is stuff enough in it for ten operas; this man will eclipse us all." A good example of CAMPRA's lighter vocal style is the soprano air in "Les Fêtes Vénitiennes," "Accourez, hâtez-vous." A specimen of his more sustained style is the air "Seuls confidents de mes peines" in "Iphigénie en Tauride" (1714), an opera which had been planned and commenced by HENRI DESMARETS (1662-1741). The story of this collaboration is a romantic one. DESMARETS in his youth had been a page at the Court, and apparently belonged to a somewhat higher social grade than most of his colleagues. Having married a lady of position secretly and without permission, he was condemned to death, but managed to escape into Spain, where he took service as maître-de-chapelle to PHILIP V. It was during this enforced absence that CAMPRA took up his unfinished work. The items contributed by the respective composers are carefully distinguished in the published score.

\* The house still stands for our inspection at the corner of the Rue Sainte-Anne and the Rue des Petits-Champs, and a commemorative tablet has just been placed upon it.



ANDRÉ CARDINAL DESTOUCHES (1672-1749) was another able composer who owed assistance to CAMPRA, whose pupil he was. His career also was a varied one. Originally destined for the Church, he nevertheless accompanied a diplomatic mission to the King of SIAM, and on his return changed his vocation a second time, for he entered in 1692 the second company of the "Mousquetaires du Roi," and in this capacity took part in the siege of Namur. His final change of career took place in 1712, when he became "surintendant de la musique du roi, et inspecteur-général de l'opéra." He held these posts from 1712 to 1721, and also was director of the opera from 1728 to 1730. His most successful operas were "Issi" (1679), "Omphale" (1701), "Callirhoë," and (in association with LALANDE—1657-1723—famous also for his Church Motets) the extraordinarily successful *ballet-du-roi*, "Les Éléments" (1721), ten performances of which were given so late as 1780. At the first production the king himself (LOUIS XV.) appeared in the ballet, and the *Gazette de France* kindly remarked that "His Majesty danced with much grace." Some of the stage directions in "Les Éléments" are fairly exacting. In the prologue:—"The stage represents Chaos. It is a mass of clouds, of rocks, of waters immobile and in suspense, of fires issuing from volcanos. . . ." Later:—"Fire ascends to its sphere, the clouds are spread out, trees covered with flowers and fruits issue from the earth, and at the two wings of the stage are discovered the Gods of the Elements, namely:—*Of the Air*, Juno, Æolus, Sol Aurora; *of the Fire*, Vesta, Vulcan, the Cyclops; *of the Water*, Neptune, Thetis and Sirens; *of the Earth*, Cybele, Ceres, Bacchus, Pomona, Flora."

One other composer of this group demands more than a passing word. MICHEL PIGNOLET DE MONTÉCLAIR (1666-1737) was a member of the opera orchestra for some years, and two facts in his opera career mark him out for special mention. One was his bold stage-setting of the Biblical story of "Jephthah" (1732), which was reproduced at intervals down to 1761. In this the classic deities appear in the prologue, but are appropriately chased from the scene by Truth and the Virtues—an ingenious method of retaining the conventional prologue with a certain amount of justification. The book was by the Abbé PÉLLEGRIN, to whom RAMEAU was later indebted for similar service. Notwithstanding an attempt to interdict its performance by the Archbishop of PARIS, "Jephté" had a great success. The other matter upon which MONTÉCLAIR's fame rests was his introduction of the double-bass into the opera orchestra. The large viol had held its place in France longer than elsewhere, and an interesting note occurs in the score of MATHO's "Arion" (1714), indicating that "M. DE MONTÉCLAIR, M. THÉOBALD and two serpents are to play the bass part an octave lower." This was apparently the first attempt at the French Opéra to obtain the effect of the modern contra-bass, which provides the "sixteen-foot" fundamental tone of the orchestra. It is now generally stated, though not absolutely proved, that the true contra-bass probably first appeared in MONTÉCLAIR's own opera, "Les Fêtes de l'Été," in 1716.

The year 1733 was an important one for French opera, for it saw the appearance of JEAN PHILIPPE RAMEAU's (1683-1764) "Hippolyte et Aricie." M. LAJARTE says that the work "provoked astonishment rather than enthusiasm among the listeners at the first performance. The public of that period could not understand at first hearing the close-packed harmonies of RAMEAU and the loftiness of his style, after the platitudes which the successors of LULLY and CAMPRA had offered. Nevertheless we find in the *Mercure de France* a clear proof of the success which the work had obtained. . . . 'The opera of "Hippolyte et Aricie" continues with great success and appears ever more tasteful; but we believe that one would see here an air with pleasure.'" CAMPRA's appreciation of "Hippolyte" has already been quoted, but the librettist, the Abbé PÉLLEGRIN,

showed his approbation in something more solid than words. He had made RAMEAU sign a bill for 500 livres as security against the failure of the opera, but was so delighted with the music that he tore it up at the end of the first act. In general features "Hippolyte" stood indebted to the school of LULLY. We find an overture in the usual form, then a mythological prologue, then the repetition of the overture, as in LULLY's works. But already there are indications of change, especially in the orchestra, and it is said that some bigoted members of the band did their best to make the opera fail by deliberately playing wrong notes. The fact is that RAMEAU's score not only gave them more to do but contained so much of new idiom that it was troublesome to players who had been accustomed so long to conventional models. One beautiful number from this opera is still heard on the concert platform in France, and has lately been sung at a Philharmonic concert in London by Madame MARCHESI. This song, "Rossignols Amoureux," is accompanied by obligato flute and violin.

RAMEAU's first undoubted success was "Castor and Pollux" (1737). A number of instrumental movements have had the advantage of a modern reprint, and show the musician to have been possessed of a fertility of resource both in melody and in variety of scoring which is in strong contrast to the comparative monotony of the overtures and dances of the LULLY period. "Les Fêtes d'Hébé" (1739) also contains much fine writing, and LAJARTE says with justice that "this score of RAMEAU's is ravishing from one end to the other. It is truly inconceivable how it should be so little known to artists and to the public even in the form of detached pieces."

To RAMEAU belongs the credit of having endeavoured to make his overtures a true foreshadowing of the dramas which they preceded. In this he anticipated GLUCK. In RAMEAU's "Naïs" the overture was an attempt to represent in tones a combat of Titans; in "Platée" a forest scene is depicted, with cries of animals and voices of birds. In "Zoroastre" (1749) RAMEAU used a good deal of music which was originally written for his unfortunate early opera, "Samson," performance of which had been interdicted on account of its subject, notwithstanding that MONTÉCLAIR's "Jephté" was allowed a hearing. RAMEAU himself gave a description of what he intended to represent by the overture to "Zoroastre":—

The first part is a powerful and pathetic picture of the barbarous power of "Abramane," and the groans of the peoples whom he oppressed; a sweet calm succeeds—new hope is born. The second part is a smiling and lively image of the beneficent power of "Zoroastre," and of the happiness of the peoples whom he has delivered from oppression.

RAMEAU was laughed at for indulging in such ideas, but his theories were in the main adopted by GLUCK, BEETHOVEN, WEBER and WAGNER, and now after 160 years composers seem to find the possibilities of the programme in music still unexhausted. "Zoroastre" called forth so much opposition that a casual reader of the history of the time would almost be justified in writing it down a failure. Nevertheless, the following paragraph appeared in the pages of a contemporary journal:—

A gentleman presented himself at the fifth performance of "Zoroastre" and asked for a seat in the boxes, in the balcony, in the amphitheatre, in fact, anywhere. He was told that all seats were occupied. "This," said he, "is the strangest thing I have ever experienced in my life. I cannot enter a house in Paris without hearing something horribly bad about this opera; yet I have come four times already without getting a seat. The French are the only nation in the world capable of such a contradiction."

RAMEAU was unlucky in arousing much opposition throughout his career. In his early days he had to face the jealousy of the followers of LULLY. When success



came to him he had to pass through the troublesome time of the "Guerre des Bouffons," when an Italian troupe of players divided musical Paris into hostile camps. JEAN JACQUES ROUSSEAU also deserted the national cause and wrote strongly in favour of the Italian party. He said:—

I believe that I have shown that there is neither rhythm nor melody in French music, because the language is not susceptible of it; that French music is only a perpetual barking, unbearable by ears not hardened to it; that its harmony is brutal, without expression and fit only for the exercises of novices; that French airs are not airs at all, French recitative is not recitative. From which I conclude that the French have no music, and cannot have any; or if ever they do have it, it will be so much the worse for them.

The value of such condemnation is discounted when we remember that ROUSSEAU was musically only a half-educated person, who could see no good in a form of art which passed his own comprehension and who even had the temerity to assert that no human ear could appreciate two simultaneous melodies. RAMEAU replied to his outburst, indirectly but effectively, by means of a pamphlet exposing the numerous important mistakes made by ROUSSEAU in his paragraphs on music in his encyclopædia.

RAMEAU lived down all opposition of his early and middle years, and, indeed, lived long enough even to see his own innovations lose their newness. His chief failing had been in under-estimating the value of a first-rate operatic libretto. He thought good music was strong enough to bear the weight of the poorest of plots told in the most wretched style, and he is said to have once remarked that he could set the *Gazette de Hollande* to music. LULLY, a far less able musician than RAMEAU, and labouring under the disadvantage of living two generations earlier, never made this mistake, and a great deal of his success was due to his long association with his exceptionally capable librettist, QUINAULT. RAMEAU saw something of his mistake in his last days, and is reported to have said to the Abbé ARNAUD:—

If I were twenty years younger, I would go to Italy and take Pergolesi for my model, abandon something of my harmony and devote myself to attaining truth of declamation, which should be the sole guide of musicians. But after sixty one cannot change; experience points plainly enough the best course, but the mind refuses to obey.

After RAMEAU, opera in France lost much of its distinctiveness and became more cosmopolitan, but in the period (roughly 1650 to 1750) which we have outlined it was a self-contained branch of art possessing peculiar interest for all students of the development of music and the drama. In these days of elaboration it is refreshing to contemplate in the old scores the attainment of admirable and sometimes surprising effects with musical resources so comparatively meagre. Since effect in all arts depends upon proportion more than upon absolute size, it is not all gain that our schemes of harmony and of instrumentation have now long exceeded the wildest dreams of the earnest masters of seventeenth and eighteenth-century music-drama.

The Council of the Royal Institute of the Architects of Ireland have unanimously passed the following resolution:—The Council desires to place on record its opinion that when the conditions governing any architectural competition have been brought before the Council, and it has felt compelled, in the interest of its members and the public good, to condemn such conditions as inequitable, and has notified the members of such condemnation, any action of a member of this Institute in acting as assessor, competing, or in any way countenancing the conditions of competition which the Council has already condemned is hostile to the best interests of the profession.

## IRISH ARCHÆOLOGY.

THE papers read before the Royal Society of Antiquaries of Ireland are generally interesting, and those found in the latest number of the Proceedings are no exceptions. They differ vastly in character from the essays and books which were written by the antiquaries of the eighteenth and the early part of the nineteenth century. Ireland could not then be regarded as a very important part of the world. But an effort was made to compensate for the shortcomings of the time by imagining the glories of the past. Theories were therefore accepted which now excite amazement. The language of the people was supposed to correspond with that spoken in the Garden of Eden. It was demonstrated that the Irish belonged to some of the tribes of Israel—that they were Etruscans, Asiatics, Iberians, &c. There was much in the old annals which favoured such views, and the mysterious round towers could be interpreted as creations which lent themselves to a variety of strange creeds. The metalwork and illuminated manuscripts were also supposed to have belonged to a very remote age.

Modern investigations have shown how baseless were the majority of the old theories. But it is very hard for a people like the Irish to give up illusions which help to nourish their self-esteem. Although the Norman invasion took place more than seven centuries ago, STRONGBOW and his men continue to be hated. The wrongs they committed are increased when an attempt is made to prove that the Irish were unable to build in a scientific or artistic manner until they had been instructed by Welshmen and other strangers who followed the Norman warriors. The late Mr. STREET endeavoured to palliate the prejudices of an Irish audience by saying that their best examples of ecclesiastical architecture illustrated the manner in which art was carried from land to land in the Middle Ages. He found in them unmistakable marks which proved they were erected by the same workmen and from designs by the same architects as English and Welsh buildings. He offered as an excuse that England in turn derived its architecture from the Continent, and the Irish were therefore only obeying an universal law and should be content, like other men, to be cosmopolitan in their lack of invention.

It will, perhaps, be more difficult to accept the conclusions of Mr. GODDARD ORPEN as expressed in a paper which he read before the Society of Antiquaries of Ireland in March. According to him the earthworks, which are numerous in Ireland, have as much claim as the cathedrals of Dublin and Kilkenny to be accepted as the works of the Normans. His rude unveiling, he admits, dissipates many a fond delusion. According to Mr. ORPEN, the moats "were not the graves of Tuatha de Danann nor of Firbolg; nor, except in late popular imagination, were they the palaces of the Sidhe. They were not the duns of demi-gods, nor even of the chieftains of Celtic tribes. They found no place in the raths or cashels that surrounded our early monasteries; nor were they the robber-dens of Vikings from over the sea. They were simply essential parts of the earthworks of early Norman castles, and, in the vast majority of cases at least, were erected for the purpose by the Normans themselves."

The conclusions should not probably be accepted in the widest sense. The raising of earthworks as a means of defence was a very early practice of men in most parts of the world. The work did not require much constructive skill, and with simple implements earth could be excavated along the lines of a square or a circle and heaped into a mound which became a defensive barrier. In most parts of Ireland forts and raths are to be seen, and Ordnance maps are studded with them. They were not always looked on as primitive defences, but as enclosures more or less natural, on which the fairies were accustomed to hold their revels.

Papers by Mr. T. H. WESTROFF are supposed to represent the popular theory by which some of the moats are



held to date from the Bronze Age, and which Mr. ORPEN opposes. In Scotland it was also at one time believed that the Scottish moats were likewise very ancient, although examination would suggest a more moderate origin. Mr. ORPEN says he has taken fifty-two Irish "townlands" in which the word mote or moat forms a part of the name, and he found they corresponded with districts in which Anglo-Norman invaders lived. The word "brittas" is also used as a part of other names of townlands, and it would seem to be derived from the old French "Bretesche," signifying some sort of wooden tower. The word occurs in the names of thirty-seven townlands—all in early Norman-invaded districts. Other evidences were sought, and confirmed his belief that the moat was wholly or partly artificial, and served as an elevation on which a castle could be erected. Unfortunately it is impossible to find an example which would be manifestly convincing to sceptics, owing to causes which Mr. ORPEN describes in the following words:—

As might indeed be expected, a fortress of the kind above described, with all its earthen defences complete, has seldom or never survived the chances and changes of centuries. Reconstructions under different military conditions would alter some features. This would almost necessarily be so when an Edwardian castle, or one built as a large court with four or more round towers, but without a keep, was constructed on the same site. Even the mound in such a case would be removed. In growing towns the whole incumbrance would be cleared away for the sake of the space. Often ditches would be filled up and defences levelled as an act of war, even when it would take too long to level the moat. Improving agriculturists would often obliterate at least the baileys. When a moat was shaped out of a hillock of gravel, road contractors and others have often carted it more or less completely away. Indeed we probably owe the survival of so many moats to the well-known superstition—for the existence of which, in the absence of higher motives, we antiquaries may be thankful—which deters the Irish peasant from "interfering with them ould things at all."

Under such circumstances it is almost impossible to arrive at any definite conclusion. We see a square keep in ruins on a slight elevation above the surrounding fields. But the angles which may at one time have given shape to the substructure can no longer be defined. The earthen mound originally may have presented an appearance which corresponded to the laws of fortification as laid down by the Norman VAUBANS. Yet as nearly all the characteristics are obliterated by time and neglect, who can now say whether the Normans did not avail themselves of earlier raths or forts? They would do so not only for the sake of economy of labour and of time, but because it was quite possible that the earlier people who constructed the earthworks were also invaders who selected the most eligible positions for defence. It may be true that the forts when they are excavated do not always afford evidence that they were burial-grounds or places for worship like Druidic circles. However, the same obscurity prevails in regard to the earthworks of other countries. Traditionary beliefs must be sacrificed in such cases. No doubt it would be an historical gain if it could be established that the moats were Norman creations, for it would show how backward were the Irish in a simple class of work if compared with other peoples. It would also be plain that the Normans did not restrict themselves to a comparatively few safe districts, but were enabled to rule in reality as well as in name over the greater part of the island. But there is no more uncertain material for archaeological discussions than clay. Just as a cutting or embankment on one Irish railway corresponds in slope and appearance with that of another railway, although there may be a period of half a century between them, in the same way a Norman mound and a prehistoric mound cannot differ much in material or in form. Nevertheless, Mr. GODDARD ORPEN's paper is interesting not only for its subject, but as an indication of the

manner in which modern Irish archæologists deal with puzzles. In the old days everyone could say "I imagine," and was satisfied. Now each archæologist, like MONTAIGNE, seems to have a pair of scales as an emblem, with the motto "Que sçais-je?"

Another instance is seen in the Rev. St. JOHN SEYMOUR's paper on "Abbey Owney." There are legends about the place from prehistoric times, and an abbey was founded in the district in 1189 or 1205. Many records exist concerning it. But although a rather elaborate sketch of the buildings as they existed in 1681 is evidence of position, the author of the paper believes that the site must be located in a different position from that generally accepted.

Mr. WESTROPP describes some of the old castles in the county of Limerick. There will be found testimony to the inability of the old buildings to resist artillery such as it was in the sixteenth century. Whether great or small, the castle or peel towers were reduced to ruin. From various old manuscripts sketches are given of the buildings, and the wonder is some were able to hold out so long. Mr. H. S. CRAWFORD in his "Descriptive List of the Early Irish Crosses" gives a model of a manual to guide an archæologist in a special subject. The crosses of the different counties are entered systematically, the locality where they are to be found, the number of the survey map on which they are marked, and a short account of each of them is supplied, with a reference to descriptions which have appeared in various publications.

#### SCIENCE IS MEASUREMENT.\*

LORD KELVIN in 1871 made a statement from the presidential chair of the Association at Edinburgh as follows:—"Accurate and minute measurement seems to the non-scientific imagination a less lofty and dignified work than the looking for something new. But nearly all the grandest discoveries of science have been the reward of accurate measurement and patient, long-continued labour in the minute sifting of numerical results."

Besides the instances quoted by Lord Kelvin in support of that statement, we have perhaps as remarkable and typical an exemplification as any in Lord Rayleigh's long-continued work on the density of nitrogen which led him to the discovery of argon. We shall see presently that, true as Lord Kelvin's words are in regard to most fields of science, they are specially applicable as a guide in astronomy.

One of Clerk Maxwell's lectures in the natural philosophy class at Marischal College, Aberdeen, when I was a student under him there, in the year 1859, ran somewhat as follows:—

"A standard, as it is at present understood in England, is not a real standard at all; it is a rod of metal with lines ruled upon it to mark the yard, and it is kept somewhere in the House of Commons. If the House of Commons catches fire there may be an end of your standard. A copy of a standard can never be a real standard, because all the work of human hands is liable to error. Besides, will your so-called standard remain of a constant length? It certainly will change by temperature, it probably will change by age (that is, by the rearrangement or settling down of its component molecules), and I am not sure if it does not change according to the azimuth in which it is used. At all events you must see that it is a very impractical standard—impractical because if, for example, any of you went to Mars or Jupiter, and the people there asked you what was your standard of measure, you could not tell them you could not reproduce it, and you would feel very foolish. Whereas, if you told any capable physicist in Mars or Jupiter that you used some natural invariable standard, such as the wave-length of the D line of sodium vapour, he would be able to reproduce your yard or your inch, provided that you could tell him how many of such wave-lengths there were in your yard or your inch, and your standard would be available anywhere in the universe where sodium is found."

That was the whimsical way in which Clerk Maxwell

\* From the presidential address by Sir David Gill at the opening of the meeting of the British Association in Leicester on Wednesday.



used to impress great principles upon us. We all laughed before we understood; then some of us understood and remembered.

Now the scientific world has practically adopted Maxwell's form of natural standard. It is true that it names that standard the metre, but that standard is not one-millionth of the Earth's quadrant in length, as it was intended to be; it is merely a certain piece of metal approximately of that length.

It is true that the length of that piece of metal has been reproduced with more precision, and is known with higher accuracy in terms of many secondary standards than is the length of any other standard in the world; but it is, after all, liable to destruction and to possible secular change of length. For these reasons it cannot be scientifically described otherwise than as a piece of metal whose length, at 0 deg. C. at the epoch A.D. 1906, is equal to 1,553,164 times the wave-length of the red line of the spectrum of cadmium when the latter is observed in dry air at the temperature of 15 degs. C. of the normal hydrogen scale at a pressure of 760 mm. of mercury at 0 deg. C.

This determination, recently made by methods based on the interference of light waves, and carried out by MM. Perot and Fabry at the International Bureau of Weights and Measures, constitutes a real advance in scientific metrology. The result appears to be reliable within one ten-millionth part of the metre.

The length of the metre, in terms of the wave-length of the red line in the spectrum of cadmium, had been determined in 1892 by Michelson's method, with a mean result in almost exact accordance with that just quoted for the comparisons of 1906; but this agreement (within one part in ten millions) is due in some degree to chance, as the uncertainty of the earlier determination was probably ten times greater than the difference between the two independent results of 1892 and 1906.

We owe to M. Guillaume, of the same International Bureau, the discovery of the remarkable properties of the alloys of nickel and steel, and from the point of view of exact measurement the specially valuable discovery of the properties of that alloy which we now call "invar." He has developed methods for treatment of wires made from this alloy which render more permanent the arrangement of their constituent molecules. Thus these wires, with their attached scales, may, for considerable periods of time and under circumstances of careful treatment, be regarded as nearly invariable standards. With proper precautions we have found at the Cape of Good Hope that these wires can be used for the measurement of base lines of the highest geodetic precision with all the accuracy attainable by the older and most costly forms of apparatus; whilst with the new apparatus a base of 20 kilometres can be measured in less time and for less cost than one of a single kilometre with the older forms of measurement. . . .

The ancient philosophers were confident in the adequacy of their intellectual powers alone to determine the laws of human thought and regulate the actions of their fellow men, and they did not hesitate to employ the same unsupported means for the solution of the riddle of the universe. Every school of philosophy was agreed that some object which they could see was a fixed centre of the universe, and the battle was fought as to what that centre was. The absence of facts, their entire ignorance of methods of exact measurement, did not daunt them, and the question furnished them a subject of dispute and fruitless occupation for twenty-five centuries.

But astronomers now recognise that Bradley's meridian observations at Greenwich, made only 150 years ago, have contributed more to the advancement of sidereal astronomy than all the speculations of preceding centuries. They have learned the lesson that human knowledge in the slowly developing phenomena of sidereal astronomy must be content to progress by the accumulating labours of successive generations of men; that progress will be measured for generations yet to come more by the amount of honest, well-directed and systematically discussed observation than by the most brilliant speculation; and that, in observation, concentrated systematic effort on a special thoughtfully selected problem will be of more avail than the most brilliant but disconnected work.

By these means we shall learn more and more of the wonders that surround us and recognise our limitations when measurement and facts fail us.

Huggins's spectroscope has shown that many nebulae are not stars at all; that many well-condensed nebulae, as well as vast patches of nebulous light in the sky, are but inchoate

masses of luminous gas. Evidence upon evidence has accumulated to show that such nebulae consist of the matter out of which stars (*i.e.* suns) have been and are being evolved. The different types of star spectra form such a complete and gradual sequence (from simple spectra resembling those of nebulae onwards through types of gradually increasing complexity) as to suggest that we have before us, written in the cryptograms of these spectra, the complete story of the evolution of suns from the inchoate nebula onwards to the most active sun (like our own), and then downward to the almost heatless and invisible ball. The period during which human life has existed on our globe is probably too short—even if our first parents had begun the work—to afford observational proof of such a cycle of change in any particular star; but the fact of such evolution, with the evidence before us, can hardly be doubted. I most fully believe that, when the modifications of terrestrial spectra under sufficiently varied conditions of temperature, pressure and environment have been further studied, this conclusion will be greatly strengthened. But in this study we must have regard also to the spectra of the stars themselves. The stars are the crucibles of the Creator. There we see matter under conditions of temperature and pressure and environment, the variety of which we cannot hope to emulate in our laboratories, and on a scale of magnitude beside which the proportion of our greatest experiment is less than that of the drop to the ocean. The spectroscopic astronomer has to thank the physicist and the chemist for the foundation of his science, but the time is coming—we almost see it now—when the astronomer will repay the debt by wide-reaching contributions to the very fundamenta of chemical science.

By patient, long-continued labour in the minute sifting of numerical results, the grand discovery has been made that a great part of space, so far as we have visible knowledge of it, is occupied by two majestic streams of stars travelling in opposite directions. Accurate and minute measurement has given us some certain knowledge as to the distances of the stars within a certain limited portion of space, and in the cryptograms of their spectra has been deciphered the amazing truth that the stars of both streams are alike in design, alike in chemical constitution and alike in process of development.

But whence have come the two vast streams of matter out of which have been evolved these stars that now move through space in such majestic procession?

The hundreds of millions of stars that comprise these streams, are they the sole ponderable occupants of space? However vast may be the system to which they belong, that system itself is but a speck in illimitable space; may it not be but one of millions of such systems that pervade the infinite?

We do not know.

"Canst thou by searching find out God? canst thou find out the Almighty unto perfection?"

**The Lord Provost's Committee** of Edinburgh Town Council considered proposals for the buildings of the new Art School. The estimates already accepted amount to 33,236*l.*, and it is estimated that unlet contracts will amount to 7,589*l.*—in all, 40,825*l.* The proposals submitted will, it is estimated, involve additional cost for concrete floors, with increased height of rooms, and the extra expenditure on foundations will amount to 3,400*l.* The proposed expenditure for embellishment of the buildings amounts to 8,900*l.* The proposals will bring the total cost up to 53,176*l.* The committee agreed on a division to recommend the Council in favour of the increased expenditure.

**The Bill** of the National Trust for Places of Historic Interest or Natural Beauty was before the House of Commons Committee on Unopposed Bills last week. Mr. Cripps (Parliamentary agent) said the object of the Bill was to dissolve and reincorporate the trust now incorporated under the Companies Act. As owners of property they would have the ordinary right to admit or exclude the public, and therefore it followed that if there was right of public access there should be some right of control to prevent any wrongdoing, destruction or defacement of property, and with those objects the clauses of the Bill were framed. Of course the incorporation of an association under the Companies Act, not for profit, was not a satisfactory position, and therefore the members asked for incorporation as a statutory body. The Bill was ordered to be reported to the House for third reading.



## NOTES AND COMMENTS.

WITH so large an undertaking as the construction of a new roadway between Holborn and the Strand it was hardly possible to determine the character which the buildings were to assume. One example of a difference of opinion about the treatment has arisen. By an exchange of properties a site at the south-east corner of Kingsway and Great Queen Street became the freehold of Sir WILLIAM JAMES FARRER. In the agreement with the County Council it was provided that he would not "build on the said lands or any part thereof any buildings except such as with regard to their elevations next the said new street shall be in accordance with plans to be first submitted to and approved by the architect for the time being of the Council, the object being to secure reasonable harmony in the elevations of the various buildings which will front on the said new street." Since this agreement was drawn up the building conditions in this respect have been remodelled and the approval of drawings, &c., in such cases is now vested in the Council. All the buildings erected up to the present time on the area of the Holborn to Strand improvement are of Portland stone or granite, and to erect a building in brick with stone dressings, as proposed by Sir WILLIAM FARRER, it is thought, would be an infringement of the agreement, as it would not be in harmony with those erected or to be erected. The improvements committee say that some consideration is due to the owners and lessees who have already erected buildings in Kingsway and Aldwych faced with Portland stone. If brick be allowed for Sir WILLIAM's building they may reasonably complain that such action would be detrimental to their interests. Sir WILLIAM seeks to make his new building conform to the design of that in Lincoln's Inn Fields, but the provisions of the agreement do not require harmony of design with buildings in Lincoln's Inn Fields, but with the buildings in Kingsway. Several sets of drawings of the buildings proposed to be erected on the site have been submitted, but the improvements committee have not recommended the Council to approve any of the proposed designs. It is now proposed that the questions at issue should be referred to arbitration by Mr. T. G. JACKSON, R.A., and Sir WILLIAM FARRER agrees to this. Each party is to be represented before the arbitrator by only two professional gentlemen, each party is to pay its own costs of the arbitration proceedings, and the arbitrator's fees and the costs of the award are to be borne equally by the Council and Sir WILLIAM.

A NEW society has been formed in Paris called "Les Amis du Muséum." It is not intended to be a rival or a co-operator with "Les Amis du Louvre," who have enriched the national collections with important works of art. The new body will, for the present at least, have only one object in view, and that is the erection of buildings in the Jardin des Plantes. French designers owe much to the care taken in disposing of plants for their special service. As long as vegetation is considered to be the basis of ornament, there is no place in Europe which is better adapted to suggest fresh possibilities of treatment. Designers would not regret if the gardens served no other purpose. But we must remember that from the beginning of the eighteenth century natural history in a wide sense was recognised. BUFFON was one of the officials. The renowned researches of CUVIER were carried out in some of the buildings, and the Jardin des Plantes became not only a school for physiology but a zoological garden. It was possible to keep the gardens in an advanced condition and adapted to modern requirements without any extraordinary outlay. But theatres for operations, laboratories, museums, require constant outlay. It could not be concealed that industry was always promoted by the expenditure on zoology, whilst botany was closely connected with a vast number of the trades and callings in France. The

buildings in consequence have been neglected, and it must be owned they do not suggest at the present time either the wealth or the love of science in France. Several years ago M. BLAVETTE prepared plans for the reconstruction of existing buildings and the erection of others which would be worthy of Paris. But, although they were approved, successive Governments have declined to ask for votes by which money could be obtained. The "Amis du Muséum" propose to act in the emergency by subscribing sufficient sums to enable the buildings to be placed in a presentable condition. As may be imagined, to overcome the neglect of sixty years will be expensive. But it is expected that wealthy Frenchmen will be generous in their contributions.

FROM the annual report of the Ruskin Museum committee it appears that the collections in Sheffield during the past year were visited by 42,024 people. The Sheffield Ruskin Club held its monthly meetings of the Meersbrook Circle at the museum, as in previous years, and between thirty and forty meetings of the different circles have been held in the city during the year. The members of the club meet to read and discuss the works of JOHN RUSKIN with the view of ascertaining how his teachings may be applied for the betterment of social relations and conduct at the present day. The work now being dealt with is "Fors Clavigera," being letters to the labourers and workmen of Great Britain, whilst the books which have been carefully considered and studied in the past include "The Eagle's Nest," "Unto this Last," "The Two Paths," "Time and Tide," "A Joy for Ever," "Munera Pulveris," "Sesame and Lilies," "The Seven Lamps of Architecture" and "The Crown of Wild Olives." Two lectures were delivered by the curator, Mr. GILL PARKER, on RUSKIN's life and work and two on TURNER and RUSKIN.

THERE have been consultations of painters, experts and officials in order to ascertain whether it is possible to repair *POUSSIN's Deluge*, which was lacerated by a man whose intellect is doubtful. The paint was laid on very thinly by the artist, and an operation sometimes performed of separating the canvas from the work is in consequence rather doubtful. An experiment will be tried with one of the corners. To reline the painting would not be difficult. But it is feared that sooner or later the lines of the cutting would become visible. What is to be most feared is that other paintings may also be made the victims of the discontent of individuals. After the Portland Vase was broken in the British Museum a law was passed by which vandals who committed similar misdeeds were liable to be flogged. The fear of such a consequence has done more to save works of art in public galleries than an increased number of keepers. France, however, is more lenient owing to the excitability of the inhabitants.

DURING several years the Galerie des Machines, which at one time was supposed to be as remarkable an effort of French construction as the Eiffel Tower, has been alternately condemned and rescued. It seemed to be strange that use could not be found for so large a covered area. Last week it was expected that the tenders for the materials would be considered by the Municipal Council, and that one of them would be accepted. But at the last moment the State has intervened, and decided to purchase the large hall from the city of Paris. It will be taken down and removed to the exercise ground at Issy. But it is not likely to be monopolised entirely for military purposes. It can still be used for agricultural and other exhibitions. But it will no longer be an obstacle to those who desire to see the Champ de Mars transformed into a picturesque addition to the city. By one happy stroke the enemies, as well as the friends, of the great hall are satisfied, and the Government have acquired a valuable place for military exercises of various kinds without much cost to the country.



## ILLUSTRATIONS.

ECCLIASTICAL COMMISSION BUILDING, GROSVENOR ROAD,  
WESTMINSTER.—DETAIL OF ENTRANCE.

TOLLARD ROYAL HOTEL, SOUTHAMPTON ROW, HOLBORN.

THE VICARAGE, EALING.

ETHELBURGA, EALING.

LONDON HOMOEOPATHIC HOSPITAL.

CATHEDRAL SERIES.—SOUTHWARK: THE NEW HARVARD CHAPEL.  
(ST. JOHN'S CHAPEL.)

WE are told that some men are born great, others achieve greatness, while some have greatness thrust on them. The words expressed the belief in SHAKESPEARE'S time. It might be added, as expressive of the practice in later times, that a fourth class can attain extraordinary greatness by purchase on moderate terms. The Rev. JOHN HARVARD, M.A., by the expenditure of 800*l.* obtained renown which will be as enduring as that of Mr. CARNEGIE, which represents an outlay of over a thousand times as much. For not only the greatest of American colleges—or rather universities—bears his name, but the old chapel of St. John in Southwark Cathedral is now a memorial of him. It should be remembered that, when dying at Charlestown in 1638, he left one-half of his modest fortune, with his books, to the college for the education of English and Indian youth in knowledge and godliness, which was then recently founded. He was not more than thirty years of age, and had only one year's experience of the new Puritan colony.

JOHN HARVARD was the son of one of the tradesmen of Southwark and was duly baptised in the church of St. Saviour. His father attained the dignity of a vestryman—a body which at that time used to meet at the chapel of St. John, a part of the cathedral which suffered many vicissitudes. It was not only used as a vestry-room, but it also served as a small debtors' court. The graduates of Harvard desired to have some memorial of their founder in the cathedral. Accordingly they contributed generously towards the restoration of what is henceforth to be known as the Harvard chapel. If they desire they may look upon it as a chapel for their special use. Among the subscribers were Mr. JOHN RIDGELY CARTER, Mr. CHOATE, the late American ambassador (who gave the window), Mr. PHILLIPS, Mr. J. PIERPONT MORGAN, Mr. CARNEGIE, Mr. BRADLEY MARTIN and Mr. WHITELAW REID. Information concerning JOHN HARVARD will be found in Canon THOMPSON'S history of the cathedral.

CATHEDRAL SERIES.—SOUTHWARK: THE GOWER MONUMENT.

MODERN publishers, by issuing cheap editions, have prevented many of the early English poets from being enjoyed only by a very few scholars. They have not dared to reprint any of the works of JOHN GOWER, although his friend and contemporary, GEOFFREY CHAUCER, has been accessible to all for a great many years. JOHN STOW in the sixteenth century had the courage to bring out an edition of CHAUCER, but he avoided GOWER. Yet the early poet had one remarkable chance of gaining popularity. The play of "Pericles," though not found in the first folio, was supposed by some to have been SHAKESPEARE'S earliest attempt as a dramatist—"SHAKESPEARE'S OWN muse his PERICLES first bore." Each of the five acts is introduced by a sort of prologue or speech which was spoken by GOWER in chorus. The reason was that GOWER was the first to relate the strange story. In 1576, when SHAKESPEARE was a boy of twelve, a book was published called "The utterne of Painfull Adventures," in which GOWER'S story is given; and in 1608 the story was again printed evidently for purposes of comparison with the play. It neither in the Elizabethan nor subsequent ages was possible to make GOWER'S poems popular.

Although a contemporary of CHAUCER, it is uncertain whether GOWER was older or younger than the greater English poet. It is believed he was a lawyer, and it was supposed that he rose to be Chief Justice of the Common

Pleas. His principal poem, the "Confessio Amantis," is thought to have been composed at the suggestion of RICHARD II. STOW says he was an especial benefactor at the time St. Mary Overy was rebuilding. According to him the poet was "buried on the north side of the said church, in the chapel of St. John, where he founded a chantry: he lieth under a tomb of stone, with his image, also of stone, over him: the hair of his head, auburn, long to his shoulders, but curling up, and small forked beard; on his head a chaplet, like a coronet of four roses; a habit of purple, damasked down to his feet; a collar of SS gold about his neck; under his head the likeness of three books which he compiled. The first named 'Speculum Meditantis,' written in French; the second 'Vox Clamantis,' penned in Latin; the third 'Confessio Amantis,' written in English."

Near GOWER'S tomb three figures of virgins were painted on the wall, but they have long since vanished. They held devices on which prayers in Norman-French for the repose of the poet's soul were inscribed. His arms were also emblazoned with an epitaph in Latin. Whether he was one of the Yorkshire GOWERS or of a Kentish family could not be inferred from any inscription.

## OIVINGDEAN CHURCH.

IN seclusion among the Downs the very ancient parish church of Ovingdean, although not forgotten by ecclesiologists, is apt to be overlooked by the ordinary traveller. Yet it has many claims to notice, not the least being the simplicity of its design and its perfectly harmonious surroundings. On the south a side chapel is known to have formerly existed, its destruction somewhere about the fourteenth or fifteenth century being laid to the charge of French marauders.

The old foundations having recently been uncovered the chapel has now been rebuilt, and not only has the new work very closely followed the original design, but, by direction of the architect (Mr. C. E. Clayton, of Messrs. Clayton & Black), the builders have selected and used their materials with such care that harmony is at once established between the new and the old in tone, colour and appearance. The windows and decorations in Ovingdean Church are by the late Mr. C. E. Kempe (who was recently buried in the churchyard), and his successor, Mr. Tower, is supplying a beautiful little window for the chapel.

A very interesting archæological discovery, says the *Sussex Daily News*, has been made during the rebuilding. The remains (a few stones only being apparent) of a low side window—one notable feature in this church—existed. The careful removal of some flintwork and plaster now unexpectedly reveals the almost unspoilt splayed window opening complete with all the stonework intact, even the limewash on the sides being fresh and untouched, and traces of ironwork still in position. Fragments of a rude stone piscina have also been found. It has been suggested that the relics of St. Wulfran, to whom the church is dedicated, who was Bishop of Abbeville, across the Channel, may have been kept here. This is not improbable, for there seems little doubt that this old parish church, although now "dreaming among the hills," was once of importance, and may have been a place of consequence on the way from the coast to the great priory at Lewes.

Mr. Justice Grantham summing up at the Leeds Assizes on Saturday in an action in which the owner of property adjoining the works of the Kirby Banks Screw Company, Ltd., Leeds, sought an injunction to restrain the company from continuing an alleged nuisance in the shape of smoke and grit emitted from the works, said that Leeds had the character of being the most smoky town there was. There was no place that he went to where the volume of smoke was so great as it was there. It was passing strange to him why manufacturers allowed the enormous waste of power that there was by not consuming the smoke more than they did. It was idle to say it could not be done, because it had been done. It seemed to him that the people had got so used to the smoke nuisance that they took no notice of it. The injunction sought was given, and his Lordship granted a stay of execution.



## ROYAL ARCHÆOLOGICAL INSTITUTE.

It is fitting that Colchester, "the home of antiquaries" and the oldest town in the realm, should be chosen for a prolonged visit from the Royal Archæological Institute of Great Britain and Ireland.

The annual meeting was held last week. The Mayor and Corporation received the members at the Moot Hall. The Mayor said:—I need hardly say that it affords me a great amount of pleasure to preside over this gathering to-day. Thirty-one years have elapsed since this distinguished Society honoured this borough with a visit, and during that long period I am sure Colchester has lost none of her historic interest. On the contrary, her antiquarian richness is ever bringing to light fresh phases for admiration relating to her past most interesting history. On the occasion to which I have just referred I note that an apology was made because we had no cathedral here to show you. I hope that when next this honourable Society visits Colchester we shall be in the proud position of having attained that. I am sure I am voicing the feelings not only of the members of my Council, but of every inhabitant of this ancient borough, when I say that we most sincerely trust your visit will not fail to afford you an even larger amount of intellectual pleasure and satisfaction than when you last honoured us with your company.

Alderman Laver followed with a cordial welcome from the Essex Archæological Society. The Mayor had referred to the Royal Institute's last visit in 1876. There was now far more thought and attention given and more value placed on the antiquities with which they were so richly furnished. Where at that time there was one in the town who cared for the antiquities surrounding them and who wished for their preservation, to-day there were many, and he was sure the greater part of Colchester viewed with considerable pride the antiquities which were left to them.

Rev. T. Curling, hon. sec. of the Essex Society, said much water had flowed under the bridge since the last visit, and the change which had since then come over the attitude of the general public towards the pursuits in which they as societies were particularly interested was a marked one. To-day, even those whose interests lay in other directions were as well disposed towards the intelligent study of the antiquities of their own country as men always were towards the study of those of Classic lands. None the less, however, was the visit of the Institute to this county calculated now, as formerly, to give a stimulus to local antiquaries and to enhance, in alien eyes, the value of their researches. It was still, perhaps, true that the restorer of ancient buildings sometimes worked with a zeal which was not according to knowledge, but on the whole he ventured to think that the influence of the Institute and the Society of Antiquaries, from the loins of which it sprung, was with each succeeding year spreading more widely and producing greater and more beneficial results.

Sir Henry Howorth, the president of the Institute, said there is no town within these realms that can compare with Colchester in the fact that it is the oldest recorded town that we know of at all in the country. It has maintained its beauty, it has maintained its prosperity and it stands out still on this wonderful hill which first caused it to become a British settlement; after all these centuries it remains still, not only the home of antiquaries, but one of the places in these realms which has produced, down to our own time, some of the most distinguished and accomplished antiquarians that we have known.

Mr. James Round, P.C., expressed his indebtedness for the honour the members of the Royal Archæological Institute had done him by electing him President of this annual meeting. Although it was some thirty-one years since the Society came to Colchester, he felt he was no stranger to this learned body, because he could remember, in company with the late Lord Carlingford and the late Sir Thomas Western—two of the most respected men of that day in Essex—taking part in offering a welcome to its members on that occasion. He was sure it had given Colchester, and the county generally, very great pleasure to have the meeting this year in this town.

*Copford Church.*

The first excursion, says the *Essex Telegraph*, brought the members to Copford Church, where Mr. Laver explained that this interesting building was an example of an Early

Norman church, built entirely with the remains of Roman buildings. It had at one time a vaulted roof, over the top of which was the residence of the priest. Outside, it pointed out the bricked-up doorway by which the priest entered his dwelling, some 15 or 16 feet from the ground. At an early English period the church was not quite big enough, so some holes were cut through one of the walls as was often done, and a piece was built on the side, with the result that the pilasters, which were formerly outside the church, were now inside. Over the top of one of the arches thus created was one of the original Norman windows, with a painting in it, which had not been touched. It had been filled up with rubbish for a very long time, but unfortunately the colouring had very much faded. The old church was painted everywhere where it had the vaulting over. Many of the figures, especially the apse, had been repainted over the same lines and with the same colours, so that it was really a restoration. At one time the south door had been transferred to the north and a new door, with a porch, had been erected, which thought was a pity. The door, which had been removed, had been covered with human skin—no doubt the skin of some man who had suffered for sacrilege! Mr. St. John Hope added some remarks, by no means complimentary to the "restorer," who had destroyed the historical value of the painting by filling in, from his own imagination, the signs of the zodiac in the chancel, and putting in some "silly angels."

*Laver Marney.*

To Laver Marney was an easy journey, and at Laver Marney Towers Mr. St. John Hope gave a brief history of the grand old hall, the erection of which was begun by Sir Henry Marney, afterwards Baron Marney, about 1520. He died in 1523, and the building was carried on by his son, who, however, did not live long enough to finish it. The Marneys then becoming extinct, the hall remained unfinished. Sir Henry Howorth added that the mansion was a tremendous national treasure, and he hoped it would long remain in the hands of the present owner, Mr. W. M. de Zoete, who seemed to be taking great care of it. The church was then visited, and proved a most interesting place, as admirably described by the Rev. H. J. Boys, rector. The church was noteworthy for the alabaster tomb and effigy of Sir William Marney, who died in 1414, and for the terra-cotta tomb with effigies of Henry Lord Marney, who commenced the building of the hall, who died in 1523, and his son, John Lord Marney, who died in the same year. The party were hospitably entertained to tea on the beautiful lawn in front of the Hall by Mr. De Zoete, and were afterwards permitted to view portions of the house, which is full of treasures in the way of carving, pottery and painting. Hearty thanks were accorded to Mr. De Zoete for his kindness.

*History in Musical Instruments.*

The first evening lecture in the Moot Hall was on "The Instruments of Music figured and portrayed in the artistic productions of the Middle Ages." With this subject, ably handled, Rev. F. W. Galpin provided an hour's delightful entertainment. With his unique collection of musical instruments, such types as are depicted in carving and stained windows in the cathedrals and churches of our land he described the development of stringed, wind and pulsating instruments. He also played on them quite deftly so as to give an idea of the times, and familiarised the audience with the harp, psaltery, dulcimer, flute, hurdy-gurdy, shawms, horns, the sackbut and the cymbals. He showed, too, the development as evidenced in present-day instruments, and with merry tune made the Morris dance and rural revivals live again. He fully justified the claims of this branch of archæology, and said in these silent stones depicting instruments of the long ago they found sermons which the ordinary passer-by failed to read, and much modern prejudice disappeared in sympathy with the living past.

*Little Maplestead Church.*

Little Maplestead Church has the distinction of being one of four similar churches in the whole country owing its peculiar design to the fact that it belonged to the Knights of St. John of Jerusalem, and was probably built at the end of the thirteenth or beginning of the fourteenth century. The entrance to the church is through a small porch into an octagonal nave, in which are six peculiarly carved pillars which support the tower. Round the outside of the pillars runs the circular aisle, which gives the church a remarkable appearance. The chancel is apsidal and is also very quaint and beautiful. Mr. St. John Hope



maintained the features of the church. The venerable Judge Baylis added some observations, and Sir Henry Howorth rendered the thanks of the party to the vicar, the Rev. J. F. Harward, who, he mentioned, had occupied that position for fifty-two years.

#### *Great Maplestead Church.*

The party proceeded to Great Maplestead Church, which is cruciform in shape and exceedingly quaint. The vicar, the Rev. A. F. Evans, met the visitors, and supplemented the remarks of Mr. St. John Hope with some curious facts. Sir Henry Howorth described it as "a little church in which almost every treasure from the twelfth century onwards is represented." The chancel is beautifully decorated.

#### *Castle Hedingham Church.*

A pleasant drive brought the visitors to Castle Hedingham, where after lunch at the Bell Hotel a move was made to the church. Mr. St. John Hope explained that this church was one of which they would like to have the history, but like a great many others, it had no history, except what the stones could tell them. By the ornaments on the north porch, he should fix the date of the church as of the twelfth century. There had been some later work of brick, including the tower, which he praised highly, pointing out, however, that the date 1616 placed on a stone recording the name of the master builder only referred to some repairs to the tower, as it must be of earlier construction. The badges over the west window in the tower all seemed to point to John de Vere, Earl of Oxford, who died in 1513. One was a representation of a bo'sun's whistle, such as was carried by bo'suns in the reign of Henry VIII., with a chain to it, put there because he was Lord High Admiral; the next was a jack or winch, because his name was John; then came the De Vere mullet, then the chain of state, because he was Lord Chamberlain, then an ox crossing a ford, then a boar and another peculiar thing (like the wing of a bird) of heraldic meaning.

#### *Hedingham Castle.*

At the other side of the village the castle keep, a delightful place, provided abundant interest. The keep for centuries formed part of the home of the ancient De Veres, who came over with the Conqueror, and who are represented even at the present day, through the female line, in the family occupying the handsome modern structure close by the grand ruins of the twelfth-century stronghold. It also possesses a fine old church, full of interest to the antiquarian; and, under the guidance of the President, Sir Henry Howorth, Mr. W. Hale Hilton and also Mr. St. John Hope, the attractions of this beautiful spot became doubly interesting.

#### *The Colchester Charters.*

Mr. W. Gurney Benham, J.P., of Colchester, at the evening meeting described "The Town Charters of Colchester." He mentioned that he had arrayed before him the Red Book, the Red Parchment Book, the Court Rolls extending over 500 years, the Sessions Roll extending over three centuries, and numerous other books and documents—so many, indeed, that one might wander for forty years in his wilderness without exhausting its resources. The documents were alive with human interest and human problems, and Mr. Benham extracted from them much that was entertaining, from the "fullest possible measure of home rule" and the privilege the burgesses enjoyed to hunt the pole-cat, given under the charter of Richard I. in 1189 to much later date. The Oath Book, he said, contained over 100 oaths of varying length and strength. We make our mayor and town clerk swear—sometimes with good reason, he explained—and we make them take ancient oaths which their predecessors in office took, although they are inappropriate to the duties of the office in modern times.

Sir Henry Howorth remarked that these charters had been most carefully examined and arranged, and taken the greatest care of by the exemplary town.

Mr. Benham replied that as one of the ruling body of the town he appreciated those remarks, but the awakening of the interest of the Council and the town generally to the importance of its antiquities was very much due to Alderman Henry Laver, who had been a member of the Council for a great number of years, and had a way of impressing his views upon his colleagues they did not care to ignore. The present modern Council of Colchester, he added, though unable to do things quite in the same simple way as their predecessors managed them, was very jealous of its ancient rights and privileges of the town, very zealous in the preservation of its records and very desirous that so far as

money would allow—and the wholesome fear of the rate-payers permit—these records would gradually be transcribed and printed and published faithfully and fully, which after all was the only effectual way of making sure of preserving these records for posterity.

Mr. Laver, who was called upon to make a speech, expressed pleasure that the efforts he had made to preserve these precious documents had had some effect, and he was very hopeful that the town recognised that they were doing a good work in preserving these records, and he hoped before many years the whole would be translated and published.

A paper on "The Essex Sackvilles" was to have been read by Dr. Horace Round, but to the regret of the members he was not well enough to attend.

#### *Inworth and Coggeshall.*

On Thursday the Coggeshall country was visited. Inworth Church was inspected, and at Coggeshall the fine fifteenth-century church of St. Peter ad Vincula, a full account of it being given by Mr. G. F. Beaumont, F.S.A., formerly hon. secretary to the Essex Archæological Society. After lunch at the Chapel Hotel, the whole party visited Paycocke's House, which has become one of the great show places of Coggeshall. They were received by the Rev. Conrad and Mrs. Noel.

#### *Bradwell Church.*

Bradwell Church was the next place at which a call was made, and the visitors were greatly delighted with this quaint and interesting structure, which was ably described by the Rev. T. H. Curling, a former rector. It is a Norman edifice, and contains the remains of a fine rood-screen, some old stained glass and mural paintings, with some curious memorials of the departed. On the way to Faulkbourne Hall the party visited the mammoth barns at Cressing Temple, and at Faulkbourne Hall found a most imposing example of a brick mansion believed to have been built in 1439 by Sir John Fortescue, and held by the Bullock family from 1637 until eight years ago. The visitors were hospitably entertained by Mr. and Mrs. Christopher W. Parker.

#### *Dr. Gilbert's Birthplace.*

At the evening meeting at the town hall Dr. J. Horace Round, in a paper on "The Carrington Legend" dealt exhaustively with the question of bogus pedigrees; and in a second paper, "A Note on Dr. Gilbert," the famous Colchester worthy, he examined historical records concerning Gilbert's birthplace, and as to the identity of the house in which he lived. He was not sure, however, that he really lived at the Trinity Street Tymperleys. Dr. Round was heartily thanked for his interesting papers.

#### *Colchester Castle.*

There was a very large muster at the castle, where an admirable description was given of the building by Mr. St. John Hope. It was difficult to realise, he said, that when the Institute met here in 1876 there was still a violent quarrel as to the Roman origin of the castle. After the meeting, Mr. Butler wrote a pamphlet upholding the theory of Mr. Jenkins and others that the building was purely Roman from top to bottom, was the temple of Claudius and several other things. But now we knew better, and that it was erected about 1100 in the vicinity of some Roman remains, the materials of which were used in its construction. As to the suggestion that Eudo Dapifer built the castle, that was clearly disproved by the Chartularies, one document in which—of about the year 1100—showed that Eudo's father and brother had held it before it was given to Eudo, and that brought it back to the Conqueror, so he hoped henceforth they would hear no more of Eudo being the founder or builder of the Colchester Castle. Mr. Hope referred to the sale in 1683 to John Wheeley, who began to pull it down, and the ruins he left were sold to Sir Isaac Rebow. The castle eventually came into the family of Mr. Charles Gray, from whom it descended to Mr. James Round. Mr. Hope next exhibited plans of the Tower of London and Colchester Castle; he showed the great similarity, and suggested that if the London keep was dignified with the Tower of London why should not Colchester Castle, which was bigger, be known as the Tower of Colchester?

The lecture was supplemented by Dr. Horace Round and Sir Henry Howorth.

#### *Round Colchester's Walls.*

In the afternoon, Dr. Laver conducted a larger party than usual in a circuit of the town walls at Colchester, starting from St. Mary's Steps. He pointed out that there



were  $1\frac{3}{4}$  miles of Roman walls remaining and the gate and guardroom on Balcerne Hill were very rare, as only two portions of Roman gates remained—at Colchester and Lincoln. As to the date of the walls, according to Mr. Duncan they must have been built not later than the earlier half of the second century. Inside the wall was a great bank of earth which covered up burnt houses, probably remains of Boadicea's revolt. On Balcerne Hill Dr. Laver pointed out the fine stretch of wall he rescued from the Improvement Commissioners of early days, who were going to tumble it down in order to make up the road. The Abbey Gate, St. Botolph's Priory and Trinity Church were inspected in the course of the journey.

### KELSO ABBEY.\*

EARL DAVID, afterwards King David I. of Scotland, was so attracted by the fame of St. Bernard that he journeyed to Tiron, near Chartres, in France, greatly desiring to stand in his presence. St. Bernard died in 1117 and David arrived only to kneel at his tomb. Before leaving Tiron he arranged that twelve monks and an abbot of the reformed Order of Benedictines should go to Scotland, where he placed them at Selkirk, close to his own forest home. The exact date of the foundation is unknown. Radulph, the first abbot, returned to Tiron in 1117, and William, his successor, followed him in 1119. Herbert, the third abbot, received the king's permission, with the advice of John, the first bishop of Glasgow, to remove the abbey from its unsuitable site at Selkirk in Glasgow diocese, to Kelso on the Tweed, in the diocese of St. Andrews. The abbey was founded at Kelso on May 3, 1128, in the presence of the king and queen and their son, the Bishops of St. Andrews and Glasgow, an archdeacon, two priors, &c. It was dedicated to the Virgin and St. John the Evangelist. The Bishop of St. Andrews granted to the abbey the church of St. Mary at Kelso, and allowed the abbot and convent to get "crisma" and oil and ordination from any bishop in Scotland or in Cumbria. The abbey was free from all episcopal jurisdiction and dues.

Abbot Herbert became bishop of Glasgow in 1147. His successor, Abbot Arnold, who became bishop of St. Andrews in 1160, carried forward the building of the abbey. The work was sufficiently advanced to receive the body of Henry, the Earl of Northumberland, the only surviving son of King David, who died on June 12, 1152. Interesting miniature portraits in colour of King David and his grandson Malcolm IV. are preserved in the great Charter granted by Malcolm to the abbey in 1159. Abbot John obtained from Pope Alexander III. in the year 1169, for himself and his monastery, the privilege and precedence of a mitred abbey.

The abbeys of Arbroath and Kilwinning were derived from Kelso, and Lindores, Lesmahagow and Fyvie were bestowed upon it. It received so many gifts in lands that it became one of the richest foundations in Scotland. The abbots, who took precedence of all other ecclesiastics of their rank, were frequently employed upon the king's business beyond the realm. The abbots of Melrose and Kelso passed to Rome in the year 1181, and secured from Pope Lucius III. the removal of the excommunication passed upon Scotland, and brought home the golden rose to King William the Lion.

This pape send wyth thir abbotys twa,  
Thare leve quhen thai tuk hame to ga,  
To the Kyng Williame of Scotland  
A rose off fyne gold rycht plesand.

David de Bernhame, the great Bishop of St. Andrews, who devoted so much of his time to the dedication of churches throughout the country, and who dedicated the abbey church of Kelso on March 27, 1243, died in the year 1252, and was buried in the abbey.

The Byschape Daivy off Bernhame  
Past off this warld till his lang hame;  
As he dyd here syne fand he thare  
Off hym I byd to speak no mare.  
He chesyd hys layre in till Kelsew  
Nocht in the Kyrk of Saint Andrewe.

The abbot of Kelso, with the abbots of Melrose, Jedburgh and Dryburgh, swore fealty to Edward I. of England on August 28, 1296. Edward, on August 8, 1299, permitted the monks to elect a devout abbot in the place of Friar

Richard, a rebel and enemy, who had wilfully absented himself. The abbot, probably the same Richard, was seized to the king's peace on September 24, 1300. Edward, Prince of Wales, offered 4s. 8d. on May 26, 1303, as oblation at the mass at Kelso. On February 16, 1304, King Edward signified to the abbot and convent his pleasure that they receive Friar Peter, a monk of Kelso, whom he had previously requested the prior and convent of Norwich to receive into their house during the Scottish war. Friar Peter had petitioned the king to let him return to Kelso "for the monks of Norwich were not of his religion or of the same service."

The abbey suffered greatly in the War of Succession. It was so completely ruined that the monks and novices went among the other religious houses begging for food and clothing. King David II. granted the monks leave to wood in the forests of Selkirk and Jedburgh for its repair, and Edward of England issued letters of protection for restitution of property.

It was during the reign of James I. that priority of place in Parliament and in Council above the abbot of Kelso was adjudged to the prior of St. Andrews. James III., then only nine years old, was crowned king of Scotland in 1460, and the abbey of Kelso on August 16, 1460. The abbey was repaired in 1487, and in 1488 it was visited by James IV.

The abbey was destroyed in September 1545. The Marquis of Hertford assaulted it. Cannon were brought up and a breach was made in the walls. The garrison took refuge in the town, but was afterwards captured and the abbey won. The English commander decided to turn it into a fort, from which to overawe the country. He reported that "we devised thereupon with the Italian fortifier that here—Archam, and the master mason of Berwick; when we had spent all the day thereabouts we found nothing so difficult that, in our opinions, it seems impossible to be done within the time that we can tarry about it." The besiegers found the ruins "so great and superfluous buildings of stone" that unless pulled down and removed "the heaps of stones, besides the confusion of the materials, should remain an enemy to the fortress; and to make the fortress so large as should contain all those superfluous buildings should be so confused and long work as cannot be perfected in a great time." The idea of building a fortress at Kelso was revived by the queen regent of Scotland, but was never carried out.

Kelso was conferred upon Sir Robert Ker of Cessford in 1590.

The part of the abbey which had not been hopelessly destroyed, the part which still remains, was afterwards repaired and restored for Divine worship. The date of restoration, 1647, is carved near the top of the north transept gable. A small part of the building was converted into a prison.

The Chevalier was proclaimed King of Scotland at Kelso in 1715. The commander of the Jacobite forces gave orders on October 23 that all the men should attend Divine service "not at the Episcopal meeting-house," but at the "Great Kirk of Kelso." The Highlanders were again at Kelso in 1745.

Some fragments of plaster fell from the ceiling of the church about the year 1771, and it is reported that the congregation, fearing the fulfilment of a reputed prophecy of Thomas the Rhymer that the kirk would fall at its full, deserted the building. The present parish church was built in 1773. The abbey ruins were cleared in the year 1805, and in 1866 they were repaired by the Duke of Roxburghe.

The ruins of the abbey consist now of two sides only—a tower of commanding height, which measures internally about 22 feet 6 inches. It is supported by four tall piers clustered shafts with pointed arches. To the north and south of the tower are aisleless transepts, with large turrets at the angles of the gables. The transepts are about 18 feet long, divided into two bays. Of the building which projected to the west of the tower only the north wall and one half of the west gable remain. The part, which measures about 22 feet 6 inches by 21 feet 3 inches, was the same height as the transepts. The building to the east of the tower was about 62 feet broad, divided into three aisles. The north and south walls have almost entirely disappeared, but two piers and two arches of the arcade between the centre and the south aisles are preserved. The piers are cylindrical on plan with small attached shafts on the south to carry the aisle vault, and the east and west to carry an inner recessed arch. There are no other piers in Scotland of this design.

\* From a paper by P. Macgregor Chalmers, F.S.A., published in the *Kelso Mail*.



The low vaulted building to the south of the transept gave access to the cloister, which extended along the south of the three-aisled building.

Fragments of richly decorated work of a later period are preserved in Dr. Rutherford's garden.

The design of the west front is unique in Scotland. The transept walls are the same height as the main wall of the three-aisled building, and are divided into four storeys. The lower storey was decorated with arcading, the arches interlacing; the three upper storeys had each two round-headed windows, those in the second and third storeys having detached shafts in the angles of the jambs. The buildings were covered with high pitched roofs, whose lines can be traced upon the tower walls. The interior was covered with flat panelled timber ceilings. The piscina in the south-east corner of the south transept indicates that an altar stood against the east wall.

When the abbey was founded in 1128 a pure Norman style was in use. But the Norman characteristics of the work which is preserved are so largely mixed with details of Transitional type that the date cannot be earlier than about 1160. The upper part of the tower was built about 1200.

The portions of the abbey church which have been preserved are at present understood to be a nave about 22 feet square, north and south transepts of smaller dimensions, a central tower and part of a three-aisled choir. If this is a correct interpretation then the church of Kelso instead of being one of the greatest of our Mediæval abbey churches was one of the smallest. The building was then strangely disproportioned to the important part which the abbot and convent played in the nation's history.

It is many years since my attention was drawn to the subject by Mr. D. C. Macvail, St. James Terrace, Glasgow, who remarked upon the similarity between the remaining portion of Kelso Abbey and the west front of Ely Cathedral. I had not visited this cathedral at the time, but its design was sufficiently known to appreciate the value of the suggestion.

I visited Ely two years ago. Many points of resemblance were noted. The western tower of Ely stands upon the medial line of the cathedral and is of commanding height. It is built upon four great piers with pointed arches opening to the centre aisle of the nave, to a north and a south transept, and, in the original design, to a western arm similar to the transepts. This western arm was rebuilt as a galilee porch and upper room at a later time, but the remaining fragments of the original structure are of the same date as the tower and transepts. The transepts are two bays in length with great turrets at the angles, divided by string-courses. The lower part is of plain ashlar, two orders of wall arcading follow, then a window storey with a band of wall arcading above, under the upper windows. The interior is covered with flat panelled timber ceilings. There is a semicircular apsidal chapel on the east side of the south transept. The chapel of the north transept has been destroyed. The piers of the nave are designed alternately as a cluster of shafts and as cylinders, with small shafts attached to the one side to carry the aisle vaulting and to form a line of division between the bays of the arcade on the other. The Norman style of the west front is of advanced type, and details characteristic of Transitional work are freely introduced. It was built about the year 1160.

The description of this work at Ely Cathedral corresponds with that of the west front of Kelso Abbey. The resemblance is so close that the conclusion appears inevitable that the designer of the Scots building owed much to his knowledge of its magnificent southern contemporary. The architect of Kelso may have come from Ely.

It is unfortunate that the published records of the English cathedrals are not available for study in Scotland. I made inquiry at Ely, but for the present I cannot say if there is any reference in the cathedral documents to the abbey of Kelso or its founders. Ely is not mentioned in the "Liber de Calchou."

The opinion may be entertained from the above descriptions that the remaining fragment of Kelso Abbey is only the west front—a western tower with north and south transepts, used as chapels, and a western porch, the whole forming a galilee. The three-aisled building was the nave extending eastward to a great choir.

During the summer of last year I visited Kelso several times on business. Through the kind offices of Mr. Bruce, builder, I secured the interest of the provost and magistrates of the town, who readily granted me permission to dig in

the ground outside the area of the graveyard, under the supervision of Mr. Hume, the burgh surveyor. This was done on June 29, 1906. Mr. Tait, to whom at the outset I submitted a sketch of what I supposed to be the plan of the original abbey church, informed me that the part of the building I referred to as the choir was at the present time a narrow detached strip of burial-ground enclosed within walls on the north, east and west, and by a large public school on the south. It was known locally as "The Aisle," and contained several monuments of considerable age.

Careful measurements were taken of the walls and pillars. Then the workmen dug at every available point until they reached undisturbed gravel. No stones of any size were discovered, but the material thrown out was always broken shivers of freestone and lime. The foundation-stones may have been removed in the laying of drains and gas and water-mains, many of which were discovered—some long since disused and unexpectedly brought to light—or it may be that the foundations as well as the walls and pillars have been appropriated to the buildings in the town. The abbey was used as a quarry for many years.

An ancient ashlar wall, about 4 feet thick and lying in the direction of north and south, was destroyed when the public school was built. A stone pavement and a sarcophagus, now preserved at the west end of the abbey, were also discovered. The builder of the school, Mr. W. Dickson, assisted me to take the measurements of the wall. When these were laid down on a plan drawn to scale, together with the plan of Ely Cathedral, it was found that by adding five bays to the existing two bays on the east of the tower, and making the nave seven bays long and then setting off an arch equal in width to the centre aisle of the nave and thus indicating the position of a central tower, the ancient wall was exactly in line with the last pier added, that is, the eastern pier of a crossing. I conclude that the old wall which was destroyed was the east wall of the south transept, or of the building which extended from the south of the transept to form the east side of the cloister garden.

It is possible that the sarcophagus was found within the lines of the chapter-house.

If there were eastern transepts of the width of the centre aisle of the nave and choir, the piers at the crossing probably supported a tower, as at Ely Cathedral. The piers would be designed with clustered shafts similar to the piers supporting the western tower. That piers of this character did exist is proved by an engraving made by Slezer in 1693.

If the narrow enclosed burial-ground, known as "The Aisle," is now accepted as indicating the position and dimensions of the choir, the abbey church emerges as a great transeptal church with a splendid west front, with a great tower, a great three-aisled nave of seven bays and a central tower and transept. It is impossible to determine the plan of the choir; but the suggestion may be offered that the original structure was designed with a semicircular apse, and that this apse was removed at a later time and the choir lengthened and terminated with a square end. From the evidence which has now been adduced we find that the total internal length of the abbey was 302 feet. It ranks as the second longest church in Scotland, being only exceeded in length by the cathedral church of St. Andrews.

The design of the west front of Kelso Abbey, of which so much happily remains, is the finest and most impressive in Scotland, worthy of its great founder and of its splendid history. Its source may with good reason be found in the contemporary design of Ely Cathedral.

## CUBICAL EXTENT OF BUILDINGS.

THE Building Act committee of the London County Council report that they have recently received a deputation from the London and District Association of Engineering Employers, who urged that steps should immediately be taken to remove the restrictions as to cubical extent imposed by the London Building Act, 1894. The deputation stated that these restrictions made it almost impossible for engineering firms to carry out their work in London in accordance with modern requirements, that many firms had already removed their works from the county, and that others would be compelled to follow their example unless the restrictions were removed without delay. The committee are of opinion that the restrictions press very severely, not only on the engineering trade, but also on many other trades and businesses in London, and are supported in this view by the fact that applications are



frequently made to the Council for permission to erect buildings of the warehouse class exceeding 450,000 cubic feet, which under the present law the Council is unable to grant. In connection with these applications it is strongly represented that the limit of 450,000 cubic feet has the effect not only of embarrassing trades and businesses in London, but of preventing important and essential developments rendered necessary by modern commercial methods. Moreover, it is pointed out that such restrictions do not obtain in other towns.

The committee think that the difficulty would best be removed by amending the London Building Act, 1894, so as to give the Council full discretion to allow buildings to be erected of such cubical extent as may be in its opinion reasonable. The principle was adopted by the Council on November 15, 1904, upon a report on the London Building Acts (Amendment) Bill, 1905, but the necessary amendments of sections 75, 76 and 77 were contained in that portion of the Bill which was not proceeded with. In the event of the Act being amended as suggested it would be desirable that a statement should be drawn up and adopted by the Council laying down the principles which would guide the Council when dealing with applications for permission to erect buildings exceeding 450,000 cubic feet in extent. The committee are advised by the solicitor, under standing order, that the Council has power to promote legislation on the subject, and as they are of opinion that the suggested amendments should be obtained with the least possible delay they recommend:—

(a) That the operation of the standing order be suspended in order that the following recommendation may be dealt with:—(b) That application be made in the session of Parliament of 1908, with a view to the amendment of the London Building Act, 1894, as under—(i.) Section 75 to be amended so as to enable the Council to allow horizontal separation. (ii.) Section 76 to be amended so as to remove all restrictions on the Council's power to allow increased cubical capacity for buildings of the warehouse class. (iii.) Section 77 to be amended, on the lines laid down in the London Building Acts (Amendment) Bill, 1905, so as to give the Council discretionary power with regard to openings in party walls, the provision of fire-resisting doors constructed of materials other than iron and the uniting of buildings.

The fire brigade committee recognise the importance of affording all possible facilities for the carrying on of trades and manufactures in London, but in view of the far-reaching effect of the Building Act committee's proposals on the work of the Council, as the authority charged with the duty of protecting life and property in London from the danger from fire, have asked that committee to afford the fire brigade committee an opportunity of considering the matter, and if necessary making representations to them on the subject.

#### SHREWSBURY ABBEY.

THE annual meeting of the Shropshire Archæological and Natural History Society was held in Shrewsbury, Lord Barnard (the president of the Society) being chairman.

The Rev. Prebendary Auden (chairman of the Council) read the annual report. It stated, says the *Shrewsbury Chronicle*, that the work of the Society had been steadily maintained. Two important efforts on behalf of old buildings had been inaugurated and partly carried out under its fostering care. The one was the repair of the tower of Shrewsbury Abbey Church and the other was the excavation on the site of the abbey at Haughmond. The first was a work of imperative necessity for the security of the building, while the second had yielded important results in determining the situation of the various parts of which the abbey was composed. Since the last report the numerous MSS. relating to Shropshire left in a more or less complete form by the late Mr. William Phillips had been purchased at the joint expense of the Society and the committee of the Shrewsbury Free Library, and would be utilised from time to time for the purposes of the "Transactions."

The Chairman proposed the adoption of the report and statement of accounts. The report glided very lightly over two matters which were both of considerable importance. The first was the question of the repair of the tower of the abbey church, a work which must cause a great deal of anxiety to all those who were interested in the state of such a magnificent monument as that, and in fact to all who

were interested in the glorious memorials of the ancient town of Shrewsbury. The cost, as they all knew, had turned out to be a very serious matter. At the same time he believed that the promoters of the restoration work had reduced that cost to the lowest limit possible without scamping the work. He had carried about with him for several weeks the draft of a letter which it was contemplated he should issue to the Press in London appealing for assistance, but his duties recently as chairman of the Departmental Committee on Agriculture had prevented him giving serious attention to the draft, although he hoped that he might now be in a position to further consider the matter. There was another point in connection with the subject, however, which made him hesitate, and that was the enormous number of appeals of every conceivable sort made to the public at the present time. He did not say for one moment that they were not perfectly justified, but the fact remained that unless one had some specially powerful lever to work with, unless one was very careful and took special steps, the response might be very inadequate, and there was a risk that the work one had in hand might be hampered rather than assisted. At the same time, they might rely upon it that he should not let the matter rest, and he would be prepared to co-operate with and welcome the assistance of anyone in Shrewsbury or the county, or anywhere else in the country, who was interested in the preservation of that ancient monument, who would help him or give him any advice as to how an appeal to the public was most likely to touch the hearts of those whose assistance they sought. Another matter which was referred to in the report was the excavation work on the site of Haughmond Abbey, which, as they all knew, was due very largely to an enthusiastic archæologist, and one of their own townsmen, Mr. Southam. They could not be too grateful, he thought, to Mr. Southam for all he had done in connection with that grand old Mediæval building. Their thanks were due to him and to all those who co-operated with him. The noble lord next referred to the losses by death mentioned in the report, and, referring to the position of the Society, expressed a hope that there would be an increase in the number of those who took an interest in it. It had been mentioned that more generous subscriptions were desirable. That was a truism, and was the case with almost every society, but at the same time he hoped they would not let it fall upon deaf ears or treat it as a platitude. For a great number of years that Society had done extremely useful work. The work of archæology was not only of great value to the student of history and to those who wished to study the evolution of the British race as that now existed, but it was also, as they would admit, a most fascinating and engrossing pursuit. To those engaged in other and laborious work it was a most diverting occupation to turn to, and he claimed that it was both useful and recreative. The traditions which clustered round the county and its many ancient buildings provided them all with an admirable study, and he felt that they might look forward with confidence to the future welfare of the Society.

Prebendary Auden, in seconding, said the restoration of the abbey tower was necessary and a very valuable work. In regard to the excavation at Haughmond, they owe practically everything to Mr. Southam, and had it not been for the efforts which that gentleman had put forth the work done would not have been accomplished. Mr. Southam was a modest man, however, and he had not told everyone what he (Prebendary Auden) knew, and that was that he had paid a good deal of money out of his pocket in connection with it. He believed he was right in saying that there was something like 60*l.* unpaid, for which Mr. Southam was presently responsible. He only mentioned the fact so that those in a position to do so might help Mr. Southam in the matter. The Society had had rather more losses by death than usual. They wanted more members, and they wanted more young members. Many of them who had been engaged in that work for a number of years would like to see some of the duties falling on younger shoulders. He ventured to think that the study of archæology brought with it a great deal of pleasure, and he would like to plead with young people to take a deeper interest in the work. As his lordship had said, it was a most fascinating and agreeable pursuit.

The report and accounts were then unanimously adopted.

Prebendary Moss said it struck him that among the many claims archæology had on the public interest there was one which to some extent seemed to have been



forgotten, he meant the claim which it had to interpret the problems of the present day. We lived in such a rushing and hurrying world that there was no little danger that we might be overwhelmed with the circumstances around us. He thought therefore that archæology was not only recreative, but it was informing and enlightening to look back on the past and see how the present had grown out of it. Certainly in Shropshire, with its ancient abbeys and castles and old buildings of various sorts, we had innumerable opportunities of seeing the links which bound us to the past and interpreting their relation to the present. He was confident that the more the past was studied by the light of our archæological remains and in other ways the better we should be qualified to deal with those large problems which pressed upon us every day.

### FURTHER STRAND IMPROVEMENT.

THE Further Strand Improvement Committee held a meeting on Saturday at 54 Mount Street, W., the residence of the Earl of Plymouth, and decided to renew its agitation for the modification of the London County Council's building plan for the Strand frontage of the Aldwych "island site." The committee decided to present to the new London County Council the memorial which was rejected by the old County Council.

Sir Edward Poynter, P.R.A., who presided, said the change which had taken place in the County Council gave them the opportunity of pressing a subject which was of the greatest importance, and they ought not to allow the occasion for making a dignified street in connection with the Holborn to Strand improvements to pass. He understood a portion of the frontage had already been let to some of the colonial bodies for their offices. That, no doubt, gave a new importance to the scheme, and the thoroughfare should therefore be made something worthy of London. If the present opportunity were lost it could never be found again and everyone would hereafter be sorry. He hoped the London County Council would be found willing to receive a deputation and a further memorial on the subject.

The Earl of Plymouth said it was thought of great importance that if they were to approach the new County Council some memorial should be in their hands before the adjournment for the recess. They had now a Council totally different from that which was in office a year or two ago. Since the memorial was presented it had been decided that the frontage of the centre block in the Strand should be occupied by offices of a Colonial Government, a fact which strengthened their case materially. It seemed hardly fair for them to be met with the argument that a very large sum of money—350,000*l.* it was said, but he did not think that amount was adhered to now—would be lost to the County Council if the land they asked for were given up to the streets. He thought they should bear in mind that this was one of the most important roadways in London as far as traffic was concerned, and the nature of the buildings to be erected and the importance which would be given to it by making the thoroughfare as fine and dignified as possible would largely enhance the value of the frontages themselves. He moved:—"That in the opinion of this meeting a clear case has been made against the plan adopted for the land between Aldwych and the Strand; and Colonial Governments having decided to erect Government buildings on the land in question, it is hereby agreed to present another memorial to the London County Council in support of the plan advocated by the Further Strand Improvement Committee, in the hope that the Council will now see that it will be a blot upon the Metropolis if the roadway be not given its natural course direct to and from the Courts of Justice."

Mr. Harold Cox, M.P., in seconding the resolution said the question of expense did not naturally follow, for if they cut off a portion of the frontage they would reduce in proportion the amount of recoupment which the Council would get, because by widening the street they would get better frontages and a better price for the land, which was at present a drug in the market.

Mr. J. C. Paget cited the case of the removal of Temple Bar in illustration of the shortcomings of the authorities when improvements were made. There, he said, the traffic of a wide thoroughfare was brought into a narrow bottle neck.

The resolution was unanimously adopted. The further improvement suggested by the committee is an elimination of the curve in the north side of the Strand between the

churches of St. Mary-le-Strand and St. Clement Danes. This would mean taking a slice off the eastern end of the London County Council's island front and setting back the roadway a few feet. It would enable traffic to proceed in a straight line from St. Mary-le-Strand to the Law Courts.

Mr. Mark H. Judge, the honorary secretary of the committee, had prepared the following statement of the cost of the Further Strand improvement:—

Though the Further Strand Improvement Committee have not dealt with figures in their appeals to the London County Council, for reasons stated, the value of the land proposed to be added to the public way to make the road direct and to form the island pavement was estimated by the late Council at a very high figure indeed.

Before the summer recess of 1903 the improvements committee of the Council stated that the plan advocated by the Further Strand Improvement Committee was "somewhat similar to the one proposed by Mr. Thorneycroft," which they reported would add to the thoroughfare land valued for building purposes at 350,000*l.* On this, at the time, I wrote as follows:—"It would be interesting to have some details as to how these valuations were arrived at. Without details the figures certainly appear to be excessive. To estimate the value by the superficial area only would not give a correct result, as, in such a position, the first consideration of value is the frontage."

In the report of the same committee in October 1903, there were more figures, and for the plan advocated by the Further Strand Improvement Committee the value of the land to be surrendered was then put at 239,400*l.*, a reduction of no less than 110,600*l.* Still, no details were given as to how the valuations had been made. Doubtless these details were given to the committee; why not to the Council in public sitting?

Let me endeavour to get some meaning out of the large figures which have appalled a few persons, and which some apparently hope will appal the ratepayer, and thus perpetuate the blunder which now mars the new Strand.

The building area which would be given up to the public if the Further Strand Improvement Committee's proposal is adopted would be about 12,560 square feet. This, as I have said, the late Council valued at 239,400*l.*—that is, thirty years' purchase of a ground rent of 7,980*l.* per annum. The middle block has an area of about 123,350 square feet, and would therefore, on the above basis, be worth 2,351,113*l.*, or a ground rent of 78,370*l.* per annum. The improvements committee of the Council, however, have recommended, and the Council have accepted, an offer of 55,000*l.* per annum for this block.

Why was the land required for the alteration valued at 42 per cent. higher than the land to be let for building purposes?

The late Council estimated the rental (rateable) value of the 12,560 square feet proposed to be given up to the public at 12,690*l.* per annum if built upon. Now the west block, on which the buildings are completed, has an area of 24,440 square feet, and on the same basis its rateable value would be 24,692*l.* per annum, whereas it is actually assessed as of the total rateable value of only 13,668*l.* per annum. It would be interesting and instructive to be told what ground rent the Council receive for the west block.

The above figures do not take into account the fact that the buildings on the west block were in considerable part built at the cost of the ratepayers. On Tuesday next a little bill of some 6,000*l.* will be presented for payment "in respect of the more costly design or elevation required by the Council for the new Gaiety Restaurant premises." No inducement of a like contribution to the cost of building on the east block has been held out.

Without going into further details, I think I have shown that the late Council's estimate of the financial sacrifice involved in the further improvement asked for is, to say the least, somewhat inflated. But the question of cost was not the real objection, for Mr. Davies, as chairman of the late improvements committee of the Council, spoke in the Council against our proposal in 1903 as follows:—"The new Strand was wider than Northumberland Avenue, and quite adequate for the traffic. With regard to the architectural effect, his committee had not been convinced that the setting back of the frontage would be any considerable improvement, and he asked the Council to support the committee in rejecting the plan advocated by the Further Strand Improvement Committee."

Any less thorough amendment than that advocated in the memorial to be presented to the Council on Tuesday



next would be to follow the penny wise and pound foolish policy of the late Metropolitan Board of Works when laying out Shaftesbury Avenue and Charing Cross Road, which are narrow, second-rate streets, instead of the broad and noble thoroughfares they should have been.

It is to be hoped that the new Council will realise that the questions involved in this proposal are outside the haggling of the market. About 75,000*l.* was spent in improving Tottenham Court Road at its junction with Oxford Street by removing the block of buildings east of what was then Bozier's Court. To begrudge the cost necessary to give the Strand its natural course to and from the Courts of Justice, in connection with an improvement scheme which involves an expenditure of five millions sterling would be discreditable to the intelligence of the Metropolis, and we may surely hope that the new County Council will put matters right by granting the prayer of our memorial.

On behalf of the Further Strand Improvement Committee I have renewed the offer made to and declined by the late Council, viz. to pay the Council 50*l.* for the use of the Strand frontage of the east block for three months, for the erection of a hoarding 30 feet high, in order to demonstrate how buildings on the present line of frontage would mar what would otherwise become the noblest thoroughfare in the Metropolis.

### INSTITUTE EXAMINATIONS.

AT the midsummer examinations of the Royal Institute of British Architects 137 candidates passed the "preliminary," eighty-seven the "intermediate" and thirty-four the "final and special." The following are the names of the last candidates, who are now qualified for candidature as Associates:—Harold Percy Brentnall, Henry Brown, Duncan Walter Clark, William Thomas Clarke, Charles Emerson Clouting, Frederick Edwin Collington, Lawrence Stanley Crosbie, Leonard William Edmonds, George Hartley Goldsmith, Walter Godfrey Green, Alfred Hill, William David Jenkins, Arthur William Kenyon, George Esslemont Gordon Leith, Percy Wells Lovell, Walter Goldstraw Moffatt, Spencer Harris Joseph Murch, Bruce William Oliver, Harry Phibbs, Louis Augustus Phillips, Henry Arthur Porter, John Clifford Proctor, A. Hurley Robinson, Edgar John Scaife, Herbert Marshall Spence, William Stockdale, Robert John Tall, Arthur Tedman, Alfred Dennis Thacker, Bernard David Tracey, William Whitehead, Arthur Reginald Widdowson, Leslie Wilkinson, Samuel Arthur Spear Yeo.



### Ventilation at the New Bailey.

SIR,—It was with some concern that the public must have read Sir Forrest Fulton's strictures as to the want of ventilation of the new Central Criminal Court. Though "Common Sense" is scarcely correct in referring to the "Plenum" system as new, yet I agree cordially with the suggestion that the Corporation shall make inquiries as to possible amendments. But are amendments possible without heavy expenditure being involved? I am of opinion that the system of forced propulsion (and to a lesser extent of forced expulsion) cannot compare favourably with natural means, such as Boyle's or Kite's. To incur heavy expenditure in installing a system that, in its very nature, is complicated and one needing superior attendant labour is to incur a heavy responsibility—I refer to the committee of the Corporation. Natural ventilation will, as a rule, act automatically, but even when induced action is necessary, this can be supplied at a reasonable cost. May I be permitted to refer to an instance within my own experience? A client complained to me of the Egyptian plague of flies to which his bedroom was subjected—the house was an old one, and the room stretched from front to rear. I called in the services of Mr. Robert Boyle, and as a result of the natural ventilation introduced, the flies disappeared as if by magic. Natural ventilation is the triumph of efficiency, moderate first cost and upkeep, as opposed to the heavy burden of the mechanical ventilation as employed in the new Courts.—Yours, &c.,

LIBRA.

### Rownson, Drew & Clydesdale, Ltd.

SIR,—We beg to inform you that, with a view to facilitating the amalgamation of our businesses, and also for family reasons, we have converted the two undersigned firms into a limited liability company, registered under the name of Rownson, Drew & Clydesdale, Ltd. The registered office of the company will be at 225 Upper Thames Street, London, to which address kindly send all communications. All debts and liabilities of each firm will be paid and discharged by the company, and all debts due to either firm are to be paid to the company. No shares are offered to the public. There is no debenture issue. The partners of each of the late firms will continue to take an active share in the management as directors of the company. We thank you for past favours, and trust that the satisfactory relations that have hitherto existed between us will be continued between the company and yourselves.—Yours faithfully,

ROWNSON, DREW & CO.,

THE CLYDESDALE IRON FOUNDRY CO.

225 and 210 Upper Thames Street,  
London, E.C.:

July 31, 1907.

### GENERAL.

**Mr. Herbert Norman**, of Northampton, has been awarded the first place in the competition for a Carnegie library in Northampton. The assessor, Mr. Leonard Stokes, has given second place and a premium of 50*l.* to Mr. F. W. Dorman, third to Mr. A. E. Anderson with a premium of 25*l.* Seventeen local architects competed.

**Mr. Stuart Hill** has been successful in the competition for the workhouse infirmary at Edmonton, which is estimated to cost 152,640*l.*

**Sir George Hayter Chubb** suggested the postponement of the Scottish National Exhibition until 1909, as the Franco-British Exhibition will be held next year in London. The authorities of the exhibition, having once postponed it on account of the Dublin Exhibition, appear to be opposed to the suggestion.

**Mr. Dermot O'Brien** has been elected a constituent member of the Royal Hibernian Academy, of which he has been hitherto an Associate.

The **Exhibition Executive Committee** of the Edinburgh Architectural Association state that the exhibition in the Royal Scottish Academy rooms has met with gratifying recognition, and has been highly appreciated by a large section of the public. They point out, however, that up till now the receipts for admission are not up to the anticipated amount, and exhort the members to send as many friends as possible before the exhibition closes on August 10.

The **Leith Dean of Guild Court** have granted warrant to the Queen Victoria statue committee for the erection of a statue at the foot of Leith Walk. The committee was formed in 1897 to promote the object as a Diamond Jubilee memorial. The difficulties have now been overcome, and the committee have selected a model designed by Mr. Birnie Rhind, R.S.A., Edinburgh.

The **Dean and Chapter of Truro Cathedral** have received from Mrs. Hawkins, of Portland Place, London, a promise of 20,000*l.* for the completion of the western towers and spires of Truro Cathedral. The gift is to be a memorial of the late Mr. C. H. T. Hawkins. The donor requests that any surplus may be applied to the building of a cathedral school for choristers and other boys within the precincts of the cathedral.

**Mr. Dudley Newman**, in addition to other work, is now carrying out the restoration of the chancel of St. Peter's Church, Stetchworth, near Newmarket, for the Right Hon. the Earl of Ellesmere; also some considerable alterations and additions at Fulbourn Manor, Cambridge, for the Rev. C. W. Townley, together with additions to houses in York-shire and at Maidenhead, and a new church at Rye Park Hoddesdon, Herts.

**Mr. J. Hurry Riches**, president of the Institution of Mechanical Engineers, announced on Tuesday in Aberdeen at the opening of the annual meeting, that Mr. Charles Hawksley, the engineer, had been good enough to communicate to the Council the fact that he desired, in commemoration of the centenary of the birth of his late father, to ask the Council to accept the sum of 1,000*l.* for the foundation of a scholarship or premium.



The Architect, Augt 2<sup>nd</sup> 1907.



PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

CATHEDRAL SERIES, No. 608.—SOUTHWARK: THE NEW HARVARD CHAPEL.

SIR ARTHUR BLOMFIELD & SONS, Architects.

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CATHEDRAL SERIES, No. 609.—SOUTHWARK: THE GOWER MONUMENT.



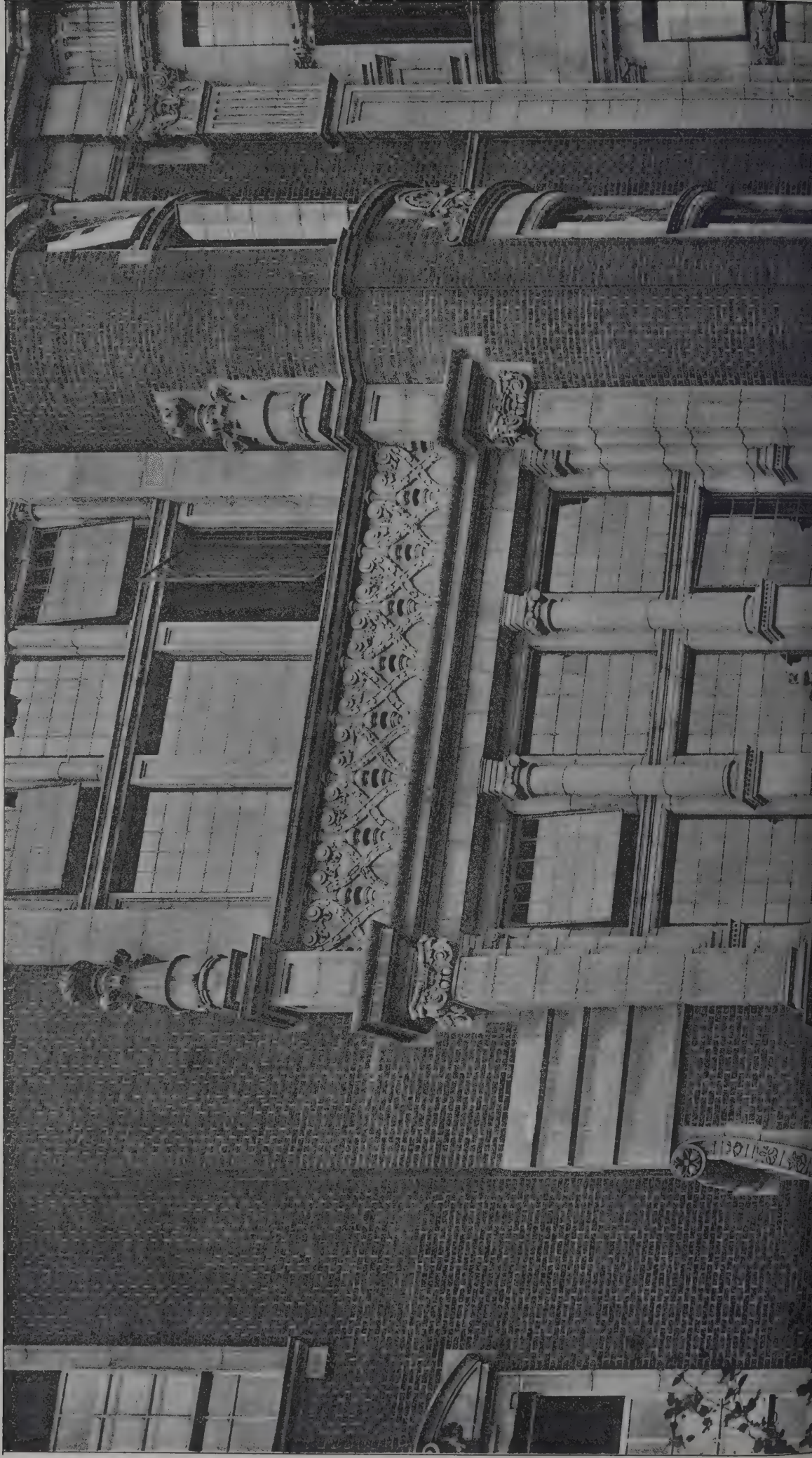
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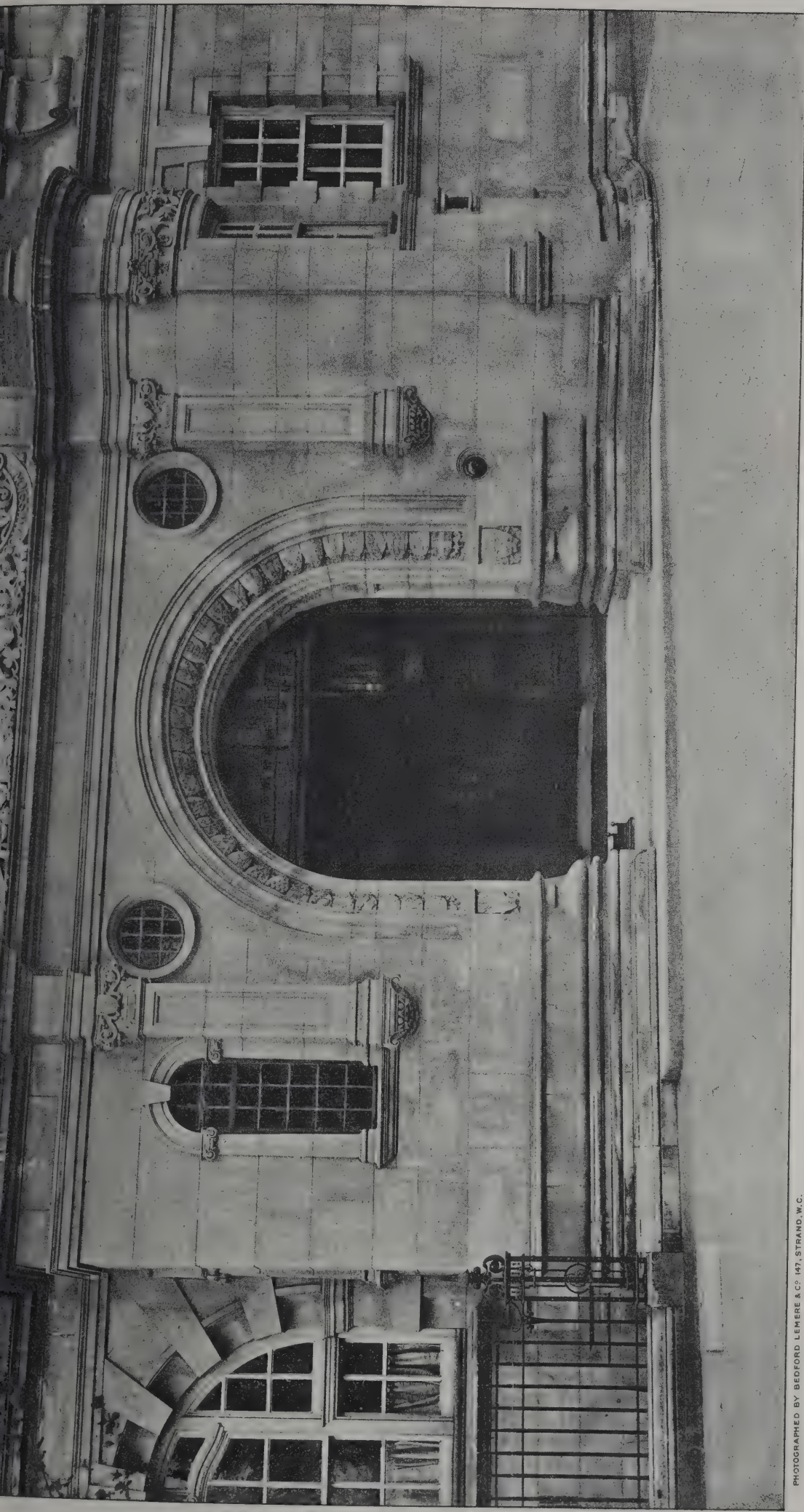
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The Architect, Aug. 2nd 1907.







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**ECCLESIASTICAL COMMISSION BUILDING, GROSVENOR ROAD, WESTMINSTER.**  
**DETAIL OF ENTRANCE.**  
W. D. CAROE, M.A., Architect.



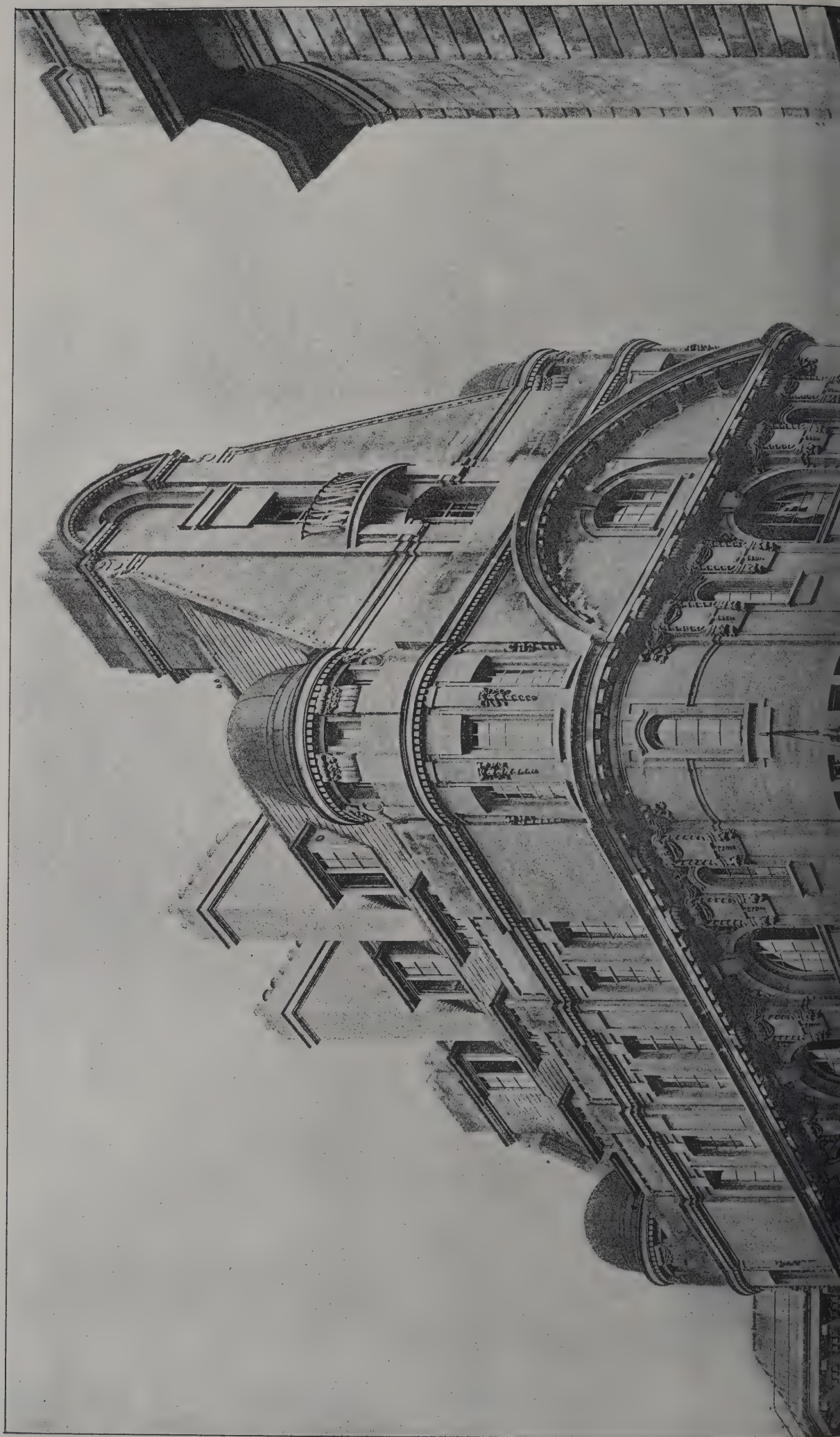
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The Architect, Aug. 2nd 1907.







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**TOLLARD ROYAL HOTEL, SOUTHAMPTON ROW, HOLBORN.**

Messrs. BRADSHAW & GASS, Architects.













THE VICARAGE, EALING.



THE VICARAGE, EALING.



LONDON HOUSE.





"ETHELBURGA," EALING.

DETAIL.



HOSPITAL.

WILLIAM A. PITE, F.R.I.B.A.,  
Architect



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# The Architect.

## THE WEEK.

It is often surprising that judges do not revolt against hearing building cases, or at the beginning involve the parties to have their differences settled with an architect as arbitrator. Sheriff SHENNAN should be credited not only for the time which he had to spend in attending to the details of a claim for which he awarded 75s., but to prepare a "note" which reads almost like a list of quantities. A Scottish builder offered to erect a house for 760*l.* He received 700*l.* The builder claimed 16s. as balance and extras. The defendants offered 1*l.* in settlement, which was refused; they said the house was not in keeping with the plans and specifications, and the extras were unauthorised. After going through multitudinous details the Sheriff gave judgment in favour of the plaintiff for 9 guineas, but allowed the defendants their costs, which we suppose will exceed that sum. His Lordship in his "note" said that the parties adopted a very expensive method of settling their differences. It would have been much more economical to have remitted the case to a man of skill. Petty as was the case, the Sheriff had to find fault with the conventional language of the specification. "Although," says his Lordship, "it is proved that the frames of the doors are of 'good quality' yellow pine as specified, it was ought to be proved that by custom of trade something was always understood to be allowed off the thickness for finishing. I am not going to give countenance to any such argument. The sooner tradesmen recognise that in dealing with the public they are to use words and measurements in their ordinary meaning, the better for all parties." His Lordship would only allow the expenses of two skilled witnesses while admitting that the others were "most helpful, but in so small a case they were luxuries for which defenders must themselves pay, so far as preliminary investigations are concerned." There is no doubt to the Scottish mind a certain pride in having an action decided by a proper judge rather than by an arbitrator who cannot claim to represent the dignity of the law. But some mercy should be shown to a lawyer in asking him to consider the qualities of chimes-poles, grates, stairs, sills, thicknesses of doors and skirtings—items which are not comprised in the ordinary course of legal education.

THERE can be no question about the importance of lighting schools, although little attention was given to the subject until a recent time. In foreign schools various methods of measuring the quality of light are used. One introduced by Dr. STANISLAW RUZICKA, lecturer in hygiene, Bohemian University in Prague, was described at the International Congress of School Hygiene. This method is as follows:—A rough model of the proposed school is made; this model is placed in a large box, the ceiling of which is constructed to represent the sky; one side represents the front wall of the building opposite the school—the other sides consist of mirrors; the back is removed to allow access. When a measurement is being taken this aperture is covered with a cloth, and the only source of light is the artificial sun. The relative photometer is so constructed that a mirror plane of a Summer-Brodhun cube reflects through small apertures in the roof of the model to the observer's eye the image of any particular spot in the schoolroom, so that it appears as a spot in the centre of a greater and brighter image of a portion of the artificial sky reflected by a mirror behind the Summer-Brodhun cube. A movable wedge of grey glass is then shifted over the image of the ceiling until it is reduced to an identical brightness with the image; a reading can be got giving the relation of any

spot in the model to the ceiling brightness. How far such a method would be useful in an English town on a foggy day has yet to be determined.

ARCHÆOLOGISTS are rivalling the historians and biographers in reviving interest in men who are likely to be ignored owing to the number of celebrities which now enriches the world. HANNIBAL is one of them. FLAUBERT'S romance and REYER'S opera have restored Carthage. But HANNIBAL was so much of a school hero he has suffered neglect. The Germans have not, however, neglected the great enemy of ancient Rome, and investigations have been made into the history of the huge mound at Libyssa, which according to tradition was the burial-place of the mighty warrior who nearly succeeded in breaking up the Roman Empire. Fearing that he might be surrendered to his enemies HANNIBAL in 183 B.C. poisoned himself. At a later time the Roman emperor SEPTIMIUS SEVERUS, regardless of old animosities, erected a magnificent marble monument at the site. But in such a district as Bithynia and so ill-governed a country as Turkey it was not likely that the monument would be preserved. There are, however, some signs of such a work, and the earthen tumulus, which probably formed the core of the Roman monument, still remains. Photographs of the place have been taken by the archæologists, which may at least prevent useless journeys. But the fame of HANNIBAL must still be taken on trust from the historians.

THE factitious condition of the market for Old Masters is suggested by the announcement that Messrs. DUVEEN BROS. have acquired the collection of paintings of the late RODOLPH KANN for a million sterling. It surpasses all precedents, and the victors must be congratulated on their enterprise. But with outlay of that kind proportionate advantages should follow. Messrs. DUVEEN, we hope, will be able to make adequate profit on the transaction. It may, however, be doubted whether the possession of the whole collection could bring much intellectual advantage to a nation, or whether one or a few of the works could elevate an ordinary amateur. To be able to show one of the pictures by REMBRANDT, FRAGONARD or DE HOOCH will be evidence of wealth, like the possession of a folio SHAKESPEARE. But it is possible not one of the rich collectors will derive as much genuine delight from their foreign acquisitions as VERNON and SHEEPSHANKS obtained from the modern English pictures which were partially produced before them. The Dutch merchants who bought REMBRANDT'S and the other artists' works were loyal to their countrymen, and it is time that Englishmen also should have the courage to restrict their purchases to works which they truly appreciate.

DURING late years the "donjon" of Vincennes has been closed to ordinary visitors, although from its architectural and historic interest it was peculiarly attractive. As Vincennes was a royal residence, the keep did not present the appearance of a simple square tower. Each of the five storeys has Gothic windows, and at one time the niches above the entrance were likely to be occupied by statues. Among the prisoners who were retained in it were several of DUMAS'S heroes—HENRI OF NAVARRE, afterwards HENRI IV., the Duc DE BEAUFORT, the Surintendant FOUQUET. In the eighteenth century it might be called the hotel of MIRABEAU, for he was repeatedly confined there; and DIDEROT and other pioneers of the Revolution were acquainted with the interior. The donjon of Vincennes is about to be converted into a historical museum, for there are treasures still existing which are considered to be unsuitable for any of the numerous museums of Paris. The building remains practically as it was in the days of CHARLES V., a king who preferred to live in Vincennes rather than in the Louvre.



## COSMIC ARCHITECTURE.

IT is now impossible to determine whether the description of the *Shield of Hercules* ascribed to HESIOD, or the description of the *Shield of Achilles*, generally accepted as HOMER's, is the older. But the difference in character between the subjects represented by the two is almost enough to indicate at least that they did not come from poets who were contemporaries. It is true the metalworker in both cases was the same, viz. the awkward but artistic VULCAN. And there may be a resemblance between some of the scenes. But on the whole the two might have been produced in different stages of civilisation.

Let us take the *Shield of Hercules* first, because general opinion is in favour of its priority. If we might dare to compare things which are so unlike, we should say that HESIOD's shield is Japanesque in treatment. We see dragons, Titans, snakes, gorgons, centaurs and figures which we cannot explain, but which probably were allegorical. We seem to have got a peep into the laboratory of Time or Destiny and to see society in the making.

The glorious shield made for ACHILLES is indicative of a period when a more ordered state existed. It is not altogether idyllic, for we see the sword is still a factor in human affairs, and peace may at any moment have to give way to war. Nevertheless, the central boss, instead of presenting ferocious dragons, is symbolic of the heavens above. Around the rim we have a river which is more suggestive of control than the turbulent waves. The compartments are all symbolical of organisation rather than of fierce impulses. We have a city at peace, but not free from contests, which were, however, settled by counsel of the oldest. We have also a struggle between the city and its enemies, conducted on the principles by which the world at the time was guided. But poet and sculptor are glad to get back to harvest and vintage scenes, with village dances of youths and maidens. Some archaeologists have supposed that whoever was the describer had seen with his bodily eyes and touched some shield of Babylonian or Ninivite art. If so a new interest is attached to the work, for it is difficult to imagine the great black-bearded warriors we see in the reliefs in Paris and London as condescending to unbend themselves amidst simple enjoyment.

Whatever doubt may surround the works, we must acknowledge that in both an effort was made to describe the poet's theory of life. Each may have been, for all we know, suggestive merely of the feelings of the two writers, and should not be taken as symbolising the general history of any period. One man was evidently pessimistic, the other only partially so. But each endeavoured by his figures and groups to express a meaning of which everyone who read the descriptions, although they could not see the shields, would be able to approve.

May we not also presume that in the Greek temples something was done to bring the buildings into relation with the world around them, and with antiquity if not with futurity? In asking this it must be remembered how imperfect is the evidence. Sculpture in several forms embodied the legends which were much more than historical pictures, for they indicated the beliefs which were accepted by the Greeks, and which served for them as solutions of the mystery of life. But they were not afraid to adorn the roof with golden stars. One kind of ornament evidently recalled the waves of the sea: the fret may have had a connection with the rocky surface of Greece, and the egg and dart was of greater importance than it is in the cornices of modern villas. It should not be forgotten that with the Greeks the world, or as much of the earth's surface as they were acquainted with, was not accepted as delightful or mystic. A Greek would hesitate a long time to suggest a mountain, although his pediments might suggest the Pyramids. He was essentially a townsman—let us say a typical cockney—

only he had neither motor cars, nor bicycles, nor ways to whirl him away into regions given over to slaves and overseers with heavy whips. The haustible supply of ideas for ornamental forms of by nature were unheeded by him. Indeed, it almost be said that he despised such things. He was able to ornament his buildings without much aid from them, for the only form for which he had a weakness was the palmette, which, we suppose, aided in his exalted thoughts. The sculptors could easily have afforded unlimited pleasure to the people of many times if they had utilised the plants and trees which were to be found around Athens. But the olive, although it was indispensable to a Greek's existence, was sternly ignored, although there may be a suggestion of it or part of it in the ovolo.

The architectural cosmos of the Greeks was circumscribed. It would not have been difficult to get so many artists at command to impart a wider relationship to the buildings, and to have made them as expressive as the shields of HERCULES and ACHILLES. The success of the experiment at the Erechtheum is enough to indicate what was possible. But the architects set a restraint upon their invention, and in consequence pure architecture will be a possibility so far as one of their buildings exists for a model or we have descriptions of it.

Inferior as was Roman architecture if considered from a superior standpoint, there is no doubt that the buildings were more widely related than those of the Greeks. There was no idealising with sculpture; it was "up-to-date." Every citizen knew who were represented by the figures which abounded within and without, and by the inscriptions which supplemented them. The inscriptions, indeed, gave a history of a building. The ornament was not the wealth derived from foreign lands was partly dependent on the temples and public buildings, and edifices were so crowded, it must have been difficult to make one's way between them. Just as in the processions men and animals from conquered territories were necessary, it is not unlikely that buildings also symbolised distant countries were to be found at Rome, although they were subsequently sacrificed for the sake of an approach to unity. Certainly there was so much variety and profusion, only an able architect could have brought Roman buildings within the compass of a theory, and it cannot be said that even VITRUVIUS succeeded in doing so.

It is not until we come to Gothic that we find unity—the cosmos—which was imperfectly expressed in ancient Rome. Nevertheless, here we are met with a state of things which must be considered as anomalous. In Rome bishops sought a power that was as wide as the Roman Empire. But as a means to attaining that end architecture was not adequately valued. We read of clerics journeying from all parts of Europe to Rome in order to draw inspiration for their new churches. Yet speaking generally the buildings which were freshest in their minds derived their force from their history and associations. The basilicas were merely makeshifts, and it took many a century before they were supplanted by churches more worthy of the uses to which they were applied. It has been pointed out that at the time of the Reformation a demarcation might be regarded as laid down which has been almost unaltered during three centuries. In the history of architecture a somewhat similar division was accomplished. Italian Gothic was not strong enough to extend itself, notwithstanding all the influence thrown behind it. On the other hand, a wave of style spread around it and spread over several of the most important countries of Europe. During some centuries there was no checking the advance of the force which in a comparatively short time appeared as if it were a thing *sui generis*.

An architectural cosmos of a new sort was established. For the first time the whole earth was



to co-operate. It might be supposed that the men were eager to produce a great work on the subject—so largely were vegetable forms employed as models—and on physiology, for not merely spiritualised forms and women appeared among the sculpture but monstrousities were utilised in the gargoyles and grotesques. Colour was revealed and building materials were shown to have novel properties. Legends were much respected as among the Greeks, and the Gothic architects went further, for they endeavoured to throw the future to men's gaze and to represent scenes of another world as if they were diocesan events. As has been often remarked, a Gothic building is an encyclopædia which does not confine itself to the past or the present, but attempts to unveil the mysterious here-and-there.

Yet, with all this ultra-human expansion, order is everywhere. Gothic buildings can be easily systematised, not merely as masses of stone but as efforts in which the character prevails in mouldings and in ornament. The gentlemen of the eighteenth century used to say that the essential difference between Gothic and Classic was that one was laid out on system, while the Mediævals were ignorant of everything systematic. Never was a conclusion less justified by realities.

Having Gothic and Classic before them, the Italian architects of the Revival were almost bound to adopt the one or the other as models. Greece at the time was unknown, and the buildings became the inspiring power. The systematising also became more easy than if an attempt had been made to surpass Gothic buildings. The dome and the arch acquired new importance, and subsidiary details could be requisitioned as desired. But it must be remembered that Renaissance architecture can never be as restive of a dominant principle as Greek, Roman or Egyptian. It is open to every architect to satisfy his own sense of what is pleasing or defective. He can be equally severe or grotesque according to the desire which dominates him for the time. It is therefore a necessary fact that when a man has exercised restraint within a limited field. But as his success is personal it is unwise for anyone to maintain that what has been done should be imitated by others. Cosmic architecture is no longer that of a nation or a people. It is individual in origin, and therefore limited in its success.

## LEGALISED INJUSTICE AT ACTON.

It cannot be too often repeated for the benefit of architects and builders that contracts with local authorities are not valid unless signed and sealed with the common seal of such authority. This is particularly true when the sum claimed is over 50*l.* A case of the kind may be said to be now before the public, if before the Courts, in respect of the Acton municipal buildings, and which has taken four years to develop. In the early part of 1903 a competition was arranged for municipal buildings. The plans submitted by Mr. HUNT, of Kensington, were adopted. He prepared the working drawings, and tenders were invited in due course; the lowest, amounting to 80,900*l.*, was accepted. The Local Government Board considered the sum too large to be expended at the time. Mr. HUNT then paid 3,000*l.* upon the lowest tender, and the contract was ended.

Having gained acquaintance with all the circumstances and as the need for municipal buildings became apparent, the architect was instructed to present a scheme for a building which would cost 35,000*l.* The plans having been approved, Mr. HUNT received instructions to prepare the working drawings, which were formally approved and adopted. A contract deed was drawn out by the clerk, and it was intended to have it sealed at the next meeting. The meeting of office of the members was expiring, and the day, unluckily for Mr. HUNT, fell upon a Sunday. The meeting was summoned for the day following,

but when the chairman sat down an injunction was handed to him from the High Court prohibiting the meeting, on the ground that as the term of office had expired there was no power to assemble unless there was a new election.

Everyone knows that in our day there is a stereotyped cry for economy regardless of all other considerations. And the good people of Acton were no more able to resist the temptation to join in it than the electors in most parts of England. It serves for a time at least. Nevertheless, as a rule, one local authority generally imposes as heavy rates as its predecessor. It was not difficult to make out that municipal buildings which would cost 35,000*l.* formed a flagrant example of a disregard of the poverty in Acton. It was therefore announced that the new Council were about to solve the problem by erecting a town hall which would only cost about one-half the sum contemplated, or 18,000*l.*

No one can dispute the right of the elected representatives to be as careful as possible in all matters of outlay. If they were satisfied with the unsuitable premises which are now used, or if they proposed to meet during several years in temporary offices of corrugated iron, we suppose the ratepayers, or at any rate the majority of them, would be indifferent. However, they should at least compensate the architect for preparing plans for a 35,000*l.* building, but he has been arbitrarily set aside under the protection of the law. According to the ordinary equity which is adopted by private persons in dealing with architects for schemes which are not carried out, Mr. HUNT is entitled to 2½ per cent. on 35,000*l.*, or 875*l.* But having the law on their side, the District Council refuse to pay one penny. Mr. ALEXANDER GLEN, K.C., has been asked to give his opinion. He points out that the amount exceeds 50*l.*, and that there is no contract under seal. Therefore he considers that the Council could successfully defend any action based upon contract which Mr. HUNT might bring against them in respect of that item, on the grounds that there was no such contract under seal. Mr. GLEN believes there was nothing to prevent the Council from dropping the whole or any portion of the original scheme, or from adopting a different scheme and from employing another architect for the purpose of carrying out such different scheme, without paying any compensation to Mr. HUNT for the loss of remuneration for work which he would or might otherwise have performed. On the question whether the sealed conditions of competition in conjunction with the several resolutions of the Council constitute an appointment or contract under seal with Mr. HUNT to carry out the buildings (not any particular design), counsel says:—"The sealed conditions of competition communicated to Mr. HUNT, who performed work for the Council on the faith of the sealed document, no doubt created a valid contract under seal between the parties; but its terms could not, in my opinion, be subsequently altered by unsealed resolutions of the Council so as to give Mr. HUNT any further or different rights against the Council under that contract. These conditions related to only the original designs and the carrying out of those designs, and did not in my opinion amount to a contract to remunerate Mr. HUNT for making or carrying out a different scheme without any further contract."

On one point only counsel appeared to recognise a claim, and that was as to whether the architect could be regarded as an officer of the Council, in which event it would be a duty to assign him some reasonable salary or allowance for the work done. Mr. GLEN said:—"I see nothing, however, to prevent Mr. HUNT from obtaining judgment on a *quantum meruit* for the several items of work which he actually performed without any contract under seal at the request of the Council, after he had completed the work which was the subject of the sealed documents, except so far as any par-



ticular request may necessarily have involved work for which the reasonable remuneration would have exceeded 50*l*."

We cannot believe that a body of respectable Englishmen would wilfully withhold his earnings from anyone who had the clearest moral right to them. It is true the chairman of the Council considers the rights as being only sentimental. But men in office must be excused if they misapply language occasionally. What is probably the principal obstacle to the payment of Mr. HUNT's fees is the fear that the official auditor will not recognise the claim, and it would fall, in theory at least, upon the Council. To say that Mr. HUNT has already received a large sum of money from which Acton derived no advantage is only a distortion of facts. If the former Council asked for designs for a town hall which was to cost 80,000*l*. instead of 35,000*l*. or 18,000*l*., the people of Acton must accept the consequences of the decision of their elected representatives. If it were required, the then Council would no doubt be able to put forward a justification of their conduct. Mr. HUNT did not draw up the conditions of the competition, and he cannot be made responsible for them. If the spirit of fair play were recognised he would have been asked to prepare sketch plans for a building to cost 18,000*l*., just as he had been asked to prepare plans for one to cost 35,000*l*. Youthful competitors may say that he has no claim. But several precedents could be brought forward to suggest that even an architect can have a sort of vested interest in a scheme, and it is for the general interests of the profession that it should be accepted. Indeed, it may be said that if architecture were properly organised as a profession no architect who respected himself or his fellows would enter on the new competition. It may also be observed that there are some doubts whether such a building as is desired can be carried out for the sum proposed. According to the surveyor's calculations, at 11*d*. per cubic foot the cost would be 23,320*l*., or say 23,400*l*., and at 1*s*. a cubic foot the cost would be 25,440*l*., or say 25,500*l*., and he thinks that the building could be erected in a substantial but plain manner for 11*d*. per foot.

We need not, however, speculate about what the future will bring forth. We are dealing solely with a past transaction. An architect has carried out faithfully the instructions he received, and because a meeting was held on a Monday instead of on a Saturday, he is to receive no payment for his labours. The law, however, is on the side of those who would punish the architect, not for any demerits of his own, but in order to bring odium on those who gave him directions. Need we wonder if sometimes in the American courts, where respect for English decisions is occasionally pushed to excess, the desire for honesty and fair play rises in rebellion against a system which seems to have been formulated in a Government Office, and which is unjust if not iniquitous?

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**The Dean and Chapter of St. Paul's** have accepted the design of Mr. Reginald Blomfield, M.A., A.R.A., for the new St. Paul's Cross, which is to be erected as the result of a legacy of 5,000*l*. left for that purpose by the late Mr. H. C. Richards, K.C., M.P. It will consist of a bronze figure of St. Paul, 9 feet high, placed on a column which rises from a lofty and elaborate pedestal, with figures at the angles supporting coats of arms on cartouches at the four sides. The pedestal is on a stone platform raised some 4 feet above the ground line, and surrounded by a parapet which stands on three broad circular steps above the present pavement level. The enclosure which surrounds the pedestal is reached by a flight of steps with bronze gates. The site is where the old St. Paul's Cross stood, and, like its predecessor, this also will be available for open-air preaching. The materials to be employed are the best Portland stone, Belgian black marble and bronze.

## WOODHAM FERRIS AND BICKNACR PRIORITY.\*

WODEHAM, Udeham, or Odeham, as the name is variously spelt in the old records, indicates an estate in a wood. Woodham Ferris is one of the double place-names rather common in Essex, where the first word applies to the district generally and the second distinguishes the particular manor or parish. Here there are Woodham Ferris, Woodham Walter and Woodham Mortimer. Of like character there are the three Tolleshunts, the three Layers, Theydons, two Willingales and nine Rodings or Rootings. In Domesday Book this parish is described as *Ude de Ferraris*, in the Hundred of Celmersfort, held by *Ude de Ferraris* or *Ferrers*, who held it from Bundi, the predecessor, as one manor and xiv hides. The wood afforded food and shelter for no less than 800 swine. "DCCC porcis."

In the thirteenth century Robert, Earl Ferrers, the lord. He was married to Sibilla, daughter of Roger de Braose, by whom he had two daughters, Melicent, of Roger, Lord Mortimer, and Agatha, concubine to John, by whom she was mother to Joane, who married Llewellyn, Prince of Wales.

The mansion or manor-house of the Ferrers family, situated about one mile north of the church, and the site of it is now occupied by a moated farmhouse.

Stow, in his *Survey of London*, has a good deal to say about one Robert Fitzwalter, chastelain of London, and his duties and privileges in that capacity he describes at length. Fitzwalter was also lord of Wodeham and of Baynard's Castle. Stow continues:—"King John unlawfully loved Matilda Fair, daughter of this Robt. Fitzwalter, but could not marry her nor her father would consent thereunto, wherefore and for like causes ensued war throughout the reign. This Robert afterwards took as his second wife Eleanor, daughter and heir to the Earl of Ferrers, in 1289. Whether she was a daughter of Robert, Earl Ferrers, above mentioned, or of a later earl, is not clear.

These historical fragments, however, show the connection between the three Woodhams and the reason for their distinctive names. Thus Roger Mortimer, son-in-law to Earl Ferrers, was lord of Woodham Mortimer, and Robert Fitzwalter, also son-in-law to a later Earl Ferrers, was lord of Woodham Walter.

There are now no monuments of the Ferrers family seen in Woodham Ferris Church, although this is recorded to have been built by Robert Earl Ferrers in the reign of Henry II. (1154-89). It is dedicated to St. Mary, and consists of a nave with aisles, chancel and west turret and one bell. There are six clerestory windows and the south aisle has three bays, an Early English door and four clerestory windows without tracery. In the north aisle there are three bays, two windows of late Decorated date, a blocked-up doorway about the same period. The piers are alternately octagonal and round. The chancel arch is of Early English and over it is a fresco, recently discovered, which represents the Resurrection. There was a fourteenth-century rood-screen of the Decorated order, four panels which, displaying elegant tracery, are preserved in the rectory. The chancel windows are of Decorated Perpendicular architecture; there is a piscina and creche of early work and three plain sedilia under a three-centred window. The font is octagonal, of the Early English period. The nave has a fine oak roof which has recently been uncovered, and there are some ancient oak benches carved poppy-head finials. The registers date from the thirteenth century and are in good condition. The following are a few of the entries:—

Joan Kinwelmarsh was baptized by the mydwyfe at 25 Dec. 1572.

Repentance Kynge daughter to John Kynge and base born was baptized x day of October 1602.

March 6th, 1613. Marye the daughter of Dorothee or Katherde, late of Coxall as she affirmeth brought in bed in Woodham f. the father unknown bapt'd. Mar. 6th.

Jan. 22, 1796. Thos. Cooch was half baptized received into the Church June 13th.

There are several entries about this period of children being half baptized, and it is thought this indicates that they were baptized by laymen at home, and afterwards received into the Church.

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\* Read at a meeting of the Upper Norwood Athenæum, June 22, by Mr. Jonathan Downes.



There are a few miscellaneous notes at the commencement of the register, one of which is as follows:—

Inscription formerly on a stone in Tower outside W. door.

Mense Augusti Anno Dom<sup>i</sup>. Millesimo quadringentesimo sexagesimo (August 1460) Anno vicesimo octavo Henrici sexti fuit hoc opus inceptum.

In the north wall of the chancel is a good marble monument of Jacobean style, bearing a coloured effigy of a lady wearing a large ruff and hood kneeling at a table. This is the inscription:—

Cecilie Sandys Daughter  
of Thomas Wellford of Crannbrook in  
Kent, Esq. Sister to the worthie souldiers  
Sir Jas Wellford and Sir Thomas Wellford, was  
Wife to Edwin Sandys Archbishop of York who  
Died in great honour in 1588 when he had  
Lived full 70 years. She lived a pure mind 22 yrs  
To hir last. She bare him 7 sons and 2 daughters she lead  
A most Christian & Holy life carefully educated hir  
Children wisely governed hir Family charitably relieved  
The Poor and was a true Mirror of a Christian Matron  
She departed this life constant in the Christian Faith  
5th Feb. 1610. At the rising of the Sun hir blessed Soule.  
Ascending to the consort of the Blessed and hir  
Bodie lyeth here interred expecting  
The Joyfull Resurrection.

On the ground underneath the monument is a marble stone bearing her name, date of death, &c., and ending, "And is under this stone buried." The husband of this lady, Dr. Edwin Sandys, was a notable dignitary of the Church in Tudor times. He was born at Hawkshead, in Furness Fell, Lancashire, about 1518, educated at Furness Abbey, graduated at St. John's, Cambridge, as B.A. in 1539 and M.A. in 1541. He was Vice-Chancellor of his University at the time of Queen Mary's accession, and, as he had strongly supported on religious grounds the claim of Lady Jane Grey to the Crown, and although proclaiming Mary as queen at the order of Northumberland had predicted that punishment would overtake the latter, it is little wonder that in July 1553 he was sent to the Tower. He was liberated through the mediation of Sir Thos. Holcroft after nine weeks' imprisonment. He then went to the Continent, and there made acquaintance with Peter Martyr, at whose house in Zurich he was staying when he heard of the death of Mary and returned to England.

He preached before Queen Elizabeth at York a sermon which delighted her, and preferment soon followed. He was appointed Bishop of Worcester and consecrated at Lambeth Palace on December 21, 1559, was made Bishop of London in 1570 and in 1575 was translated to the Archbishopric of York.

He died at Southwell on July 10, 1588, and was buried in the Minster. Strype describes him as an obstinate and conscientious Puritan. He objected to the sign of the Cross in Holy Baptism and to the use of vestments, but on these points he had to yield.

He is connected with Woodham Ferris by the fact that about 1560 he built a mansion, which is still named Edwin's Hall. This, by the kind permission of the present owner, Mr. G. W. Hinton, we have visited to-day. It occupies an elevated position three-quarters of a mile west of the church, commanding extensive views over the valley of the Crouch and surrounded by a double moat, the inner one still complete and the outer distinctly marked, though now dry in places. It is built in the Tudor style, with stone mullions to the bay and oriel windows, and has some fine old wainscoting which is especially worth notice, as it shows the introduction of the mitred joint. In the older work the upright moulded frames and plain transverse frames of the panels meet at right-angles, and the latter are ornamented only by a chamfer beginning and ending inside the angles. In the later work both frames are moulded and meet at the angles in a mitred joint.

We have also seen to-day, in the parish of Woodham Ferris, the remains of Bicknacre, or Bikenacar Priory, which are of considerable interest from an antiquarian point of view. It was founded on the site of a hermitage occupied by one Jordan previously to 1157.

(The name of Jordan is somewhat unusual, but it may be noted that there is record of one Jordan de Shepey buried in the abbey church of Minster Sheppy in the fifteenth century.)

About 1175 this hermitage was converted into a Priory of Black Canons by Maurice FitzGeoffrey of Tiltar (Tilty), dedicated to the Virgin Mary and St. John Baptist. The chronicles say it was built and endowed by Maurice Fitz-

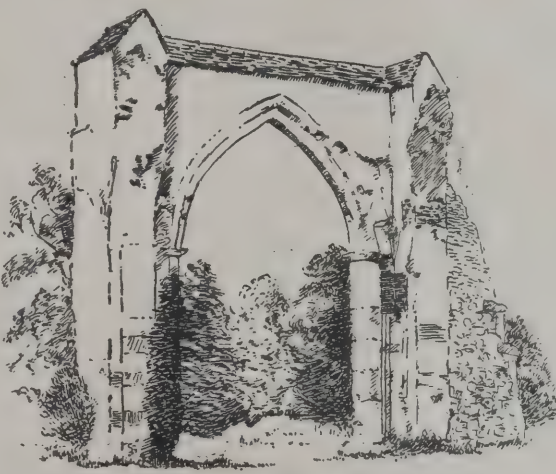
Geoffrey, sheriff of Essex, at the charge for the most part of Henry II.

King Edward I. in the thirteenth year of his reign gave leave to the Prior of Bicknacre to empark waste land of 60 acres. Of the priors of Bicknacre it is recorded:—The first prior, Ralph, died in March 1237. His successors were



WOODHAM FERRIS CHURCH.

Andrew, John de St. Edmund, Ralph de Dunham, William de Wilburgehan (time of Edward I., 1272-1307), Alan de Barcking, Benedict de Roff, Robert de Blakenham, Robert de Ramesdene (Edward II., 1307-27), Matthew de Grafton, Reginald de Theydon, Ralph de Chishull (Edward III., 1327-77), William de Thurle, John de Thacstede (1385), John Gosfeld (1396), William Winchester, John Horewood (Henry V., 1413-32), John Ocle, John Colman, John Cradock, William Chevington (1479), Richard Palyrton (1490), Wm. Bowland (1499), Thos. Wellys (1504), Edward Goding (1505).



RUINS OF BICKNACRE PRIORY.

About 1507, through the carelessness of the governors and other accidents, the priory had become so poor that at the death of Edward Goding one mark only was left in the treasury of the house and one canon only remained on the establishment.

The rest of the story is told by Stow in his description of Bishopsgate Ward:—

Then have you the late dissolved priory and hospital, commonly called St. Mary Spital, founded by Walter Brune and Rosia, his wife, for canons regular. Walter, Archdeacon of London, laid the first stone in the year 1197.

The prior of this St. Mary Spital, for the emortising [redemption] and appropriation of Bikenacar, in Essex, to his said house of St. Mary Spital, gave to Hen. VII. 400*l.* in the 22nd of his reign [1507].

St. Mary Spital gives its name to Spital Square and Spitalfields.

The sole remaining fragment of what must once have been the noble priory of Bicknacre is a tall Transitional arch, apparently the chancel arch of a church of imposing



dimensions. It seems to have been preserved when the other remains were destroyed in 1816 from sordid rather than reverent motives, as it is said that the Priory Farm and four adjoining farms are exempt from payment of tithe so long as any portion of the original priory remains above ground.

### NEW CATHEDRAL, WASHINGTON.

THE following description of their design has been contributed by the architects, Mr. G. F. Bodley, R.A., and Mr. Henry Vaughan to the *Inland Architect* :—

In style it is, as was wisely desired, Gothic of the fourteenth century—a style of architecture, as we think, the most beautiful that the world has ever seen. In its dimensions it will be larger than most of the cathedrals in England or on the Continent. The total length is 476 feet and the total width 132 feet. These are the external dimensions. The height to the ridge line of the roof is 130 feet, while to the internal apex of the vaulting it is 93 feet.

The central tower will rise 220 feet from the ground. The plan is that of nave and aisles, transepts, choir and two chapels. Double aisles are planned for the nave. These latter will be especially useful for monuments and memorial windows and tablets. The choir terminates in an apsidal sanctuary. The building will be vaulted in stone throughout.

The lighting of the interior is by ample clerestory windows. The light, thus coming from so high a level, will in your bright climate be striking and uplifting. There are lower windows in the aisles, but they are quite subordinate. Then there will be a striking effect of light in the "sanctuary" or eastern part of the choir. For there is to be a large window both on the north and south sides, coming lower down, but much out of sight, being in the depth of thick walls. These windows will be 65 feet long. Light will be given by them to the apse in an especial and striking manner. It is for this important effect of light that we propose to have no chapel at the far eastern end, in the most usual position when a choir-aisle runs round the east end.

This plan has the advantage, too, of giving an interior of which the whole length is seen on entering at the west end, thus adding to the perspective and to the impressive effect of the building.

We propose two chapels at the ends of the choir aisles. An aisle terminating in a mere wall always has a poor and an unsatisfactory effect. It will be a great advantage to have chapels here at the eastern ends of the two aisles, with their screens and altar and their reredos. The eye will be attracted down the "long-drawn aisles" to these chapels. The apse, with the effect of light there that we have spoken of, should be the leading and the impressive feature. The exterior of the apse, unhidden by a further building, will be commanding in its lofty proportions, and will make a very conspicuous landmark eastward, crowning the hill with its cluster of many pinnacles.

The stained-glass clerestory windows, as they could be placed, should consist of single figures, for they are too high up to contain "subjects." The glass should have finely-coloured figures on a light, silvery ground. But there are other things for which gifts would be more desirable, before the glass, in point of time. There are many stone statues desirable and many carved subjects.

We have alluded to the outer aisles as being available for monuments. Here there could be placed mural tablets as memorials, and brasses round the walls; and, indeed, "altar-tombs" with effigies, one in each space, could be placed as opportunity occurs.

Approaching the west end of a triple avenue of trees, those visiting the cathedral will find three lofty open arches, the central one wider and much higher than the other two. These lead to three wide vaulted spaces to be used as large porches or porticos, and so on to the three recessed west doorways. The central portico could be treated richly internally with arcading and many statues and carved subjects. While the exterior surroundings of this lower part of the west end are massive (the richer part being kept for the top of the towers, "whose glory is in their height"), the interior of this central portico can be rich and stately and be made beautiful with its many figures and pictorially carved subjects. In passing, may we say that all and every gift should not be in kind, but that the money should be given for each gift, and that all things given should be approved by the architects. Incon-

gruous things may be given, with the best intentions, that may be out of character and without harmony with the surroundings. This is most important. It is astonishing what harm a single note out of harmony will do; and so with every detail of furniture or colour, everything must be in keeping and manifest the same intention, drawn from the same inspiration.

Passing along the north side of the cathedral externally, we would speak of the height of the walls, the interest of the window tracery in the clerestory, the massive, but not too heavy, flying buttresses and pinnacles; of the light and shade given by them, and the bands of rich work in the outer aisles, of the moulded plinths and windows and niches and the carved canticles of the Church's matins and evensong, and the traceried parapets. Then, passing these, we get to the north transept, with its protected entrance up many steps, and its high turrets and rose window. Then to the vestries for bishop, clergy and choir, and so to the lofty east end, with its apsidal termination and its bold flying buttresses and pinnacles. "Sanctus" will be carved on each of the three sides of the apse parapet.

Coming round to the south side we see the outside of the lady chapel, and a somewhat similar to the northern, but varied, south transept, with its different rose window, doorway, with figures set round it, and its many steps necessitated by the fall of the ground. Then to the baptistery, a lofty stone octagonal erection, with its seven windows and high roof, surmounted by a metal cross. The effect of this baptistery externally will be good. It will be varied in its light and shade, being octagonal, and it will stand out from the great mass of the church, with its gilded cross at the apex, catching the light, and its many flying buttresses and its connecting passage.

Such will be the leading features of the exterior, all of commanding proportions.

And now to enter the cathedral at the west, through the great portico we have spoken of, and through the shelter of an internal oak lobby.

The first impression will be the continuous height of the main or central part, namely, the nave, choir and apse. The next, and nearly as powerful a one, will be width; for with the outer aisles and the double range of columns on either side and the transepts, the effect of the width will be very considerable. Then, as we hope and think may be confidently anticipated, will be the uplifting proportion of the whole—the tall piers and arches, with the triforium and the lofty clerestory, and the rich and full, tree-like, branching vaulting, springing from soaring vertical shafts rising from the floor, and of slender diameter. For pains have been taken to make the interior effect a striking and an inspiring one. Then the eye will be taken up to the rood and to the broad enriched soffit of the easternmost arch of the tower, with its carved angels, and to the rood which it frames; to the screen with its delicate open work, only veiling the beyond with a very transparent veil, to the dark oak or other wood of the choir stalls with their fretted canopies; and so to the bright sanctuary with perhaps rays of light from a southern-like sun, lighting but half veiling with light the reredos, with its sculptured saints and the Christ in glory, blessing, above all.

The triforium will be continued round the apse, knitting all together into, as we hope and believe it will be, an elevating, harmonious whole—*ad majorem gloriam Dei*.

One word as to the treatment of the building as regards its richness or the reverse. We think the drawings show that it is amply rich enough. That there should be plenty of surface of massive stone ashlar is most desirable for all good architecture, especially with a building so large as this. A small building may be rich all over, but it is beneath the dignity of a great one. For a large building, if well designed, has an instinctive dignity and a grandeur about it that may well dispense with too lavish exuberance of ornament. Again, there should be concentration of richness and not a spreading of it all over a building.

On the central tower we propose to have a band of large angels, each holding a scroll with a word of the "Gloria in excelsis Deo," &c. They will give a rich effect and teach a constant song of praise. This band of angels will be an original treatment not before attempted, certainly not on this scale. The figures would be about 10 feet high.

There remains the question of the stone to be used, and it is a very important one, for stone ashlar would be used both inside and outside the building. Knowing as we do the good effect of churches built entirely of a good light red stone, and the cold look that white stone has, we cannot

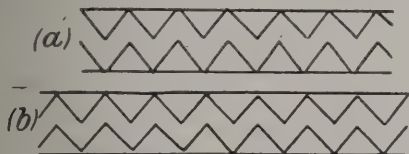


but recommend the use of a good red one. It should be by no means brown, but of a good, soft-looking, rosy tint. The red stone we should use would not be too dark or at all heavy looking. With red stone a church has a warmth of colour and a look of the absence of newness that is very satisfactory. Details for red stone are best bolder, and therefore less expensive, than those suitable for a white stone.

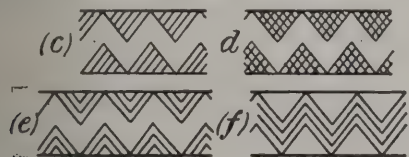
The pavement of the interior should be of American marbles—simpler in the nave and aisles, richer in the choir, and especially rich in the sanctuary.

## TERMINOLOGY OF DECORATIVE ART.\*

DECORATIVE art, as the subject of anthropological study, needs analysis on the technological side in order to describe and define the precise contribution made by the artist's hand to the decoration of the object. So long as the decorative motives are recognisable attempts to represent some actual object, such as an animal or a plant, or part of one, description in general terms is easy, and for all beyond this graphic illustration is inevitable. But in the more abstract, and particularly for "geometrical" types of decoration, the actual processes employed by the artist stand in a more important relation to the completed work. Artistically the effects produced by drawing on the same surface (a) a double series of alternate triangles, and (b) the limiting lines of a band of continuous chevrons are



practically indistinguishable, but technologically their origin, affinities and potential development are quite different. For example, simple enhancement of the construction lines leads in the case of (a) to patterns like (c) and (d); in the case of (b) to patterns like (e) and (f).



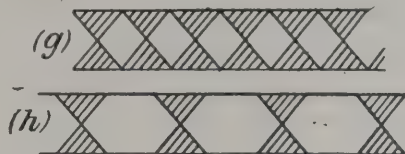
In such cases the mere graphic reproduction of the ornament is not an adequate description, still less a definition of it. On the other hand, a sufficiently precise terminology would enable a student at a distance to reconstruct from dictation a pattern which was similar technologically, and actually more valuable for purposes of comparison than a photograph of the original design.

Similar needs have led in other sciences and arts to the adoption of a simple conventional terminology. A botanist, for example, can convey in speech a very precise conception of the morphology of a compound leaf, and of its junction with the main stem; and heraldry has developed a terminology of the distribution of lines, subdivisions and patterns on the surface of a shield or panel which enables heralds to communicate at a distance almost without the use of diagrams. In pure technology the language of sewing and knitting is perhaps the most lucid and idiomatic instance.

The basis of any such system, applicable to the description of abstract designs, must be strictly technological; that is, it must be essentially a description (1) of what the artist did; (2) as far as possible, of the order in which he did it, distinguishing motif from enhancement or filling; (3) if necessary, of the effect produced by the completed work, in cases where this differs from that of the artist's work while in progress. *E.g.* in figure (a) we have the motif of "alternate series of recurrent triangles," leading to a "chevron" effect; in (c) these triangles are enhanced by "hachure" or "hatching" (a term borrowed from the engraver's art), and in (d) by "cross-hatching." In (b), on the other hand, motif and effect are alike "chevron."

In composite patterns the minor elements must be located by reference to the major element which they enhance, or on which they are based, and subsequent phrases must

define their relations to each other; *e.g.* the motive (a) would be described as "between parallel lines, a convergent series of recurrent alternate triangles"; but in (g) the "recurrent triangles" would be not "alternate" but "opposite," and the "effect" is that of a string of lozenges; and in (h)



the triangles would be not "recurrent" but "intermittent" or "sparse"; while the "effect" is that of a hexagon pattern. Similarly in figures (c), (g) and (h) the triangles would be "hachured" or "hatched" from the left, (*i.e.* when viewed with their base downwards and their apex upwards), for the reason that the "generating line" of the "hachures" is the left-hand side of the triangle, to which they are parallels. In figure (e) the chevrons are "enhanced" by "external repetition" of their generating lines; in figure (f) the enhancement is "internal." It might eventually be possible to subsume the special term "hachure" under the general term "enhancement," and to describe the triangles of (c), (g) and (h) as "enhanced internally from the left."

The elaboration of such a terminology as is here proposed should, of course, be gradual; it should be based upon careful comparison of terminologies actually employed in the past by expert technologists; and it should conform in its syntax to the approved usages of heraldry, systematic botany, and the like, which fortunately agree in essentials. It should take account, from the first, of foreign synonyms, and proceed—like other artificial terminologies—partly by the incorporation of brief graphic idioms from the vocabulary of the industries concerned, partly by judicious coinage of words, as in zoology, from Greek or other universal vocabularies.

Much may be done in the meantime to fix current idiom by detailed descriptive analysis of some of the commoner geometrical forms, such as the triangle (which has formed the basis of illustration here), the wavy line, the spiral, or the plait. A conspicuous instance of the confusion produced by neglect of "terminological exactitude" is the greater part of the recent literature of basketry; and this is the less excusable, because in the allied art of weaving an ancient, idiomatic and peculiarly accurate vocabulary exists in nearly every European language.

## BRITISH SCHOOL AT ROME.

THE forthcoming volume of the "Papers of the British School at Rome" will include a paper by Mr. S. J. A. Churchill, H.B.M.'s Consul at Palermo, on "The Goldsmiths of Rome under the Papal Authority: their Statutes hitherto discovered and a Bibliography"; another by Mr. A. J. B. Wace on "Roman Historical Reliefs"; another by Mr. A. H. S. Yeames on "An Ivory Statuette in the British Museum"; another on "The Prehistoric Civilisation of Southern Italy," by Mr. T. E. Peet; and the first portion of a paper on "The Via Latina," by the director (Dr. T. Ashby). This last forms the first part of the third section of the "Classical Topography of the Roman Campagna," which is in course of publication in the "Papers" of the School. The Via Latina is one of the earliest (perhaps the very earliest) of the ancient roads radiating from Rome; and though the determination of the course taken by it presents no difficulty, the remains which have been discovered, and which still exist along its course, are of very great interest and importance.

The School has also been actively engaged in the preparation of the first part of the Catalogue of Sculpture of the Municipal Museums of Rome; in this the assistant-director, Mr. A. M. Daniel, and Mrs. Daniel have been especially occupied. The work is under the general editorship of Mr. Stuart Jones, ex-director of the School; and it is hoped that the first part, dealing with the Capitoline Museum, may be sent to press fairly early in the course of 1908.

The Manchester Parks and Cemeteries Committee have under consideration the subject of the kind of monument to be placed on the site of the now demolished St. Peter's Church. The matter was adjourned for further consultation with the Church authorities.

\* A paper by J. L. Myres, M.A., read before the British Association.



## NOTES AND COMMENTS.

THE difficulty of dealing with the contents of Egyptian tombs has just been exemplified at Luxor. Some months ago it was declared that a royal tomb had been opened, which from the evidence found in it was concluded to be the burial-place of Queen Ti, the wife of AMENHOPTON III., and the mother of AMENHOPTON or AMENOPHIS IV. The latter was a religious as well as a political reformer, for he not only introduced sun-worship but he abandoned Thebes as a capital. He also changed his own name. In consequence of his heresies the orthodox Egyptians rebelled against him, and it was supposed they violated the royal tomb and removed the inscriptions relating to the history of the monarch and his reforms. It was supposed they were indifferent to the remains of the queen mother. But a curious inquirer has removed the bandages of the supposed Ti; and Dr. ELLIOT SMITH, professor of anatomy in the medical school of Cairo, has examined the remains. To his surprise he found that the skeleton was that of a young man of twenty-five or twenty-six. Some may suppose the mummy is that of AMENHOPTON IV., but the bones do not support such a conclusion.

FOR more than a century the University town of Jena has been closely associated with the history of German literature. Several of the best writers were either professors or students, and the numerous commemorative tablets which are to be seen in the streets nearly compensate for the defects of the buildings. The town is well situated at the junction of two rivers. Jena possesses one remarkable old bridge which is believed to date from the fifteenth century, if not from an earlier time. Jena was often invaded, and the Comsdorfer Brücke has sustained the weight of strange enemies, and was the scene of some remarkable incidents. During several years also a man used to stand on the bridge begging for alms which were to be devoted to its upkeep, and which was evidently a survival of the Mediæval practice when a bridge was considered to be a work of charity. Like most other places in Germany, Jena has succumbed to the desire for expansion and the necessity for facilitating traffic. The ancient bridge has become an anomaly. Plans have been prepared for a new structure to supersede it, and, after enduring since 1416, there is little doubt that much force will have to be expended in removing piers which have so long resisted the influence of time.

THERE was some surprise expressed in Dublin when it was announced that the commission for the statue of *Parnell* was to be given to Mr. AUGUSTINE SAINT-GAUDENS, who was generally considered to be an American; and it was supposed that as the money was mainly subscribed in America the statue had also to be produced there. Mr. SAINT-GAUDENS was born in Dublin, but he was taken to America when a baby, and his father was a Frenchman. The sculptor died on Saturday last at his house in Cornish, New Hampshire. America accepted him as a native-born citizen, and, according to the President, there was no greater artistic genius living in the States or elsewhere. At first he practised in cutting cameos, but feeling his power to deal with larger works, he went to Paris and to Rome in order to study art. He was only twenty-two when he produced his statue *Hiawatha*, the merits of which were at once realised. He obtained a commission for a statue of *Admiral Farragut* for New York, one of *Lincoln* for the park at Chicago, and one of *General Sherman*, which is most admired by Americans, for Central Park, New York. His bronze memorial tablet of R. L. STEVENSON, which is now in St. Giles's, Edinburgh, was exhibited in London. His position in America justified his selection to design the principal

coins. He was born in 1848, and therefore had not attained his sixtieth year, and it might be expected that many other important works would be executed by him.

THE collapse of the Pont de Cé on the railway line near Angers must excite alarm not only in France, but in other countries. The bridge, although dating only from 1876, was of a simplicity which characterised the structures of an earlier time. It resembled one of the bridges which ROBERT STEPHENSON denounced, for the main girders were of a double lattice with slight flanges. There was no trussing to impart stiffness and to sustain any extraordinary strain. Looking at the diagrams it does not appear as if the girders were continuous. The cross-girders were likewise of a simple kind, and too much reliance must have been placed on the strengths of the flooring plates, which in reality were without structural value. Although the weight of locomotives and trains has been increased in the course of thirty years, no extra provision appears to have been introduced to sustain the additional weight. French engineers are strong in mathematics. But with the fate of the Tay Bridge in his memory an English engineer hesitates before trusting to formulae unless he also leaves a very large margin for contingencies. If the locomotive acted as anticipated, and went smoothly along the rails across the bridge, things would have remained as before. But by slipping destruction was inevitable. It is true that the rules and regulations of the Public Works Department—and the bridge was on a State line—exact that an annual visit and an examination of the girders shall be made once in five years. But that does not insure that the bridge are equal to the increased strains to which they are now subjected. There is too much reliance on authority in France, and it is easy for people to assume that official inspectors take into account all that is possible to weaken a bridge. As the destruction of the bridge over the Loire demonstrates, perfunctory visitations only give a false security.

IT is satisfactory to learn that the reasonableness of the proposals of the Association of Municipal Corporations respecting the treatment of suburbs was admitted by the Prime Minister when a deputation met him on Wednesday. It is the usual practice on such occasion to maintain that the Government had foreseen the difficulty, and it was announced that the President of the Local Government Board had a Bill on the stock which would deal with the grievance. According to Mr. BURNS there is not one but two Bills drafted; one relating to housing, the other to town planning, and which he claimed would meet the difficulties in a more practical form. It was said by Mr. BURNS that the authorities of towns might have avoided many of the defects if they had consulted his Board. But a long experience has taught the members that applications for advice receive scant sympathy from all Whitehall officials. How much is prejudice need not be discussed. It should also be remembered that legal difficulties are not to be overcome by a circular from the Local Government Board, and to interfere with the arrangement of a man's property is a serious offence. What is needed is an Act which will bring outlying districts under more control than is possible with by-laws alone.

## ILLUSTRATIONS.

WESTMINSTER CATHEDRAL—BALDACHINO.

HOUSE AT MAIDENHEAD—SOUTH FRONT.

SUNDERLAND LIBRARY COMPETITION—FIRST PREMIATED DESIGN  
SECOND PREMIATED DESIGN.

VILLA RESIDENCE AT ELSTREE.



## EDUCATION AND TRAINING OF ENGINEERS.\*

INTERPLAY of action and reaction make for progress not only in the evolution of the scientific industries, but also in the development of the individual engineer. In him, if his training is on right lines, pure theory becomes an aid to sound practice; and practical applications are continually calling him to resort to those abstractions of thought, the underlying principles, which when known and formulated are called theories. Recent years have brought about a so much better understanding of education in its bearing upon the professions and constructive industries that we now seldom hear the practical man denouncing theory or the theorist pooh-poohing practice. It is recognised that each is useful, and that the best uses of both are in conjunction, not in isolation. As a result of this better understanding, distinct progress is being made in the training of engineers. Of this the growth of the engineering departments of the universities and of the technical colleges and schools affords striking evidence. The technical schools, moreover, are recognising that their students must have a sound preliminary education and are advancing in the requirements they expect of candidates for admission. They are also finding out how their work may best supplement the practical training in the shops, and are improving their curricula accordingly. In the engineering industry, too, Great Britain is slowly following the lead taken in America, Germany and Switzerland in the recognition afforded to the value of a systematic college training for the young engineer, though there is much apathy and even distrust shown in certain quarters. Yet there is no doubt that the stress of competition, particularly of competition against the industry and the enterprise of the trained men of other nations, is gradually forcing to the front the sentiment in favour of a rational and scientific training for the manufacturer and for the engineer. As William Watson, in his "Ode on the Coronation," wrote in a yet wider sense of England:—

For now the day is unto them that know,  
And not henceforth she stumbles on the prize;  
And yonder march the nations full of eyes.  
Already is doom a-spinning. . . .

Truly the day is "unto them that know." Knowledge, perfected by study and training, must be infused into the experience gained by practice; else we compete at very unequal odds with the systematically trained workers of other nations. Nor must we make the mistake here in the organisation of our technical institutions of divorcing the theory from its useful applications. In no department is this more vital than in the teaching of mathematics to engineering students. For while no sane person would deny that the study of mathematics for the sole sake of mathematics, even though it leads to nothing but abstract mathematics, is a high and ennobling pursuit, yet that is not the object of mathematical studies in an engineering school. The young engineer must learn mathematics not as an end in itself, but as a tool that is to be useful to him. And if it is afterwards to be of use to him, he must learn it by using it. Hence the teacher of mathematics in an engineering school ought himself to be an engineer. However clever he be as a mathematical person, his teaching is unreal if he is not incessantly showing his learners how to apply it to the problems that arise in practice; and this he is incapable of doing if these problems do not lie within his own range of experience and knowledge. Were he a heaven-born senior wrangler, he is the wrong man to teach mathematics if he either despises or is ignorant of the ways in which mathematics enter into engineering. The fact is that for the great majority of engineering students the mental training they most need is that which will enable them to think in physics, in mechanics, in geometric space, not in abstract symbols. The abstract symbols, and the processes of dealing with their relations and combinations, are truly necessary to them; but they are wanted not for themselves, but to form convenient modes of expressing the physical facts and laws, and the interdependence of those physical facts and laws. When the student loses grip of the physical meaning of his equations and regards them only as abstractions or groupings of symbols, woe betide him. His mathematics amount to a mere symbol-juggling. This is how paper engineers are made. The high and dry mathematical master who thinks it beneath him to show a student how to plot the

equations  $y=A \sin x$ , or  $r=b \sin \theta$ , or who never culls an example or sets a problem from thermodynamics or electricity, must be left severely on one side as a fossil. Better a living Whitworth scholar than a dry-as-dust Cambridge wrangler. He at least knows that elasticity is something more real than the group of symbols  $E=p \div \frac{\Delta x}{x}$ , which any

mathematician may "know," even though he be blissfully ignorant whether the force required to elongate a square inch bar of steel by one one-millionth of its length is ten ounces or 10 tons.

One evidence of the wholesome change of opinion that is springing up concerning the training of engineers is the abandonment of the system of taking premium pupils into works with no other test or qualification than that of the money-bag. Already many leading firms of engineers have been finding that the practice of taking sons of wealthy parents for a premium does not answer well, and is neither to their own advantage nor in many cases to that of the "pupil," whom it is nobody's particular business in the shops to train. Premium pupilage is absolutely unknown in the engineering firms of the United States or on the Continent of Europe. The firms who have abandoned it are finding themselves better served by taking the ablest young men from the technical schools and paying them small wages from the first, while they gain experience and prove themselves capable of good service. Messrs. Yarrow & Co. have led the way with a plan of their own, having three grades of apprenticeship, admission to which depends upon the educational abilities of the youths themselves. Messrs. Siemens have adopted a plan of requiring a high preliminary training. The Daimler Motor Company has likewise renounced all premiums, preferring to select young men of the highest intelligence and merit. Messrs. Clayton & Shuttleworth have quite recently reconstructed their system of pupil-apprenticeship on similar lines. The British Westinghouse Company and the British Thomson-Houston Company have each followed an excellent scheme for the admission of capable young men. Even the conservatism of the railway engineers shows signs of giving way; for already the Great Eastern Railway has modernised its regulations for the admission of apprentices. What the engineering staffs of the railway companies have lost by taking in pupils because of their fathers' purses rather than for the sake of their own brains it is impossible to gauge. But the community loses too, and has a right to expect reform.

To this question, affecting the whole future outlook of engineering generally, a most important contribution was made in 1906 by the publication by the Institution of Civil Engineers of the report of a committee (appointed in November 1903) to consider and report to the Council upon the subject of the best methods of education and training for all classes of engineers. This committee, a most influential and representative body consisting of leading men appointed by the several professional societies, the Institutions of Civil, Mechanical and Electrical Engineers, the Institution of Naval Architects, the Iron and Steel Institute, the Institution of Gas Engineers, the Institution of Mining Engineers, the two northern societies, was ably and sympathetically presided over by Sir William H. White. Its inquiries lasted over two years and included the following sections:—(1) Preparatory training in secondary schools; (2) training in offices, workshops, factories, or on works; (3) training in universities and higher technical institutions; (4) postgraduate work. The findings of this committee must be received as the most authoritative judgment of the most competent judges. So far as they relate to preparatory education they suggest a modernised secondary school curriculum in which there is no one specialised scientific study, but with emphasis on what may be called sensible mathematics. They also formulated one recommendation so vital that it must be quoted in full:—

"A leaving examination for secondary schools, similar in character to those already existing in Scotland and Wales, is desirable throughout the United Kingdom. It is desirable to have a standard such that it could be accepted by the Institution [of Civil Engineers] as equivalent to the studentship examination, and by the universities and colleges as equivalent to a matriculation examination."

One may well wonder why such a reasonable recommendation has not long ago been carried out by the Board of Education. Perhaps it has been too busy over the religious squabble to attend to the pressing needs of the nation.

The second set of recommendations relates to engineering

\* From the address by Professor Silvanus P. Thompson, D.Sc., to the Engineering Section of the British Association.



training. It begins with the announcement that "long experience has led to general agreement among engineers as to the general lines on which practical training should proceed," but goes into no recommendations on this head beyond favouring four years in workshops, on works, in mines, or in offices, expressing the pious desire that part of this practical training should be obtained in drawing-offices, and suggesting that during workshop training the boys should keep regular hours, be subject to discipline and be paid wages. It then lays down a dozen recommendations as to the "academic" training suitable for the average boy. He should leave school about seventeen; he should have a preliminary year, or introductory workshop course of a year, either between leaving school and entering college, or after the first year of college training. If the workshop course follows straight on leaving school there must be maintenance of studies either by private tuition or in evening classes, so that systematic study be not suspended. For the average student, if well prepared before entering college, the course should last three academic years (three sessions); in some cases this might be extended to four or shortened to two. A sound and extensive knowledge of mathematics is necessary in all branches of engineering, and those departments of mathematics which have no bearing upon engineering should not claim unnecessary time or attention. The committee strongly recommends efficient instruction in engineering drawing. The college course should include instruction (necessarily given in the laboratory) in testing materials and structures, and in the principles underlying metallurgical processes. In the granting of degrees, diplomas and certificates, importance should be attached to laboratory and experimental work performed by individual students, and such awards should not depend on the results of terminal or final examinations alone.

All this is most excellent. It will be seen that it is entirely incompatible with the premium-pupil system, which may therefore be regarded as having been weighed and found wanting. For two things clearly stand out—that the young engineer must be college-trained, and that when he goes to works he should be regularly paid. It would have been well if the committee could have been more explicit as to the proper course of workshop training; for instance as to the systematic drafting of the young engineer through the shops—forge, foundry, pattern shop, fitting shop, &c., and as to the proper recognition of the duty of the shop foreman to allocate work to the novice in suitable routine. These are doubtless among the matters in which "long experience has led engineers to general agreement." But this being so, it would have been well to state them authoritatively. A notable feature of this report is its healthy appreciation of the advantages of training, and an equally healthy distrust of the practice of cramming for examinations. So soon as any subject is crammed, it ceases to afford a real training. "Nature provides a very convenient safety-valve for knowledge too rapidly acquired." It is even whispered that a new species of crammer has arisen to "prepare" candidates in engineering for the graduate examinations of the Institution of Civil Engineers. The distinguished framers of this epoch-making report on the education and training of engineers at least give no countenance to any such parasitical development. For the scheme of education and training at which the committee has aimed is genuinely scientific, a happy federation of the theoretical with the practical. It seeks to place the training on a broad basis, and to secure to every future engineer worthy of the name the advantage of learning his professional work in both its aspects. It seeks, in short, to take advantage of that reflex action between science and its applications in which lies the greatest stimulus to progress. Its adoption will utilise for the young engineer, and therefore for the engineering industry as a whole, the facilities for training now so widely afforded throughout the country. If the institutions, schools and colleges where engineering training is offered are but rightly developed and co-ordinated, the engineers of Great Britain need have no fear as to holding their own against the trained engineers of other countries. It is for the employers to make use of these institutions, and to show that sympathetic interest in their efficiency which is essential to their full success.

The University of Sheffield authorities invite applications before August 17 for the post of master and lecturer in charge of the department of architecture, at a salary of 200*l.* a year. The successful applicant will have to devote his entire time to the work.

## THE AMERICAN INSTITUTE OF ARCHITECTS.\*

IN the early history of our country young architects' talent came across the water to try their fortunes, and all carpenters were students who studied the various work on the orders. It was not many years before the supply of educated men ceased to equal the demand, and the builders apparently discarded all precedent and produced nothing that was beautiful, although, in most instances, it was not. This gradual decline culminated in the most debased period of architecture between 1850 and 1860. The educated men in the larger cities knew little of each other's aspirations and desires. The fear of unjust and improper treatment by other practitioners seems to have been widespread. No standard of fees or of ethics was recognised. The profession was not recognised in the community, the fine arts were thought of little importance, and constructors and carpenters as practical men were thought far superior to the architect.

Appreciating the state into which their beloved art had fallen a number of young men in New York city, after many consultations, determined to organise an association for the advancement of architecture. Their ideals were high. They were zealous and enthusiastic, and in love with the art.

The following architects—Richard Upjohn, Edward Gardiner, H. W. Cleaveland, Wray Mould, Leopold Eidlitz, Henry Dudley, Fred A. Petersen, Charles Babcock, Joseph C. Wells, Richard M. Hunt, John Welch, J. W. Priest—met to consider the propriety of organising a society of architects on Monday, February 23, 1857. They determined that such an organisation was necessary and invited Calvert Vaux, John Davis Hatch, John W. Ritch, Frederick C. Withers, Frederick D. Diaper, Joseph Sands, Thomas U. Walter, George Snell, Edward C. Cabot, Alex. J. Davis, William Backus, James Renwick, jun., R. G. Hatfield, Samuel Warner, Detlef Lienau, Arthur Gilman, Alpheus C. Morse, Thomas A. Tefft, to join with them in establishing the American Institute of Architects, and formulating the constitution. This was completed and signed April 1857. Richard Upjohn was elected president and Richard M. Hunt secretary.

The names of the founders, few of whom did not become famous in after years, deserve to be remembered and honoured by all present practitioners. When the organisation was completed the names of architects residing in New York and other cities of the country were canvassed, and only twelve architects were found whom it was thought advisable to invite to join the new Society.

The civil war came upon the country in 1861, and building and architecture gave way, as all other peaceful occupations did, to war and strife, and the Institute ceased holding its meetings until 1864. From this period until 1889 the progress of the Institute was slow; while its tangible accomplishments did not equal the aspirations of its founders, its intangible results were many and far-reaching. There was a steady growth in good-fellowship, the purity of motives of the profession became more apparent, the appreciation of the aspirations and endeavours in others led to higher aspirations and ideals. The Institute encouraged investigation and reports on construction and building topics by publishing the results of such study and research. It encouraged the highest attainments and urged a school education in architecture. Because of its encouragement and assistance the first architectural sketch-books and journals were started in the country. It made an aggressive and constant fight on improper competitions. It established a schedule of fees for architectural services. It began a library and subscribed for foreign architectural journals. Chapters were established in New York in 1867, in Philadelphia and Chicago in 1869, in Boston, Cincinnati and Baltimore in 1870, in San Francisco in 1881, in Indianapolis, Washington City, Michigan and Central New York in 1887.

The effort of the Institute to induce the Government to employ the best available talent began in 1874, by the introduction of the Field Bill, through J. L. Smithmeyer in the Forty-Third Congress. These efforts continued without apparent success, but undoubtedly each effort left its mark, and the success of to-day would not be without the early and continued efforts on the part of the Institute and its members.

The Institute began the publication of its annual proceedings in 1867. The papers read at the various conventions form a true index of the architectural practice of the

\* From a paper by Glenn Brown, secretary and treasurer.



period, many of them showing the most advanced thought the time; the early proceedings are out of print, and are in demand by libraries and institutions.

The active government of the Institute during this period was vested in a board of trustees, fifteen in number. New members were admitted as associates, with few exceptions where applicants were admitted as fellows without probation.

During this period Mr. Richard Upjohn served as president nineteen years, Mr. Thomas U. Walter ten years, and Mr. Richard Morris Hunt one year; and the following members acted as secretary:—R. M. Hunt, Henry van Brunt, Jas. D. Gambrill, Emlen T. Littell, Fred C. Withers, Russell Sturgis, jun., Peter B. Wight, Carl Pfeiffer, A. J. Root, Chas. F. McKim, Henry M. Congdon and Geo. C. Mason. The treasurers were J. W. Ritch, J. G. Wells, G. Hatfield and O. P. Hatfield.

In the year 1884 the Western Association of Architects was organized. This organization, engineered by the energetic young men of the Middle West, soon had a large membership. It was not long before the fact was appreciated by the two societies that there should be only one association of practising architects in the country, and in 1889 at the convention in Cincinnati the two associations were merged into one, holding the charter and name of the older association. The constitution was materially changed, the new government consisting of twenty-four directors, from which an executive committee of five was selected, with the president and secretary *ex officio* members of this committee. The chapter organization of the older society was retained and the grade of associate was abolished. The members of the Western Association became members of the American Institute of Architects in a body, and all were admitted as fellows and all associates of the Institute were advanced to a fellowship. Richard M. Hunt was elected president, and John W. Root was elected secretary. Under the revised constitution the president was only allowed to serve two continuous years. The membership of the Institute was materially increased by consolidation—the old membership of 338 members was increased to 476. The good feeling between the architects of the whole country was strengthened, and the good work of the Institute continued. The additions to the chapter list during this period were Buffalo, St. Louis, Kansas City and Cleveland in 1890; Pittsburg, Central Ohio in 1891; Worcester, Southern Chapter, Minnesota and Colorado in 1892; Southern California, Washington State and Brooklyn in 1894.

The effort to improve the character of Government architecture was continued by the submission to Congress of the Adams Bill, 1890, and the recommendation of J. H. Lindrum of 1891. The Tarsney Bill was introduced April 11, 1892, and passed on April 14, 1893, but its operation being left to the discretion of the then Secretary of the Treasury, Mr. J. G. Carlisle, he refused to put it into effect. The Institute, through its officers and various committees, made strenuous efforts to overcome his objections or prejudice against the law. Mr. D. H. Burnham, the president of the Institute, actively managed this movement. Upon the suggestion to the secretaryship of Mr. Lyman J. Gage, the matter was brought to his attention, and the Institute found in him a man broad enough and with sufficient artistic as well as business perception to see the advantage that would accrue to the Government and to his administration and help the law in operation. A sufficient number of buildings have been erected or designed to prove the great advantage the law has been to Government architectural work, as well as to demonstrate the service rendered the community and the profession by the efforts of the Institute.

The various chapters of the Institute have been called to consultation with municipal authorities when formulating regulations relating to building or municipal art. Many chapters urged their State legislatures to enact laws governing the practice of architecture. Laws licensing or regulating the practice of architecture have been passed by the States of Illinois, California and New Jersey.

During this period Richard M. Hunt, E. H. Kendall, D. H. Burnham and George B. Post were the presidents, and the secretaries were John W. Root, Dankmar Adler and Fred Stone. The treasurer was S. A. Treat. Although the membership of the Institute decreased from 1889 to 1899 from 473 members to 400, its prestige, notably for work in securing the passage of the Tarsney Act, the character of the papers read, and in the organization of an International Congress of Architects in connection with the Columbian Exposition, 1893, added materially to the standing and influence of the Society.

#### *Government by Delegates.*

At the convention of 1898 the constitution was materially modified. After that period all conventions were to be composed of delegates from the various chapters in proportion to the members of the Institute belonging to the chapter. The board of directors was reduced from twenty-four to nine in number. The grade of associate members was re-established and new members were required to enter through this grade. The outcome of the changes in reference to delegates and associates has proved the wisdom of this action.

It was an early custom of the Institute to hold its conventions in various sections of the country. The first, second and third conventions were held in New York in 1867, 1868 and 1869, and the same city has had the thirteenth and fourteenth, 1879 and 1880, the twentieth in 1886 and the twenty-eighth in 1894.

These conventions have always had interesting topics for the profession before them. They have been the means of social intercourse, and have given an opportunity for the members of the profession from various parts of the country to become acquainted with each other and interchange views on practical and professional topics, which have undoubtedly been of advantage to the profession at large. Many valuable papers have been read and questions of value to the architectural profession formulated and settled.

Since the establishment of the delegate system the character of the papers and the objects attained have made the Institute a notable factor in the advancement of questions pertaining to architecture.

Many conventions have been notable because of the movements initiated or of the work accomplished.

The members of the Institute have been peculiarly happy in their selection of presiding officers. The list of past presidents includes the men most notable in the profession at the time they served, but few of their names are destined to die when the architectural history of this country is written.

Richard Upjohn—1857 to 1876. Most active in the foundation of the Institute and earnest in his ideals of beauty and practice. He was the most noted among the architects of the Gothic revival and has left many examples full of ecclesiastic spirit and picturesque beauty. The dignity and beauty of Trinity Church is an all-sufficient monument to his name.

Thomas U. Walter—1877 to 1887. One of the founders of the Institute, a noble looking man whose appearance was an index to his character and work. A master in Classical architecture, he gave us Girard College, and showed his breadth and wisdom in adding the dome and wings to the Capitol, adding beauty and life and giving future generations one of the great architectural monuments of the world.

Richard M. Hunt—1888 to 1891. He was a founder of the Institute, affable and charming in his personality, enthusiastic and persistent in all that pertained to the advancement of his beloved and allied arts, unrivalled in this country for his treatment of buildings in the French chateau style, honoured abroad by election as honorary corresponding member in the Société Centrale des Architectes, the Royal Institute of British Architects, Chevalier of the Legion of Honour, and Gold Medallist of the Royal Institute of British Architects. His administration building at the Columbian Exposition, and Biltmore in North Carolina and other notable residences will carry his name to future generations.

Edward H. Kendall—1892 and 1893. He was always zealous, painstaking and enthusiastic in his work for the Institute for thirty years, endeared to all who knew him by his charm of manner, never tiring or discouraged. To him must be given largely the credit of securing the passage of the Tarsney law, the administration of which is producing such successful results.

Daniel H. Burnham—1894 and 1895. He has been noted for his executive ability and thorough grasp of broad artistic effects combined with utilitarian results. The breadth of his character and the power of his executive ability was shown in the management of the Columbian Exposition in Chicago in 1893. This will remain one of the ideal architectural achievements of the age, and the completed result will be remembered as his achievement. His work on the Park Commission of Washington, Manila, San Francisco and other cities, the Pennsylvania Railway Station in Washington, and many great business structures will make his name memorable.

George B. Post—1896 to 1898. He has been a zealous worker in the Institute for forty years. When the



magnitude of his business interests are remembered, it will be seen that he has shown a disinterested zeal for the advancement of the profession that is rare. He has been honoured by election as honorary corresponding member of the Royal Institute of British Architects, Chevalier of the Legion of Honour, and member of the permanent committee on International Congress of Architects. He will be remembered for his many large and costly business and residence structures as well as for the manufacturers' building at the Columbian Exposition, the college of the city of New York and the Stock Exchange of New York.

Henry van Brunt—1899. A member of the Institute in 1857. He constantly and faithfully served the best interests of the Association from that time until his death in 1903. His charm of manner has endeared him to all with whom he came in contact. His work has extended from the East to the West, and shows education and refinement. His various essays on architectural subjects are charming as bits of literature and valuable as works of reference.

Robert S. Peabody—1900 and 1901. His name has been honoured by the profession for twenty-five years as representing high ideals in practice, consideration for the rights of others, and refinement and culture in design. He has endeared himself to the members of the Institute by his never-failing courtesy, consideration and efficient management in the executive office. His many residences and business structures, his work at the Columbian and Buffalo Expositions, and his connection with the municipal improvement of Boston will always be remembered as among the artistic achievements of the times.

Charles F. McKim—1902 and 1903. He has been known for years, and will continue to be remembered in the architectural history of the country for ability in massing and grouping, care and beauty in detail and refinement, harmony and conservatism in his completed structures. He has been honoured abroad by election as honorary corresponding member and Gold Medallist of the Royal Institute of British Architects. He will be remembered in history by the Boston Public Library, the Columbia and Virginia Universities, the agricultural building in Chicago, the charming restoration of the White House, and the effective and monumental designs for the future development of Washington city, as well as for the establishment of the American Academy in Rome for advancement of architectural study.

William S. Eames—1904 and 1905. He represents the high achievements attained in the Mississippi Valley. His administration was memorable for broad and comprehensive business methods and unflinching attention to his duties. He will be remembered for his efficient action in preserving the Mall from the encroachment of the agricultural building and guiding the proposed additions to the Capitol. He has been honoured by election to the permanent committee on international congresses. His name will be remembered through many commercial structures, the United States Penitentiaries at Fort Leavenworth and Atlanta, the United States Custom House in San Francisco, his building at the St. Louis Exposition, and his connection with the group plan of St. Louis.

#### *The Future of the Institute.*

Mr. Thomas U. Walter said years ago:—"The improved and improving condition of architecture (in America), by which its standing as a fine art is developed, its field of design expanded, and its power to elevate and purify the public taste made manifest, is the result, directly or indirectly, of the labours and influence of the American Institute of Architects."

The membership, both in numbers, character and standing, has now reached such a point that the opportunity of the Institute for good and successful accomplishments is greater than it has ever been.

As it has always striven it will continue to strive for a more perfect attainment of the ideal in design, advancement in education, improvement in competitions, or the final abolishment of such sources of worry, improvement in practice and ethics, treatment of landscape in harmony with buildings, and municipal and city improvements. With increased membership and added prestige its opportunities for good should be far greater in the future than in the past.

The Mrs. Craigie Memorial Committee have decided to entrust to Mr. Alfred Drury, A.R.A., the commission for a portrait plaque of the novelist, a replica of which will be sent to the United States.

#### EXCAVATIONS AT SPARTA IN 1907.

IN a paper read before the British Association by R. Dawkins, M.A., director of the British School of Archaeology, Athens, he said the work of this season comprised (1) the further excavation of the sanctuary of Artemis Orthia, (2) the partial excavation of the sanctuary of Athena Chalkioikos and (3) the tracing of the course of the city wall.

(1) The buildings of the Orthia site are at a temple probably in the sixth century B.C. and lasting on until the third century A.D., although rebuilt during the Hellenistic period. Secondly, a Roman theatre, built at the end of the second or beginning of the third century A.D., in which the façade of the temple was included, occupying the position of the stage building. The Roman theatre has now been completely cleared. In the arena or orchestral area were found the remains of the altar, built at the same Roman period as the theatre itself. Beneath this altar were blocks that belonged to the altar of Hellenistic times, and in connection with them a deposit of burned refuse from sacrifice and some late Greek sherds and terra-cottas.

More than a metre below the Hellenistic level a deposit of archaic Greek objects was reached; this has now been cleared down to solid earth all over the arena and inside the temple. Above the archaic deposit was a layer of sand which had been brought from the river to raise the level when the temple was built—probably, to judge from the objects found in the sand, about the middle of the sixth century B.C. The deposit below the sand is in parts much as a metre thick, and ranges in time from the eighth or possibly the ninth, century to the middle of the sixth century B.C. Very near the bottom of this structure is a cobble pavement on which stands a large altar built of stones in regular courses. This altar is directly below the Hellenistic and Roman altars. The temple that existed contemporaneously with this altar has not yet been found but there are indications that its remains are below the foundations of the Roman building. The archaic altar was surrounded by a mass of burnt matter, amongst which were a quantity of fragments of burnt bones. The archaic deposit contained a great quantity of small objects and pottery. It was dug in layers, with the result that at the lowest levels no pottery except geometric was found; above this geometric was mixed Protocorinthian and ware akin to Corinthian, whilst at the highest level nothing but this last kind occurred. With the pottery were found a large number of small bronzes, pins, fibulæ and animals, lead figurines and carved ivory. These latter were either small figures of animals or men in the round, seals with devices cut in intaglio, plaques with scenes carved on them in relief. Many, if not all, of these plaques were fastened by bronze rivets on to the front of fibulæ. The subjects represented on them comprised male or female winged figures grasping birds, a warrior stabbing a gorgon, a dead man on a bier, a ship with full rigging and crew, sphinxes, a man on horseback, and other Jewellery, engraved gems, terra-cotta figurines, some representing probably the image of the goddess, fragments of terra-cotta masks, and other objects were also found. The occurrence of amber, in view of the northern origin of the Dorians and its rarity on classical sites, is of great interest.

Thus the cult of Orthia began in the earliest times with a large altar. This altar was covered up when the temple corresponding to it was destroyed in the sixth century and a new temple built a little way off. In Hellenistic times this temple was rebuilt, but lasted on on the same site until the end of paganism. Under the late Empire it was surrounded by a theatre, from which the rites performed in front of it could be conveniently witnessed. The altar always was in the same place, which it occupied with ever rising level for at least 1,100 years.

(2) The sanctuary of Athena Chalkioikos was found behind the theatre on the Acropolis Hill. A mass of geometric pottery shows that this sanctuary also goes back to a very early period. The building itself was much destroyed, but the finds were important. A very fine Panathenaic amphora, bronze statuettes and a large archaic inscription were found.

(3) The work of tracing the course of the ancient city wall was continued. This has again been done largely by the discovery of tiles stamped with the information that they were public tiles used for the walls. The name of the tyrant Nabis found on some of them connects the building of the wall with him. In a few places the actual wall has been found with remains of towers.



In looking for the Agora some Hellenistic tombs were found, well built of ashlar and containing vases and discs of stout gold-leaf chased with patterns of wreaths and flying birds.

The other members of the expedition were Messrs. G. Dickens, J. P. Droop, H. J. W. Tillyard, A. J. B. Wace and A. Woodward. The architectural drawing was undertaken by Mr. George and the surveywork by Mr. W. Sejk.

### LADY STAIR'S HOUSE, EDINBURGH.

ONE of the old houses remaining in Edinburgh is known as Lady Stair's, from the Close in which it stands. It was erected in 1622 by Sir William Gray, of Pittendrum, and it is known from the lintel, on which is inscribed "Fear the Lord & depart from Evil.—W. G., 1622." He was a royalist, and a fine of 100,000 marks was entered against him for corresponding with Montrose. A daughter of Gray married Sir Archibald Primrose, and in that way it passed to the Rosebery family. The Lady Stair having married the first Viscount Primrose afterwards resided in the house, and the Close in the Lawnmarket was called after her. Scott's weird story, "My Aunt Margaret's Mirror," is founded on an incident in her life. In a letter to the Lord Provost of Edinburgh on the 16th ult. Earl Rosebery wrote:—"I have always intended to offer Lady Stair's house to the city of Edinburgh, and have so disposed of it in my will. But as I think it might be made immediately suitable for the purpose of your Municipal Museum, I am anxious to place it at once at your disposal—and in the ownership of the Town Council, should they do me the honour to accept it. It will be a very inadequate mark of the loyal affection and gratitude I feel for Edinburgh."

The house was restored by Lord Rosebery in 1897. His architect was Mr. George Shaw Aitken, and the form it has now assumed, says the *Scotsman*, may be accounted for by the fact that there was an idea that it might be used by Lord Rosebery himself as a lodging when he was in Edinburgh. That, of course, was never carried into effect. As Chambers says, the house has undergone a good many transformations from the time it was originally built, but in its restoration as many of its original features as could be discovered were preserved in fitting the building to resemble a town mansion of the seventeenth century. Two wings had been added to the original house on the south side and on the north side, the latter completely hiding the main building from view. Both were removed at the time of the restoration so as to open up the house to light and air. When the adjoining James Court block was erected some time in the eighteenth century two flats had been added, each containing two handsomely-panelled rooms, and these have been retained. The house can now be seen from North Bank Street in a gap between two tall tenements—that on the west side being eight storeys—over the roof of a portmanteau-making establishment of two flats. The original moulded doorway is still extant. It has over it the inscription mentioned in the opening sentence of this article. The original stair-angle tower is octagonal in form, and it has now been carried up beyond the wall head, and finished with a corbelled balcony and bell-shaped roof. This is a prominent architectural feature of the elevation. The southern face of the house is entirely new, a feature of it being a balcony at the upper flat. On the east side we have the original walls, and there is an original long window carried through three floors, with gablet, the finial of which is an old stone found at another part of the building, on which is carved the fleur-de-lys. Underneath a tall chimney-stalk, on the upper side of this window, is an ornamental panel recording the date of the erection of the building and that of its restoration, with the Stair and Rosebery arms in medallions in the centre. The north front is also entirely new. It shows the windows of the dining hall on the lower level, and above, enclosed in a long recessed arch, the windows of the upper flats, one of which has a balcony. It is finished with gable with crow-steps, and flanked by two tall chimney-stalks, on which respectively occur the letters "S" and "R"—for Stair and Rosebery. The walls are of rubblework, and the jambs of the windows and the corners of the towers and other angles are of dressed ashlar—some of it dating from the erection of the house. Internally, the house consists of the basement, transformed into a modern kitchen, the dining hall, practically on the Close level, rising through two storeys, and two flats of rooms above. The basement is connected with the flat above by two original stairs. A fine feature has been made of the dining hall, which

is between 30 and 40 feet in length by 15 feet in width. Note may be made of the old-fashioned open fireplace in the right wall, which has been fitted with the original pillared jambs and lintel. On it has been carved a pious inscription characteristic of the period—"Blissit be God for all His gifts." It may be noted that at different parts of the hall appear painted mottoes of various kinds, also culled from old Edinburgh houses. In the north window is stained glass, with the Stair and Rosebery arms. Hard by this window is a small fireplace, with wooden mantel of the Adams period. On the left side of the room is an open balustraded balcony in wood, which had to be made to give a connection with the west side of the house, but which forms a decorative feature of the hall. The ceiling in plaster is panelled, with wooden ribs, and in the centre of the compartments are appropriate devices in colour. The upper floors are reached by a circular stone stair ("a turnpike"), but there is nothing associated with them calling for any special remark. On the third floor the rooms are larger than those on the flat above. A room to the north, with balcony, had been specially set apart as Lord Rosebery's bedroom, and from it a splendid view can be obtained of part of the New Town, the Firth of Forth and Fife.

Two interesting points may be noted—that the wine bins of the original house were built of Dutch bricks, and that a device of two clasped hands (symbolical of the joining of hands across the centuries by the restoration of the house) on one of the outside panels was copied from a lead fire-plate found outside one of the upper windows. It was of the date 1720, and was one of the plates of the Friendly Insurance Society of Edinburgh, the first Scottish fire insurance office.

At present the house is occupied as temporary offices of the United Free Church, and will no doubt remain so until the new church offices in George Street are ready.

### NEW USES FOR REINFORCED CONCRETE.

SO many papers have been read of late discussing the general principles governing the design of reinforced concrete structures and describing works of familiar character in which reinforced concrete has been adopted as the material of construction, that Mr. W. Noble Twelve-trees thought it well to follow a less frequented path. Under the heading of "New Uses for Reinforced Concrete," read before the British Association, he considered some types of construction that have not yet been applied in this country, others that have been adopted only recently and others again that are not new in themselves, but are very suitable for employment in novel directions.

In the first category may be placed such constructions as railway sleepers, standards for overhead electric cables in power transmission and electricity distribution systems, and poles for telegraph and telephone wires. The paper contained particulars relative to the design, construction and application of such accessories as these, which are now coming into general use on the Continent and in America.

In the second category was considered the employment of reinforced concrete in dock engineering, as illustrated by the Scotstoun Dock on the Clyde—the first example of its kind in Great Britain; of coast defence and harbour-works, as illustrated by the sea wall and protective slopes at West Hartlepool, groynes near Brighton and a breakwater near Waterford; and of long-span bridges for main-line railway traffic and for crossing important rivers, as exemplified by typical structures in this and other countries.

In the third category the author indicated the special advantages to be obtained by the adoption of reinforced concrete as a material for the construction of railway station roofs, locomotive depôts and bridges over railway lines. In all such structures steelwork is particularly liable to corrosion by reason of its exposure to steam and destructive gases from locomotive engines and boilers. To illustrate the adaptability of reinforced concrete to these new uses, the author gave brief particulars of roofs that are akin to those generally built in steel for covering railway stations, of a locomotive depôt erected on the Jura-Simplon line and of highway and footbridges over railway lines.

Finally he alluded to the method successfully adopted on the Continent for preserving steel bridges by encasing them in concrete, a course that is commended to the attention of railway companies and highway authorities in places where the corrosive effect of locomotive fumes is a constant source of trouble and expense.



## EGYPTIAN SOUL-HOUSES.

AN address was delivered before the British Association by Professor W. M. Flinders Petrie on Egyptian soul-houses and other discoveries made in Egypt in 1906-7. He said that the existence of pottery models of houses for the soul had been known from stray examples scattered in museums, but their date and use had been alike unknown. Last winter the British School of Archæology in Egypt, working at Rifeh, near Asyut, disclosed a long series of such models which had shown the gradually increasing complexity of the type of houses that were copied. The whole period of these soul-houses was probably of the tenth to twelfth dynasties, about 3600 to 3300 B.C. The variety of form could not be due to development of the dwelling during that time; but all the forms of dwelling were used for different purposes simultaneously, and more complex forms were being copied in each generation for the soul-house. The development of this custom appeared to have been in the following order. At first, from the prehistoric age to the fifth dynasty, a mat was laid on the grave with a pan of food upon it. Then, afterwards, this offering was carved in stone, from the third dynasty onward, as a table of offerings to give permanent satisfaction for the soul. The stone table was then copied as a pottery tray of offerings by about the tenth dynasty. To the tray was next added a shelter, copied from the Bedawy tent, next a shelter on columns, then a hut was put into this portico, then chambers were copied, wind openings were then added, roof-courts followed, and then verandahs on the roof; next appeared complete two-storey houses, and these, lastly, were furnished with pottery models of couch, chair, stool, fireplace, water jars, and the figure of a woman making bread. This class of models was not in series with the wooden models of servants, granaries, &c. Such were part of the servitor provision placed in the grave. These pottery houses were the provision for the use of the soul itself placed upon the grave, to keep the soul satisfied, and prevent it from wandering back to the village. The interest in psychology was in showing that the soul was conceived of as ascending from the grave through the ground and needing shelter while feeding on its everlasting provision; and that, though it ascended through the earth, yet it needed a staircase to go up to the upper floor, and that the soul had a donkey for which a manger was required. More strictly one should say that these models illustrated the way in which the Egyptian copied and combined things that were logically quite incompatible. Given the premise that the soul had needs in future, like those of the present, then the provision for present comfort was copied without further thought as to its compatibility. From another point of view these models showed the varieties of the peasants' dwellings, some merely as shelters for the day in the fields, others such as were used for a month or two of the pasture season, and the more complete, such as belonged to village or town life. The portico or verandah was the most essential part, and this agreed with its being universal for the house of the god—the temple, and for the eternal house—the tomb. Another constant feature was the tank in the courtyard, as in Oriental houses at present, and as in the houses contemporary with those models at Kahun. In some cases the courtyard wall was crowned by serrations or piles of brick along the top, and a similar finish to the walls might be seen in the tombs of the modern cemetery of the same place.

## SOUTERRAINS IN ULSTER.

THE souterrains described by Mrs. Hobson in a paper read before the British Association are for the most part situated in the two counties of Antrim and Down. The materials are rough, undressed field stones, no mortar being used. The buildings display great diversity in plan, some being merely oblong chambers and long passages; others crescent-shaped, some resembling the letter F, the same letter without the middle stroke (Γ), an inflated stocking, an uneven capital W, &c., and some are circular.

Greater variety of construction occurs in Antrim than in Down. In the former, two described were scooped out of basaltic ash; in others, rocks *in situ* were used and filled in artificially; in some tunnelling had been done in harder rock. The entrances are small, but the tiny doorways between one chamber and another are even of more diminutive dimensions—great numbers being too small to admit the average-sized man—a person having to lie down flat in order to get through, and even then the width will not

allow other than the shoulders of a woman or boy to pass through.

Tradition assigns the souterrains and the raths in which so many of them occur to the "fairies," the "good people," the "Danes"—and by the latter is meant the Tuatha da Danaan, who are said to have lived in Ireland before the Celts. This race is always described as a small people. It seems impossible that any but a small people could have built and used the souterrains.

The souterrains in co. Down run to a greater length than those of co. Antrim; many are over 100 feet. Ardtole is 108 feet long, Rathmullan 120 feet, Slieve-na-Boley 128 feet. Heights of chambers vary from less than 3 feet to 6 feet and even 8 feet, but it is more usual to find them about 5 feet. The heights of the chambers of one at Shankbridge are as follows:—First chamber, 3 feet 9 inches; second chamber, 4 feet 6 inches; the last about 3 feet, one of the "doorways" being 17 inches square.

At Donegore and Ballymartin, in Antrim, are two caves scooped out of basalt ash. The former is 29 feet 3 inches long; the latter has a total length of 44 feet 6 inches. The stones which form the roof are very large. Their preservation in such numbers can be accounted for partly by being underground, but chiefly by the superstitious reverence with which they have always been regarded.

The structures are quite dark, of an even temperature, usually very near the surface, which accounts for many being accidentally discovered, the plough often displacing one of the covering stones. They are not oriented, yet few entrances can be successfully photographed during the middle of the day, and, in addition, they are so cunningly constructed and concealed as to be in most cases very difficult to find. In these counties the roofing stones are very large, while further south occurs a circular type, with overlapping courses and closed with a single stone, as in some of the tumuli, both sorts determined, no doubt, by the materials lying close to hand.

Very frequently a variety of monuments of early man are found in the vicinity—standing stones, cromlechs, kistvaens, and occasionally kitchen-middens. The only ogham inscription found in Ulster was discovered in a souterrain at Carncomb, Connor, by the Rev. W. P. Carmody, B.A.

Detailed measurements were given, with plans, of the following:—Knockdhu, Cullybackey, Tannybrack, Fort Hill, Lisnataylor Fort, Crebilly, Shankbridge, Fort of Ross, Muckamore, Donegore, Ballymartin—all in Antrim; and Ballygrainey, Backaderry, Clannagery, Slanes, Lough Boley, in Down, &c., and one at Lucan, in co. Dublin.

## TEN YEARS OF REGISTRATION.

A COMMUNICATION received by the Chicago Architects' Business Association requested answer to a list of questions concerning the practical workings of the Illinois license law during its ten years of operation. The answers embrace the information and observation of the secretary of the Illinois Board of Examiners of Architects, Mr. Peter B. Wight, and therefore are authoritative. The questions and answers are as follows:—

## Questions.

1. Did your Association favour registration or licensing of architects before the law was passed in your State?
2. Do you favour such legislation in principle now?
3. In the operation of the law in your State as you have seen it, how has the law benefited the public?
4. How has the law benefited the profession?
5. If you favour a registration law in principle what features of your law, if any, would you wish to see changed?

Any concrete instances of the effects or working of the law which have come to your knowledge would be of value.

## Answers.

Answering the queries in order:—

1. Our Association was originally organised for the express purpose of securing the passage of an architects' license law.
2. At the April meeting of the Association this question was submitted to a vote of the entire meeting, and was unanimously carried in endorsement of our present license law. It was emphatically emphasised, however, in the discussion that while the law was of incidental benefit to the architect, its real value and the only logical ground



for its support was its benefit to the general public, by securing at least a moderately competent chief officer in charge of the design, and having supervision over the construction of buildings.

3. It has placed at the disposal of anyone, in case they wish to engage in building, competent expert advisers who are made responsible to the State for the character of service rendered. It also enables discipline and punishment in the case of dishonest, reckless or incompetent practice, and gives the public some redress in such case. Men who are naturally dishonest or reckless are restrained in their natural tendency through fear that their license to practise may be revoked by the State board. Men who know themselves to be incompetent in certain particulars through the same fear are compelled to procure competent advice on questions which they feel uncertain about, thus securing to their clients competent service. The importance to the public of having buildings erected after plans prepared by architects examined and licensed under the laws of the State of Illinois has been so impressed on the City Council of the city of Chicago that they have laid down a requirement in the municipal code requiring that all plans having area in excess of 1,200 square feet must be prepared by a licensed architect, signed and sealed by him, as a pre-requisite to secure a permit for the erection of a building within the corporate limits of the city. A movement which is not yet accomplished is on foot to make it obligatory to require all buildings erected within the city of Chicago to be constructed under the authority or general supervision of an examined and licensed architect. This movement had its original inception as a result of public demand for a greater safeguarding of life and property in the great factories and warehouses which have been frequently erected without the supervision of an architect.

Through the recklessness and desire to economise on the part of interested builders, buildings have frequently been constructed faultily, resulting in serious accidents. The chief opposition to this movement has come from speculative builders, who do not care to have their work submitted to the inspection of competent experts, for reasons which are evident.

4. The law has benefited the profession of architecture by securing public recognition of same and by purging it from the reckless and incompetent, elevating its tone and character. The law is a police regulation and must be based on public benefit, not class benefit. The only ground on which the law can be supported is on the ground of protection to the general public, in the security to the lives and health of the workmen engaged in the erection and the future occupants of the building. Fortunately, however, we have found that this public benefit has actually been a professional benefit.

5. The present law in this State has been revised and amended, until it is now very satisfactory. Any new law in other States should embody the Illinois law with all of its amendments.

We enclose copy of a circular letter prepared by the Secretary of the State Board for the examining and licensing of architects, which will explain the Illinois law more fully.

(Signed) PETER B. WIGHT,  
EMERY STANFORD HALL,  
Secretary C.A.B.A.

### SCHOOL BUILDINGS.\*

AS we shall have the opportunity of listening to several papers which will deal fully with the technical parts of the subject before us, I propose only to touch on certain points which may not be dealt with in the papers which are to be read, but which strike me, as an architect, as being of some interest.

In designing school buildings, the architect is generally obliged to limit his expenditure, so that there are seldom opportunities for much ornament or display. This in itself is not a disadvantage. There is no necessity for elaboration of design, but fine architecture is always desirable, and it is quite possible without rich and expensive detail. In every school building, however simple in general construction, there should be at least one feature of architectural worth. Should this be a fine doorway or any other detail, let it be good enough to be a source of pride to the school. An important factor in education is the development of that appreciation of beauty in art or nature which is latent in

most of us. If school teachers can learn to be proud of some part or feature in their building they can probably inculcate some such feeling in their scholars. I believe that a sense of admiration for the handicraft of others leads to emulation of the right kind, and a fine example in stone or woodwork may prove of great educational value to our budding craftsmen.

Another point on which I should like to touch is the finishing of the walls in classrooms, &c. With all due deference to sanitary and hygienic opinion, I feel I must protest very strongly against the use of glazed surfaces in schools and classrooms. Perfect as glazed tiles are in every way when used in legitimate positions for lining lavatories, cloak-rooms, &c., they are inappropriate and unsightly as wall decoration for living rooms. My own experience in a certain room lined with faience has been that of discomfort and irritation. Being, as you will allow, something of an expert where domestic architecture is concerned, I was able to trace the cause of my discomfort to the glaze of faience. Surely children, without knowing whence the depressing influence arose, might be quite as much affected by it. Too much stress cannot be laid upon the importance of having warm and pleasant colouring upon the walls; the cold and drab colours which are so much used should be avoided. In London and large towns there is too much that is dismal and smoke-defiled outside, and the interiors should be cheerful. Children's eyes wander even when their attention is supposed to be engaged, and they should surely have something pleasant to look upon. Their schoolrooms, in fact, ought to be such rooms as we would not mind occupying ourselves. To illustrate my point let me draw attention to the Doss-house in Parker Street, which I saw after it had been occupied for two years. This building is a common lodging-house for the poorest classes, the charge being 5d. a night for a bed. The common-room is decorated in a way that might by many be considered inappropriate to the class of persons by whom it is used, but I consider that the money spent on beautifying has not by any means been thrown away. The whole of one end of the room is occupied by a carefully designed fireplace surmounted by a mural picture. The woodwork of the walls and of the fixed seats is of equal merit with the other work, and is painted in rich and pleasant green. This sort of decoration, without being expensive, is highly effective. When you consider the exceedingly low charge for a bed, and for the use of this room, you will realise that the Doss-house is occupied by the poorest of the poor. The casual occupant may be anyone, from the young hooligan to the most hardened vagrant, and yet after two years continual use I saw absolutely no sign of rough treatment. The painted woodwork and the walls were all in as good condition as if the room had been dwelt in by educated people. Any signs of wear visible were certainly not caused by malice, or even carelessness. It seems to me that the fact of this respect shown to a good building proves that even the minds of the very poorest may be accessible to feelings of beauty. If adults of the degraded though not criminal classes are sensitive to the influence of beauty, how much more must this be the case with the plastic mind of childhood.

There is nothing more necessary to the well-being of children than good ventilation. Of all the systems at present in use, some of which are certainly excellent, not one can be said to approach perfection. In forthcoming papers you may hear many methods strongly advocated, but I venture to assert that, whatever may be the virtues of such systems, all will leave something to be desired. Architects agree that open fireplaces and open windows are essential supplements to any other kind of ventilation. All who have to do with children know that they thrive best in the open air. Doctors insist on open air for anæmia and chest disease and for minimising the risk of any sort of infection, and no system of ventilation has yet been discovered to supersede the open-air treatment for consumptives. If prevention is better than cure it behoves us to see that the children of the nation are taught as much as possible in fresh air. As a matter of example, it is desirable that children see that frequent changing of the atmosphere is insisted on in the classroom. No patent system of ventilation will teach them the valuable lesson that they may learn by seeing the importance of having the windows open. As well teach them to cook by electricity, and then let them go back to their own cheap stoves, as expect them to learn the rudimentary hygienic truth that fresh air is essential in a classroom where the windows are all kept shut.

\* An address by Mr. T. E. Collcutt, P.R.I.B.A., delivered at the International Congress of School Hygiene.



## AYR AULD BRIG.

THE first report of Mr. W. S. Wilson, C.E., Glasgow, to the committee in charge of the preservative operations at the Auld Brig, states:—"The work was begun on May 13, when four masons were put on to clean and refill with pure cement all joints in the south arch and pier. A week later other four masons were started, and since then these eight men have been steadily employed pointing and renewing defective stones where this could be done with safety. At this date nearly one-half of the bridge has been pointed. The bridge was closed to the public on June 10, and men were immediately started to lift the roadway so as to expose the arch-stones of the south arch. The points between the arch were then cleaned out and filled up with cement and fine concrete. Afterwards a layer of concrete 9 inches thick was spread over the whole surface of the exposed arch. Concrete walls built across the bridge have been completed at the south arch abutment, and also at the first and second piers. The central spandril wall has been finished on the south arch. The second arch has been opened up, the joints cleaned and filled with cement, and the 9-inch covering of concrete is in course of being put on. In addition to the eight masons there are eleven labourers on the work. There have been no accidents of any kind, and everything is proceeding satisfactorily."

## ENGINEERING LABORATORY, FINSBURY.

THE recent extension in the department of mechanical engineering at the City and Guilds Technical College, Finsbury, has been provided for by the City companies aided by a private donor. A new wing has been added to the college, in which accommodation has been found for an engineering laboratory, drawing offices, lecture and preparation-rooms. The principal feature of interest is the engineering laboratory, of about 4,000 square feet in area, on the basement floor. A part of this laboratory has been devoted to hydraulic equipment, which is mainly grouped with reference to a cast-iron channel, 80 feet long, and of square section 2 feet side. At one end of this is a space for a vertical pressure cylinder, for experiments on jets, impact on vanes and the like. At the other end are measuring tanks of a total capacity of 3,500 gallons, into which the water drains after passing over a weir in the main channel. There are also two subsidiary channels, parallel to the main one and draining directly into the measuring tanks. The water after use is raised to a roof tank of 5,000 gallons capacity by a centrifugal pump of 200 gallons capacity per minute, and it is returned to the laboratory by a falling main for use anew. The hydraulic machines already installed comprise an inward-flow pressure turbine, an outward-flow Girard turbine, a Worthington pump, a three-cylinder hydraulic engine, and a considerable amount of other apparatus for experimental work. The heat engines are all of moderate size, and are in most cases of special design for experimental work. A gas-engine of 12 horse-power is fitted for work with either town gas or suction gas from a Dowson producer. A refrigerating plant is arranged to work with either carbonic acid or ammonia by using interchangeable cylinders. An oil-engine, hot-air engine, steam-engines, and a compound air-compressor are also installed, while space has been left for future developments. The equipment also includes a 10-ton Buckton testing machine and a varied collection of other apparatus for testing materials. The drawing office has accommodation for 100 students, and is divided by a glazed partition for convenience in teaching. The workshops have been entirely remodelled, and nearly all the old machine tools have been replaced by new ones. A new lecture theatre seats 100 students, and is fitted with the necessary appliances for experimental and lantern demonstrations.

## GENERAL.

Mr. Carnegie has agreed to contribute 2,000*l.* towards the erection of a library at Bray. A site for the building has been offered on the Tickell estate.

A Design by Mr. T. G. Abercrombie, architect, Paisley, has been selected by the directors for the industrial school which is to be erected at Thornley Park.

Mr. James Brennan, R.H.A., who was during several years headmaster of the Metropolitan School of Art, Dublin, died on Tuesday. He was born in 1837, and in his twenty-third year was appointed headmaster of the Cork School of Art.

Mr. M. E. T. Wratlaw, solicitor, at the Divisional Petty Sessions, Rugby, presented plans on behalf of Mr. A. F. Cross for a new theatre in Albert Street, and the magistrates expressed their approval.

Sir Douglas Fox, presiding at a meeting of the Improved Industrial Dwellings Company, said the Board had decided to take a small portion of the Hampstead Garden City property and erect cottages, so as to be able to provide country cottages for working men at a reasonable rent within twenty minutes of Charing Cross.

The Board of Trade are about to constitute a special temporary branch for the purpose of dealing with matters relating to London traffic so far as they come within the scope of the Board. The branch will be under the direction of Colonel Sir H. Jekyll, K.C.M.G.

The Dorset Antiquarian Field Club have decided to join with the British Archaeological Association, who recently visited the historic spots in South Dorset, in opening out certain sections of the Roman amphitheatre at Dorchester, and at Poundbury an ancient encampment near the town, in order to ascertain more correctly, if possible, the real nature of these interesting earthworks. A joint committee of the two bodies will be formed to supervise the spade work, and as a guarantee to the public that it will be done in a scientific manner by responsible persons.

The Council of the Institution of Civil Engineers will consider applications for a nomination to a Palmer Scholarship. The nominee must be the son of a civil engineer, he must be desirous of matriculating and subsequently graduating at the University of Cambridge, and his circumstances must be such as to need the help afforded by the scholarship. The scholarship is of the annual value of 40*l.*, and will be vacant at the end of September. Copies of the regulations may be obtained from the secretary.

The Executive Committee of the Liverpool Cathedral have decided upon recognising within the edifice memorials of dead people whose relatives or friends desire to make donations to the cathedral in memory of the departed. The committee have resolved to place a brass tablet at the back of the sanctuary, or in some other suitable quarter, whereon will be inscribed the names of those in memory of whom sums of 500*l.* and upwards are given.

The Grand Prix de Rome scholarship in painting has been awarded to M. Billotey. The Grand Prix de Rome for 1904, which was not awarded in that year, has been awarded to M. Aubry. The winners of the two second Grands Prix de Rome are:—1st, M. Fedrit; 2nd, M. Darrieux. The prize for sculpture has been withheld.

An Ivy Plant growing in a crevice of the tower of St. John the Baptist's Church, Yarborough, Lincolnshire, has caused such damage that an architect who has been consulted estimates that 600*l.* will be required to put the tower in a thoroughly good state. The roots undermined the foundations, gradually lifting the stones out of place, and a large crack in the walls resulted from the growth of the plant.

An International Congress for the development of drawing and art teaching will be held in London during the first week of August 1908. Two such congresses have previously been held, the first in Paris in 1900, the second in Berne in 1904. The Congress, it is expected, will bring together representatives of drawing and art teaching from all parts of the globe, and in connection therewith a large and comprehensive exhibition is proposed, which will show the methods of art teaching pursued in the various countries of the world. Applications for space and inquiries have already been received from Germany, France, Russia, Italy, Austria, United States, Egypt, India, New Zealand, Newfoundland and many other places. The chairman of the British committee is Sir John Gorst, and the vice-chairman, the Earl of Carlisle. The organising secretary is Mr. C. M. Mathews, 151 Cannon Street, London, E.C.

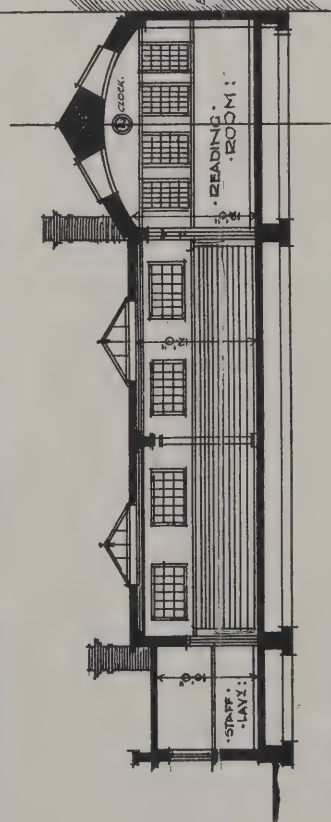
The Earl of Moray, it was mentioned on July 12, had offered to restore the old Restalrig chapter-house of the Edinburgh Presbytery. A petition has been presented to the Edinburgh Dean of Guild Court for warrant. Lord Dean of Guild Wilson said it was important that the city should not be led into providing drainage. The chapter-house was 10 feet below the level of the road and 8 feet below the level of the drain. He did not want the city to be run in for a new drain. The representative of the Earl agreed to sign a note on the plan guarding against this contingency, and warrant was granted.



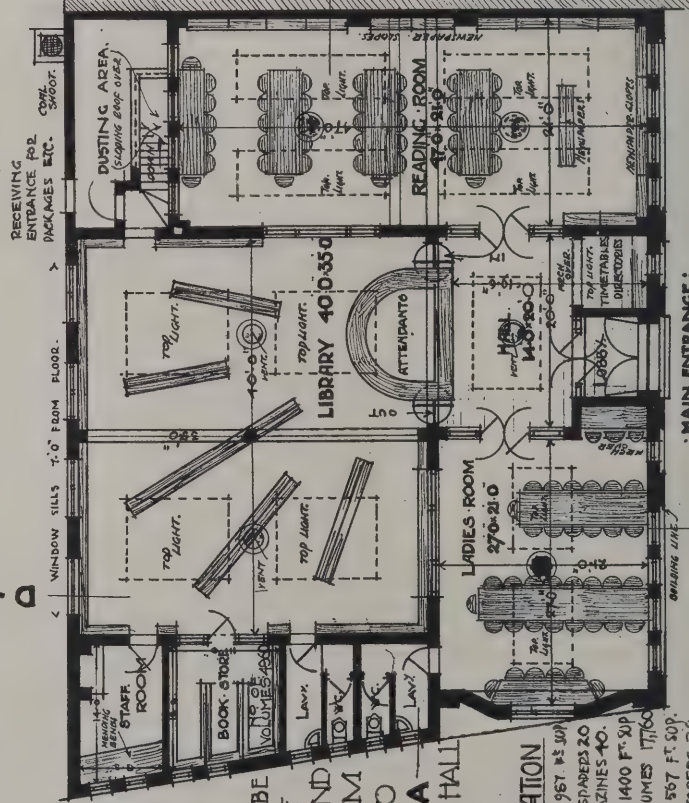
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# PROPOSED PUBLIC LIBRARY CHURCH STREET NORTH



SECTION A.B.



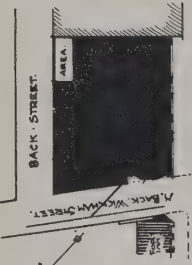
GROUND PLAN

## ACCOMMODATION

READING RM.	967 sq. ft.
LIBRARY	1400 sq. ft.
LADIES RM.	567 sq. ft.
ENTRANCE HALL	336 sq. ft.
BOOK STORE	132 sq. ft.
STAFF ROOM	104 sq. ft.

## NOTE

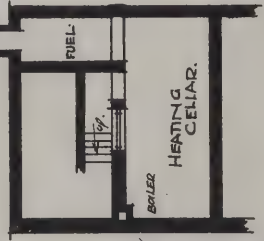
PLAN CAN BE REVERSED IF DESIRED - AND NEWS ROOM BROUGHT TO LEFT OF A ENTRANCE HALL



SITE PLAN

SCALE OF FEET

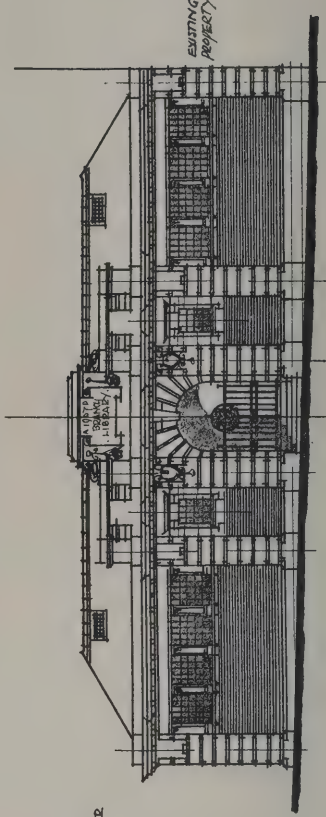
SECTION C.D.



BASEMENT PLAN

B.

SIDE ELEVATION

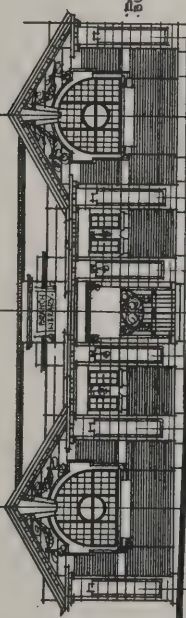


FRONT ELEVATION TO CHURCH STREET NORTH

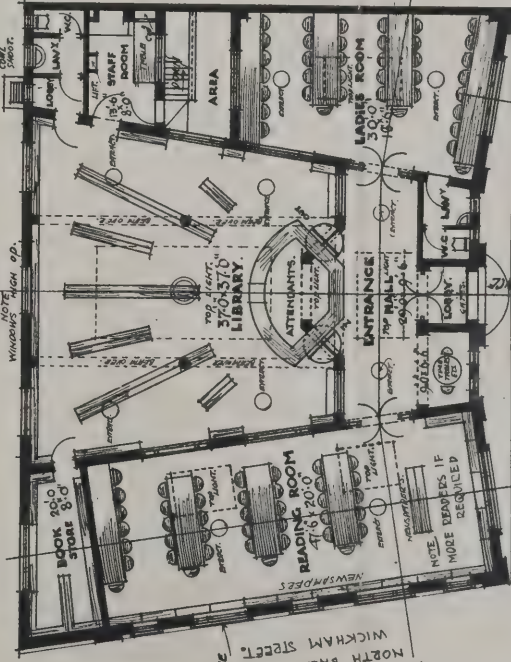


CHURCH • STREET • NORTH

Selected from 107



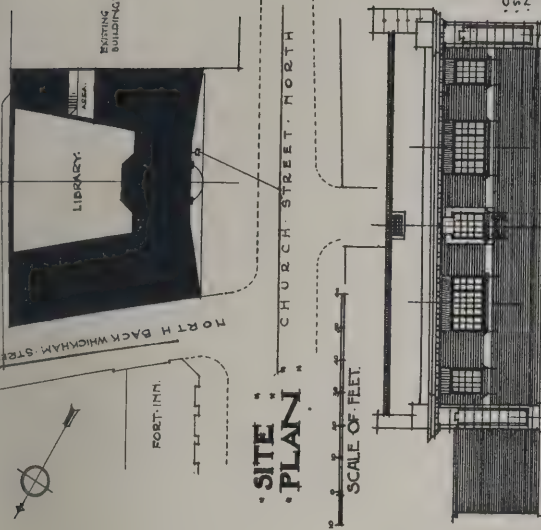
STREET. NORTH.



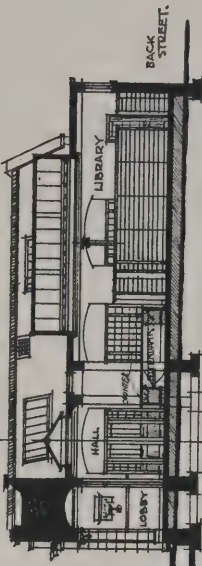
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**ACCOMMODATION :**

READING : 12M	Nº OF MAGAZINES 40	Nº OF READERS 38
" " " " " "	" " NEWSPAPERS 212	" " " " " "
LADIES : 12M		
	Nº OF VOLUMES 19010	
LENDING : LIBRARY		
BOOK STORE:	Nº OF VOLUMES 4710	
	ENTRANCE : HALL .	I I
	DIRECTORIES .	I I
	TIME TABLES.	



NORTH BACK WICKHAM STREET.



**\* BASEMENT \***  
**\* PLAN \***



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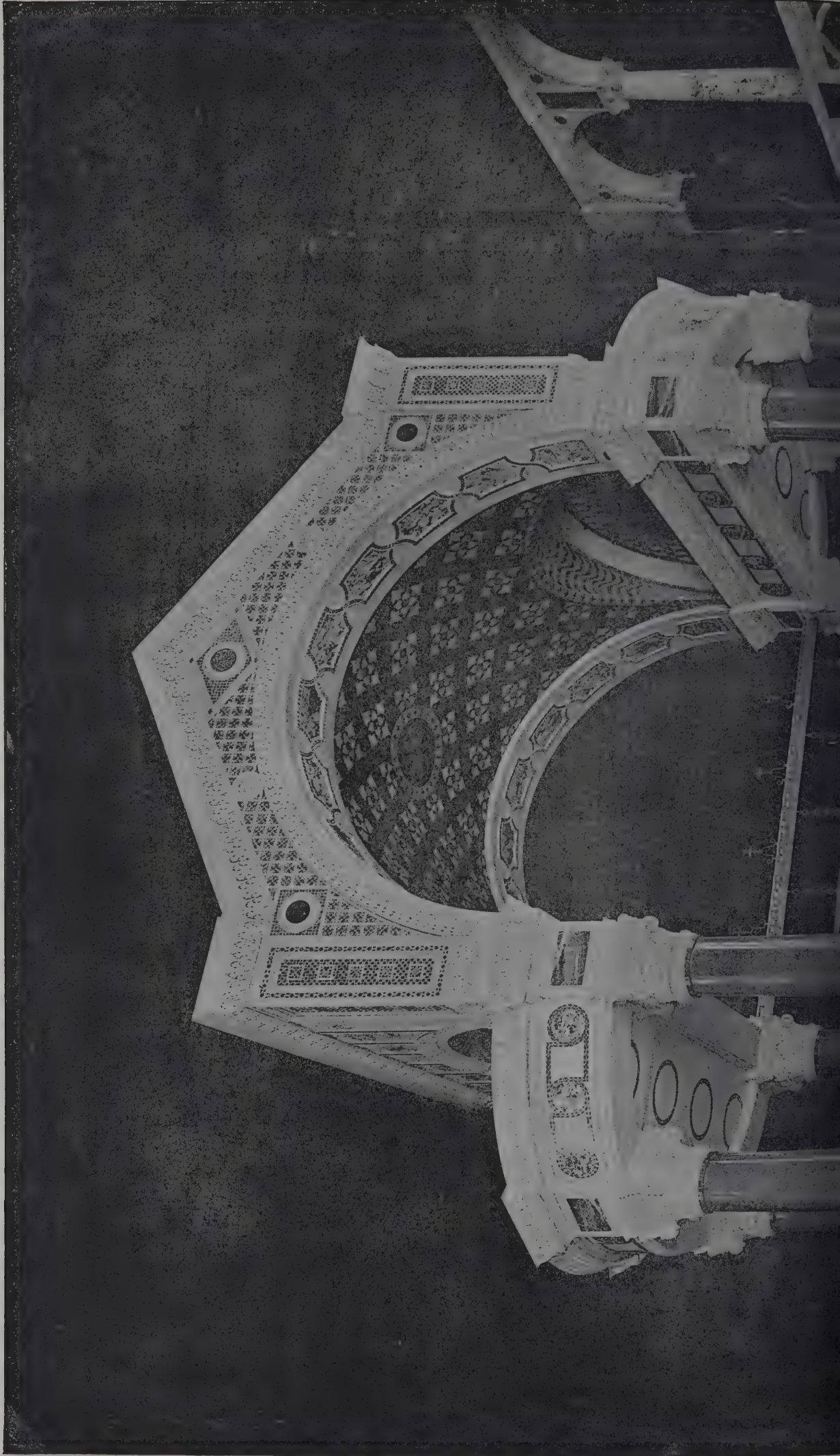
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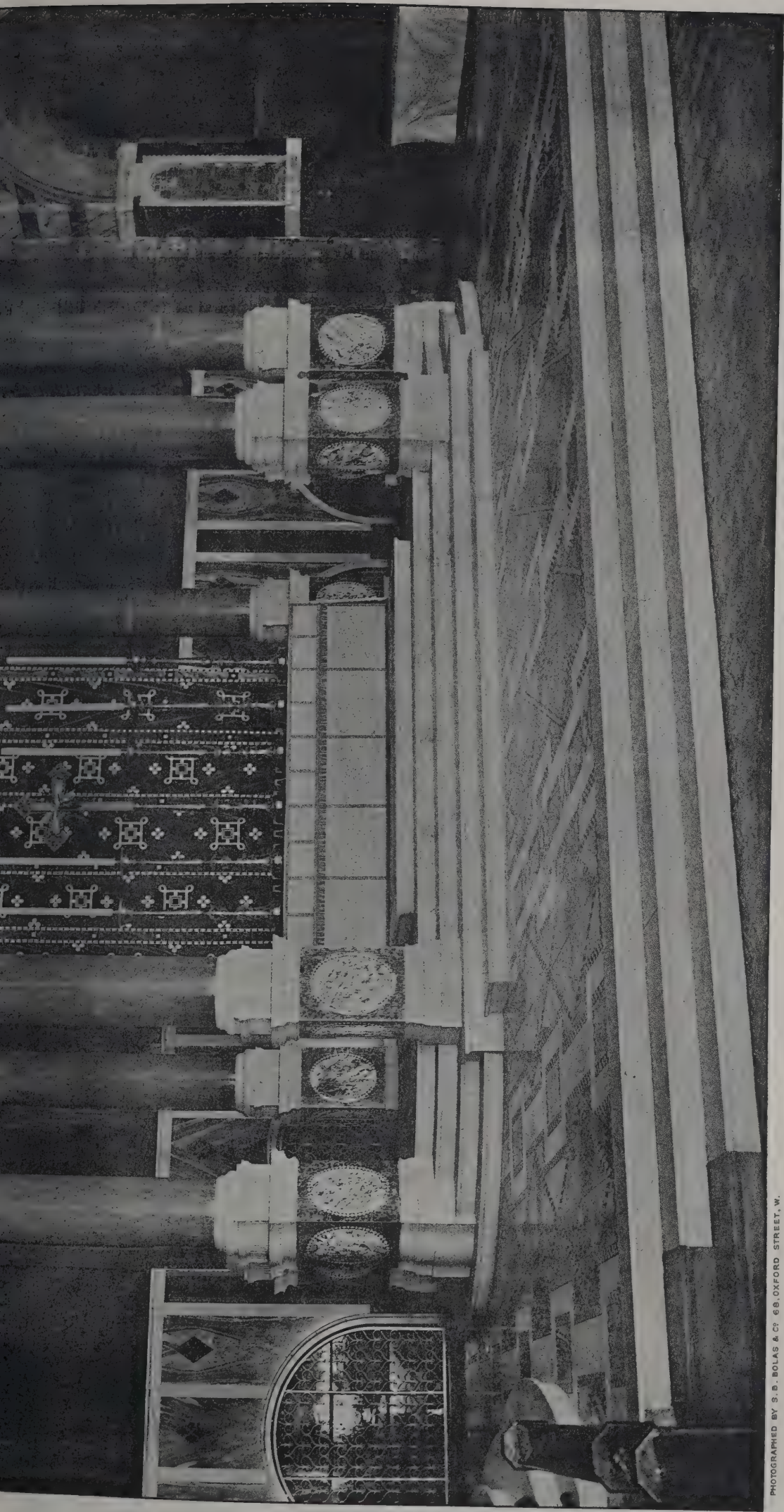
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The Architect, Aug. 9<sup>th</sup> 1907.







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**WESTMINSTER CATHEDRAL: BALDACHINO.**  
The Late J. F. BENTLEY, Architect.

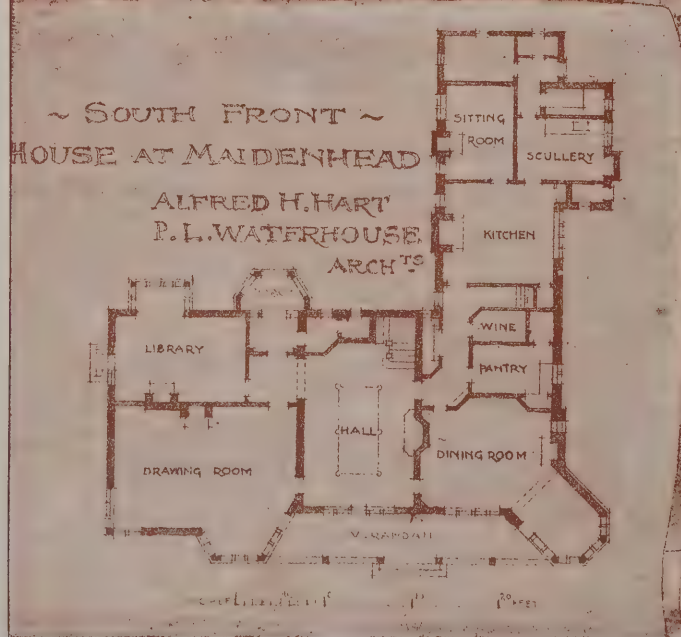


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The Architect. Aug<sup>t</sup> 9<sup>th</sup> 1907







PHOTOGRAPH BY A. E. WALSHAM, 43 CHANCERY LANE, W.C.

# VILLA RESIDENCE AT ELSTREE.

W. E. JOHNSON, A.R.I.B.A., Architect.

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# The Architect.

## THE WEEK.

THE proceedings of the Hygienic Congress have suggested the defects of children which the most commodious, best drained and best ventilated school buildings cannot altogether remedy. For many, disease seems to be an inseparable companion from birth to death. A report prepared for the School Board of Glasgow by Dr. W. LESLIE MACKENZIE and Captain A. FOSTER presents the influence of what seems like fate in a manner which is startling. They have arranged schools into groups, Group A being the poorest district, and B, C and D representing lesser degrees of poverty. In Group A a large number come from tenements of one room, while in Group D there are several tenements of three rooms. According to the report, as surely as a child comes from Group A he or she is likely to be smaller and lighter than the children of Group C, and so on with the other two groups. But these facts are made more striking when the average height and weight are classified in co-relation with the number of rooms in the house. Of children of ages from five to eighteen it was found that the average weight of the one-roomed boy is 52.6 lbs., of the two-roomed 56.1 lbs., of the three-roomed 60.6 lbs., of the four-roomed and over 64.3 lbs. The respective heights are 46.6 inches, 48.1 inches, 50.0 inches and 51.3 inches. For girls the corresponding figures are:—Weights, 51.5 lbs., 54.8 lbs., 59.4 lbs. and 65.5 lbs. The heights are 46.3 inches, 47.8 inches, 49.6 inches and 51.6 inches. These figures show that the one-roomed child, whether boy or girl, is always on the average distinctly smaller and lighter than the two-roomed, and the two-roomed than the three-roomed, and the three-roomed than the four-roomed. The numbers examined are so large and the results are so uniform that only one conclusion is possible, viz., that the poorest child suffers most in nutrition and in growth. It cannot be an accident that boys from one-roomed houses should be 11.7 lbs. lighter on an average than boys from four-roomed houses and 4.7 inches smaller. Neither is it an accident that girls from one-roomed houses are on the average 14 lbs. lighter and 5.3 inches shorter than the girls from four-roomed houses. Facts like those ascertained by the reporters demonstrate the necessity of improved housing. It must be acknowledged that during many years Glasgow has endeavoured to cope with the difficulty. But the obstacles are so great, finance being one of them, it would seem as if many years must elapse before Group A with its delicate children will have ceased to exist.

IN Germany a great many of the churches are allowed to retain the ancient *instrumenta ecclesiastica* (or, in other words, valuable altar-plate), although there is no longer use for them in the reformed services. Some objects have, however, found their way to the great museum of Berlin. One is the reliquary of St. PATROCLOUS, which formerly belonged to the church dedicated to the saint in Soest. An exhibition of old West-German art was opened on Sunday last. Applications were made to allow the shrine to be sent from Berlin, and the authorities of the Kaiser Friedrich Museums agreed to the proposal. Whereupon the Berlin people suddenly resolved that as the small shrine was one of their chief treasures, it was a deprivation not only to themselves, but to visitors from all parts of the world. It is also alleged that the people at Soest are anxious to retain their property, and if they succeed an irreparable injustice will be inflicted on Berlin. In such cases it is difficult to decide where the right lies. Our Government recently compelled the Trustees of the British Museum to hand over Celtic ornaments to the Dublin Museum. And there is

no doubt it is good policy to encourage local interest in archaeology. Soest was at one time much more important than it is now, and the reliquary with the church of St. Patroclus helped to suggest the liberality of the inhabitants in spending money to support religion. But if left in Berlin a hundred students would examine the shrine for every one who cares about it in Soest.

THE proposal to erect a parsonage or Pfarrhaus on the south side of the cathedral of Worms does not meet with the approval of many of the German artists and archaeologists. The site was once upon a time occupied by the chapter-house, and it is intended to make the new residence of a similar form. The evidence on the subject is of no value, and it will therefore be necessary to imagine the appearance of the ancient chapter-house. It is doubtful whether any German architect can do more than adapt the style of the cathedral to new conditions, whilst it is likely there was no resemblance between the great church and the subsidiary building. What is feared is that the architect may be able to produce so plausible an imitation that strangers who visit Worms will, in the course of a few years, confound the new with the old work. An error of that kind has been so often committed, there is reason to fear a repetition of it at Worms. It is considered preferable by some authorities to honestly adopt a modern treatment, although it must be owned the style which is now in favour in Germany would present a strange contrast to the Romanesque cathedral.

IT is a familiar expression that a man may fire at a pigeon and bring down a crow. A case of the kind which occurred at Montreal came before the Judicial Committee of the Privy Council a few days ago. A builder in erecting a house used a derrick which, coming in contact with the overhead wires of a company, diverted a current of electricity and killed a man. His widow brought an action against the builder as well as the owners of the wires. But the jury came to the conclusion that the latter were alone liable. By the terms of their Act the company could lay the wires above ground or below ground. The jury considered there was negligence in the manner of laying the wires. In a higher Court the judgment was reversed and the action was dismissed. It then came before the Judicial Committee. Their Lordships held that it was not an open question whether the wires were above or below ground, and consequently there was no proof of negligence. The case of the appellant, the widow of the man who was killed, was therefore dismissed. What is most remarkable is the ease with which the jury exonerated the owner of the derrick.

IN 1857 the group of GOETHE and SCHILLER by RIETSCHEL was unveiled in Weimar. The work is well known through engravings and photographs. At one time there used to be discussions about the relative power of the two poets. But GOETHE said Germany should be proud to have had two such men, and the group suggests brothers rather than rivals. Originally it was intended to have the group in an open place of the park; and in RAUCH's model the two were draped in togas. It was afterwards decided to represent them in the costume of the period, and to place the group near the theatre, with which both were closely connected. That theatre having served its turn a larger structure was lately erected, and in three or four months will be opened. The Place in which it stands has been enlarged. In consequence it has been found necessary to remove the group of GOETHE and SCHILLER to a position in which it will become more central under the altered conditions. The distance which it will be removed is about 30 feet. But wherever the group stands it will commemorate the influence of the poets in elevating Weimar from a small capital to a city which has universal interest.



## THE REVEALING OF IRON.

WHEN referring to the right use of our mental faculties and the advantages to be gained from it, JOHN LOCKE said:—"He who first made known the use of that contemptible mineral (iron) may be truly styled the father of arts and the author of plenty." In the two centuries which have passed since LOCKE wrote, iron has been utilised for so many novel and beneficial purposes we may now say he could not have known the capabilities of the material. Ours is the true Iron Age, for the period which goes by that title among archæologists was merely one of infancy. Yet we are still as ignorant as formerly about the man who first revealed to an amazed people the wonderful powers which were concealed in what appeared to be only a very heavy stone. During many generations TUBAL CAIN was accepted as the great benefactor, "an instructor of every artificer in brass and iron," and the name is likely to serve as a designation for a primitive metalworker. He was celebrated in song, and GEORGE ELIOT ventured to describe him in sonorous verse as a potter and metalworker who accomplished much through realising the power of heat:—

But Tubal Cain had caught and yoked the fire,  
Yoked it with stones that bent the flaming spire  
And made it roar in prisoned servitude  
Within the furnace, till with force subdued  
It changed all forms he willed to work upon,  
Till hard from soft, and soft from hard, he won.  
The pliant clay he moulded as he would,  
And laughed with joy when 'mid the heat it stood  
Shaped as his hand had chosen, while the mass  
That from his hold, dark, obstinate would pass,  
He drew all glowing from the busy heat,  
All breathing as with life that he could beat  
With thundering hammer, making it obey  
His will creative, like the pale soft clay  
Each day he wrought and better than he planned,  
Shape breeding shape beneath his restless hand.  
(The soul without still helps the soul within,  
And its deft magic ends what we begin.)

In our time, although TUBAL CAIN is supposed to be mythical, there is no hope of becoming acquainted with the name of the first metallurgist, and indeed it would seem as if there were several independent discoverers of the service which iron could render. Engineers would now be satisfied if, leaving individuals aside, it could be ascertained what country has the claim to priority in the use of the material. At the discussion of the subject last week in the Anthropological Section of the British Association the claims of several regions were brought forward, but it could not be said that any conclusion was reached. That result was to be expected. Tradition may have its use in other matters, but in relation to archæology men now require material evidence. Objects made of iron are, no doubt, originally possessed of strength, but time resembles an excessive weight imposed upon them. Whatever is the true cause of oxidation, there is no doubt that mode of diminishing the surface of iron and its endurance has been in operation from the beginning. As a result primitive iron objects are rare. BELZONI found an iron sickle buried beneath a sphinx at Thebes, but, in spite of the protection from the air afforded by the sculptured figure, it was in pieces and almost devoured by rust. Yet he was not fully satisfied that the sickle was more than an exceptional example, and could only suppose the Egyptians must have been acquainted with iron. HERODOTUS, it is true, confirms the conclusion in favour of iron by mentioning iron hooks and other instruments, but his visit was at least four centuries before our era, and in one sense Egypt was then advanced in science. Any archæological problem which is supposed to be worth the attention of the British Association should relate to a far more remote time.

Professor RIDGEWAY, who opened the discussion on the subject, maintains that the iron which was used in

Egypt twenty-five centuries ago was hematite, and that it was not smelted but worked like ordinary hard stone which had to serve for weapons or ornamental beads. Such a scene as GEORGE ELIOT described would therefore be imaginative. Professor RIDGEWAY supports his view by referring to other parts of Africa. Iron was said to be unknown in Uganda up to four or five centuries ago, and it was long unknown in Central Africa. Professor PETRIE, on the other hand, maintains that iron belonging to periods from 4700 B.C. until 1100 B.C. has been found recently in Egypt. However, he did not say how the material was used. Flint was employed in Egypt down to the Roman era. Professor NAVILLE said that iron belonging to the Old Empire was known, if rarely used, though the material was not generally employed prior to the Greek time. It has been supposed that the hard granites and porphyries introduced in ancient architecture and sculpture would have been useless if they were not for iron tools. But labour was cheap and iron implements of bronze or other materials would have served instead, although the execution by means of them was slow. It must be allowed that tools of copper are sometimes described by old writers as if there was little or no difference between them and those fashioned out of iron. Even ploughshares were made of bronze in Egypt, and the blades of the seemingly efficient weapons which we see in the wall-paintings were also of bronze. The earlier monarchs were treated like demi-gods, and their safety was of national importance. Yet they went into battle with no better protection than was afforded by leather or linen. We see none of them wearing armour. Stone hammers were long in use. The masons' and carpenters' mallets were of wood. But probably the oldest example of iron in the British Museum is a gimlet from Thebes with a wooden handle.

The Egyptologists at Leicester could not agree on any definite opinion concerning the earliest use of iron in Egypt. This is remarkable when we remember the elaborate and skilful investigations which are in progress. When, however, there is doubt on the subject of Egyptian iron, the opportunity is given for many other countries to set up a claim. It might readily be imagined that somewhere in India early examples would be found. The Iron Pillar at Kutub, which is over 23 feet in height, is unique; and it might easily be concluded that in a land where such a forging was possible ironworking must have been familiar from time immemorial. Yet it cannot be antecedent to A.D. 400 and therefore is not to be considered as a primitive example. Indian steel, according to Sir GEORGE BIRDWOOD, "has been celebrated from the earliest antiquity." But if judged by surviving examples, its antiquity is not far off. In the old sculptures trophies are seen bearing arms; but it does not follow that they differed from the warriors of Egypt and elsewhere whose weapons were made of bronze. It is concluded that as there was intercourse between India, Persia, Assyria and Greece, iron must have been used. The evidence is only of the traditional sort, and is not very convincing.

When we see such beautiful remains of armour as the shoulder plates known as the bronzes of Siris in the British Museum, and the great spears and swords which are represented in the battles of Amazons and other warlike scenes, it is allowable to infer that metalworking of all kinds was familiar in Greece from an early period. Yet at Mycenæ a few lumps of iron rings and a boss for a shield are enough to show how little was known about the manner of working it. According to Mr. ARTHUR EVANS, iron-founders' tools belonging to the close of the Mycenæan age have been found in Cyprus, and this would suggest the close of one period and the beginning of another. Familiar as we may be with iron it is evident that many obscurities surround the early history of its employment, and up to the present it is impossible to claim that all the efforts of advanced archæologists have succeeded in explaining when and where ironworking began.



When we come to Northern Europe we seem to be on firmer ground. The terms "Stone Age," "Bronze Age" and "Iron Age" were devised to express an evolution or development of Denmark as exemplified by weapons and ornamental objects. The Iron Age is calculated to have commenced soon after our era. The discovery at Hallstadt, in Austria, of a collection of weapons and instruments, some of bronze and some of iron, pointed to a period of transition. In the British Museum a Roman iron sword is to be seen in a bronze sheath. But in Denmark iron swords in iron sheaths were often found. We may therefore conclude that either the craft of sword cutlery had been improved in Rome or that for some other reason the northern armourers were able to surpass the Romans. The attention given to Roman ornament is in favour of the former theory. It is not, of course, to be supposed that every object found at Hallstadt was made of iron or bronze. Belonging to the Iron Age is much work in the precious metals. Nevertheless, iron was considered to form the best designation to suggest the change from the somewhat barbarous Stone Age to rudimentary civilisation. Weapons for offence and defence were indispensable, for civilisation is as much the result of war as of peace. Apparently the northern smiths had to be economical, and accordingly they sometimes were content to attach a steel edge to a blade of iron. Professor RIDGEWAY asserts that it is to Hallstadt we must look for the beginning of modern ironworking. Whatever may be the period to which the objects belong, there has been an almost continuous progression from those days to now. It is doubtful whether Hallstadt was a seat of manufacture, but the collection which was discovered in 1846 is so valuable it may be regarded as entitling the site to be respected as a place of culture which metal-workers should revere. The greater number of the objects are in the cabinet of coins and antiques of the Imperial Library, Vienna, and consist of arms, axes, trinkets, &c. At the present time salt-working is the principal industry of Hallstadt, and it is not easy to imagine how any others could have flourished there. But wherever they were produced originally, the relics discovered in the graves, which date from the third or fourth century, have had an astonishing influence on archaeology. To some extent they correspond with the Mycenaean discoveries in suggesting a point of meeting between two eras of human progress. From what we have said some excuse will easily be found for any indecision exhibited at the discussion before the British Association concerning the early use of iron.

To the majority of people the paper which was read by Mr. BENNETT H. BROUGH on "Iron Ore Supplies" will have more interest than any archaeological speculations, for the present and the future are of more concern to us than the past. In the early times iron was found by chance, now science is directing researches wherever there is a possibility of its existence. In many regions the prospects are hopeful, and according to Mr. BROUGH there need be "no immediate anxiety regarding the supply of the more pure iron ores, the application of which cannot fail rapidly to increase."

**The Hylton Castle Estate**, which stands on the north bank of the Wear, about two miles west of the boundary of Cumberland, comprising about 2,000 acres, has been sold to the Wearmouth Coal Company. The castle was built during the fifteenth century.

**The Restoration of Silk Willoughby Church**, Lincolnshire, proceeding, and many discoveries have been made. The aircase to the rood-loft has been opened, and a piscina and aumbry on the south side and an aumbry on the north side afford strong evidence that there were two side chapels in former days. In removing the plaster from the walls it came clear that the interior of the church was painted with frescoes—one especially on the north wall depicting, it is thought, St. George contending with the dragon.

## EARLY MOSAICS.

IT is so generally accepted that the Greeks practised in mosaic working as well as in painting, we may therefore assume they recognised a principle in the art which was worthy of attention. If masonry was of marble there was fitness in using other minerals to ornament it. We cannot imagine a Greek adorning a wooden structure with tesserae, supposing such a course was practicable. The statements which have come down to us concerning Byzantine methods are enough to suggest that, though in a condition of decadence, the original principle was recognised. We are told that the effect of tesserae, which were formed of transparent materials, was heightened by the introduction of thin metal plates. It is not very clear what cements could be employed which would not diminish such an effect. But the statement is enough to show that, if efforts were made to paint the lily and to gild refined gold, allied materials alone were used. Lovers of fresco maintain that mosaic was merely a mechanical imitation of painting. Yet even in the early days of Byzantium it was boasted that the representations of saints on the walls and vaults of churches did not resemble the older works, for the figures were dazzling in their brilliancy.

While this appears to be plausible, we must doubt whether mosaic commenced with the decoration of vertical surfaces. If marbles of several kinds were used for the walls of Greek temples, it might be said it was only a step from coloured masonry to coloured ornament. But it would be hard to persuade a modern artist or amateur that mosaic began otherwise than as a flooring. CÆSAR, it is recorded, although he knew the value of time in war, and the risks of superfluous *impedimenta*, insisted on having mosaics as a part of the furniture of his camp. Unfortunately it cannot be ascertained whether the mosaic served for a pavement or for pictures.

It is not difficult for us to understand the advantages which mosaic possessed for the adornment of Christian churches. Figures for which it was employed must have appeared to simple people to be arguments in favour not only of immortality, but of the communion of saints in heaven with worshippers on earth. During the lifetime of the oldest man there would be no perceptible change in the colours, and the traditions about their permanence could be transmitted from generation to generation. In that way we can explain the extensive use made of the art in Italy and the number of places where it was practised. The Byzantines resembled the Egyptians in believing in traditional proportions, a belief which is still perpetuated in the Russian ikons, and for such figures mosaic was well adapted. It also answered admirably for suggesting costly robes, and in early Christian art the nude was prohibited. The figure of St. SEBASTIAN during a long period seemed to be a subject which every Italian painter had to attempt. It was, in fact, only superseded by the discovery of the *Apollo Belvedere*. But when a Byzantine artist occasionally tried his hand on the figure of the martyr he was compelled to show him as clothed. The value of the material for expressing extraordinary richness is illustrated in the Pala d'Oro of St. Mark's.

When, after the lapse of some centuries, the Renaissance painters, who must have found it impossible to vie with Byzantine work, tried a development of the art by making pictures in marble, it cannot be said that art was the gainer. VASARI gives the credit to Duccio of Sienna—a painter of pictures on golden grounds. He was the first to commence, we are told, the decoration of the pavement of the cathedral of Sienna in "chiaroscuro." But the pavement pictures, although ingenious, have too many pictorial qualities for such a decoration. In course of time still more elaborate experiments were attempted, and eventually it was expected that the mosaicist would faithfully imitate every stroke of the brush which he found in the design prepared for him by a painter. When we learn that in



the pontifical mosaic factory of Rome it was necessary to provide 750,000 varieties of colour, *i.e.* 15,000 hues each having fifty tints, we can realise the burden which was imposed when mosaic ceased to be true to itself and set up in rivalry with the painter's art. The Renaissance artists no doubt looked on the efforts of the mosaicists as complimentary to themselves. But what was the use of such an elaborate expression of colour when the mosaics were to be seen in dimly-lighted vaults and positions which however imparted a weird interest to them?

Rio maintains there was an Early Roman school of mosaicists which produced works better adapted for church decoration than those by the Byzantines. The Greek artists, he said, dazzled the eye with gold grounds which often covered very large surfaces, on which appeared drawn, with more or less skill, the comparatively pale figure of the REDEEMER. The throne of God and that of the VIRGIN was covered by them with gilding; and as early as the tenth century this profusion of ornament in gold is already observable in their manuscripts and miniatures. In the mosaics of the Romano-Christian school the grounds are almost always white; or, if gold is sometimes employed, it is only to mark the luminous points in the clouds and draperies. If to this we join the singular predilection of the Greeks for long and meagre figures, and the common character which marks the heads of their saints, generally void of expression, we shall have recapitulated the most characteristic features of Byzantine art in the period in question.

So many critics have given the preference to Byzantine mosaics, it is well to find something said in favour of the Roman work. But we are less likely to see the latter in their pristine state than those by foreign artists. Rome was subject to invasions, to rebellions of the citizens and other dangers in which the churches suffered. It has also been stated that mosaics were altered, and the original countenances of saints removed in order that portraits of living patrons might be substituted. The churches must also have had a staff of workmen who followed no particular trade or art, but were willing to attempt all kinds of tasks. In that way the mechanical treatment which is sometimes to be observed can be explained. Byzantine artists or their descendants were not likely to be employed unless they had acquired a reputation for skill. They also accepted limitations for their art, and may have depended as much on recollection as on their inventive power. Consequently they preserved traditions for a much longer time than Roman and Italian workmen, although their figures lack the vigour which we see in those of the ZUCCATI in Venice with such a designer as TITIAN. The older examples have a quaintness which always must be considered attractive. Nevertheless it does not follow that for modern works Byzantine imitations are indispensable. Similar simplicity can be attained in other ways.

#### NEW BOOKS.

"The Law of Trade Unions," being a text-book concerning Trade Unions and Labour. By T. SETON JEVONS, B.A., of the Inner Temple and the Northern Circuit, Barrister-at-Law. (London: Effingham Wilson.

THIS little book opens with a few introductory remarks upon the history of the law regulating trade, the gradual rise of trade unionism and the recognition of the trade union. It then proceeds to consider the meaning of the term "trade union" and the legal position of trade unions under the Trade Union Act of 1871. A short account is given of the registration of a trade union and its effects; the amalgamation of one trade union with another; dissolution; membership; the rules as to the management of its property; the extent to which the Courts will interfere to protect the property of a trade union or to prevent mismanage-

ment; and its liability as defined by the Taff Vale case. The Act of 1871 is then set out, and the more important decisions upon its sections are noted. In particular decisions are noted upon the question as to how far the position of the trade union is affected by reason that some of its objects are illegal as being in restraint of trade, and upon the question of the relations of the members of the union to the union itself. Next follows the Act of 1876, the regulations under the Acts of 1871 and 1876, the Trade Disputes Act of 1906, the Trade Union Provident Funds Act 1893, and the Conciliation Act 1896. Some notes are given upon the view which the law takes of picketing, and the limitations with which it has been defined to be lawful by such cases as *LYONS v. WILKINS*. The provisions of the Conspiracy and Protection of Property Act 1875 as to a criminal conspiracy are explained, and the text of the Act is printed, together with some notes upon the principal decisions. The last Act dealt with is the Employers and Workmen Act 1875; the text is printed, and a few notes are given upon some of its sections. The appendix contains the official forms to be used under the Trade Union Acts.

The book thus gives us the Acts and Rules in handy form, and a guide to the leading cases. We are inclined to think that its usefulness would have been increased if the circumstances which had led to the passing of each Act had been shortly summarised before the Act was printed. Such a summary is a considerable assistance towards a due understanding of the sections of an Act, and more especially in a book meant for laymen as well as lawyers. Also it appears to us that the actual arrangement adopted makes the information conveyed a little scrappy. Thus the effect of the Conspiracy and Protection of Property Act 1875 upon the criminal law of conspiracy is explained on p. 76, and a reference is given to the Trades Disputes Act 1906. But we do not think that anyone but a lawyer could understand without a little explanation the difference between the civil and the criminal law of conspiracy, nor, consequently, the reason why the first section of the Act of 1906 was needed. We think that the author would be well advised to consider whether it would not be best to expand his general introduction so as to explain the gradual growth of the powers and privileges of trade unions, as illustrated by the chronological order of the legislation affecting them. We think that then the text of the Acts and the notes thereon would be better understood. We do not think that this need add to the length of the book, for some of the notes contained in the body of the work could be curtailed.

On the first page of the introduction we should like to see a small qualification made to the statement that against the local by-laws affecting trade in the thirteenth century, "an aggrieved member of the community dared not to appeal to the Common Law." It might be so in the generality of cases. But it does not follow that the legality of these by-laws was never considered. Disputes in the town between guild and guild, and guild and town sometimes led to a judicial consideration (see *e.g.* "Munimenta Gildhalli," *Rolle Series*, ii. 385); and the royal justices often questioned their legality (see *e.g.* "Gross Gild Merchant," ii. 82; Northumberland "Assize Rolls," *Surtrees*, 352-3). The later statutory control of the guilds was only another mode of exercising a supervision which had always been present. Parliament did what at an earlier period had been done to some extent by the royal justices.

Professor Hermann Ende, Crown Surveyor of Buildings in Berlin, and President of the Senate of Fine Arts, died on Saturday last at Wannsee in his seventy-ninth year. He was honorary corresponding member of the Royal Institute of British Architects since 1883. Among the buildings designed by him were the Imperial Palace, the House of Parliament and the Ministry of Justice in Tokio.





MAUSOLEUM IN CHIRK CHURCHYARD.

THIS structure has been erected by Lady TREVOR, of Brynkivalt, to the memory of her daughter, the Hon. MOYRA HILL TREVOR. The masonry is in DENNIS's Cefn stone, the roof is groined. Inside is a marble figure of an angel holding a child, which was sculptured in Rome. The architects are Messrs. EDMUND KIRBY & SONS, Cook Street, Liverpool. The masonrywork was carried out by CHATHAM BROS., of Cefn and Rhyl, whilst the woodwork was in the hands of TYSILIO JONES & SONS, Johnstown. The photograph is by MARTIN, Vron, Llangollen.

#### EXPLORATION OF CAERWENT.

IN the paper read before the British Association by Dr. T. Ashby on the Roman excavations at Caerwent, in Monmouthshire, he explained that Caerwent was divided in Roman times into twenty *insulae*, and was of rectangular form, now cut in the middle by the modern road which followed the line of the old Roman road from London through Silchester and Bath to Caerwent and beyond. A large block of buildings had been found. The Forum and Basilica constituted the central block of the north half of the city, and therefore on the sunny side. The first group of remains on the high road were conjecturally a monumental entrance. Then came a large open space, the Forum, with traces of shops on the east side. North of the open area was the Basilica, with a continuous line of steps probably connected with arcades. The south aisle of the Basilica was 13 feet wide and the north aisle the same, while the nave was 25 feet wide. The walls between the nave and the aisles were over 5 feet wide, and the columns were nearly 3 feet in diameter. The remains of these columns were enough to allow of the reconstruction of part of the Corinthian capitals of the columns, which were extremely like those of Silchester. At the east end of the nave was a large room, approached by broad steps and heated by a hypocaust; this was very possibly the senate house or council chamber. At the north of the Basilica was a range of

large rooms, probably used for municipal purposes. The block of the Forum and Basilica was surrounded on three sides by streets. The whole of the Basilica was traversed below the floor level by a large covered sewer that carried the drainage from the open area. The building had been very much devastated, and no traces had been found of statues or inscriptions that must have been there and very few traces of superstructure; though the massive foundations of the walls, largely tiled, were well preserved. The sandstone slabs that formed the top of the walls on which the columns stood and the top flight of stairs had been taken away. A complete private house had now been wholly excavated. Apparently this had been twice reconstructed, and the periods could be traced with some little difficulty. This type of house found at Caerwent was apparently unique in England, for there were rooms round all the four sides and courtyard, and the south side was not open as usual. It was very interesting to notice how far the ancient boundaries were followed by the modern ones, with only slight variations due to the encroachments of successive proprietors. In future excavations the hope was to find more houses, and to make further investigations in connection with the early earth mound that preceded the stone wall. All the four gates in the stone wall were still in existence, and parts of the stone wall itself were preserved to the original height of 20 feet.



## EASTERN INFLUENCE ON WESTERN ART.\*

ORIENTAL costumes and details prove contact between the East and the West, but Oriental influence was felt at a very early period. In France especially it can be recognised before the Christian era, Egyptian and Egypto-Greek objects finding their way by the usual trade routes even as far as the Low Countries, probably from Alexandria. After the arrival of the Goths Syrian influence becomes more evident. The museum at Arles proves an active centre there for sarcophagi copied from Roman works, but by its side another was formed in close relation with Ravenna and the East. Examples both at Arles and Toulouse prove their co-existence till the end of the sixth century. Numerous Syrians were in France from the earliest times of the empire, and the first Gallo-Roman churches were probably founded by Oriental emigrants, a mixed population among whom Jews and Greeks with the Syrians were in the majority. The "Vita Hilarii" mentions Jews at Worms, Cologne, Metz and Poitiers, and there were many at Arles. Other MSS. prove that the Syrians were everywhere, and possessed of a good deal of power. Gregory of Tours shows them to us very rich and possessing objects of art. Inscriptions show the early presence of Greeks at Lyons, Bézançon, Trèves, Vienne, Narbonne and Arles, and councils also prove their presence in Gaul. Relics of Oriental saints were brought westward in reliquaries which gave the suggestion of such ornament as appears at St. Jean, Poitiers. As for the Syrians, in the sixth century the most active of the Christian races, St. Jerome says that in his time they were everywhere, and that trade was in their hands. Many of them were of the labouring classes: they were gardeners, and through their means the West gained several of its fruit trees; were artisans, mosaicists and sculptors; they exported industrial objects, such as glass, silk, leather, &c. Contemporary authors show these Syrians to us in all the maritime towns. At Orleans they formed a powerful colony, and at Paris one of them named Eusebius, in 591, bought the Episcopate by profuse presents, and soon gave to his countrymen the administration of the bishopric. It was by means of the Syrian colonies that the ideas and legends of the East were spread in the Middle Ages, and M. Courajod used to say that it was impossible to exaggerate their importance in the development of design. The biography of St. Columba, by Jonas, monk of Bobbio, shows an affinity of doctrine, of sympathies and beliefs, between the Syrians and the Irish and Anglo-Saxons, which is evident also in their art.

The principal French towns for the exchange of the merchandise of the Levant and Constantinople were Marseilles, Narbonne and Arles, as in Roman times. The maritime towns of Provence and Languedoc had in the twelfth century, both in the kingdom of Jerusalem and at Constantinople, commercial establishments and mooring places on the quays. Provençals had a church and a quarter at St. Jean d'Acre, while the Narbonnais traded specially with Egypt. The principal Italian commercial towns also had their quarters similarly. Among the ivories imported from Alexandria are the six which decorate the side panels of the pulpit at Aachen, given by Henry II. Dr. Strzygowski has proved that these have the characteristics of the Coptic form of Syro-Greek art; and the chair of Maximian, at Ravenna, an earlier and finer example of ivory carving, has also a very decided Syrian character, though whether it was carved at Antioch, as he thinks, or in Alexandria or Constantinople, appears doubtful. The textiles with hunting scenes in medallions, or beasts, birds, or monsters face to face, of which fragments remain here and there in Western Europe, as at Aachen, Chinon, Toulouse, Sens, Le Mans and Durham, as well as in museums, are either Byzantine copies of motifs of Sassanian origin or Sassanian originals, and an example has been discovered in Japan quite plainly based upon these patterns, which shows that their influence spread eastwards as well as westwards. The patterns carved on Eastern ivory caskets or oliphants, in which relics were sometimes brought to Western Europe, with a similar motif, also had their effect, such as the Soltikoff horn, a work of the eleventh century, which, if not carved in the East, was copied from an Oriental ivory, the similar horns in the museums of Toulouse and Le Puy, &c. In these ivories the suggestion of Romanesque subject and pattern is unmistakable.

The pillars of St. Saba, in the Piazzetta, Venice, were

brought from St. Jean d'Acre, as the sequel to disputes with the Genoese, they having formed the gate to the castle opposite the church of St. Saba. The patterns upon the sides are very characteristic, vine leaves and bunches of grapes issuing from a vase and controlled to a strict conventionalism in their growth and the spaces which they fill. Upon the upper edge of the pier is a fret with slanting sides, a peculiarity which is found in Celtic interwoven patterns. In this sarcophagus from San Lorenzo, Milan, you may see absolutely the same conventions in the central panel, and they occur also at Ravenna, Ancona and elsewhere upon the slabs of ambos and chancel enclosures. The archivolt of the Foscherari Monument, in the Piazza St. Domenico, Bologna, made of a portion of an eighth or ninth century ciborium, and much resembling the baptistry at Cividale, has a running pattern derived from Syria, which frequently occurs, with a varying number of leaflets, supporting the ball in the centre. At Castel St. Elia, near Nepi, is a slab with this Syrian pattern having five leaflets. It occurs at Ravenna, in fragments in the museum, and may be seen as a pierced ornament on the bronze horse-trappings from the tomb of a Gaulish warrior in the British Museum. The ivory covers of a book in the Treasury at Monza have on one of them a pattern in which the leaf forms are more defined, two filling the circle, as on the tomb of Theodora at Pavia, with a creature within, whilst the other has a beautiful pierced repeating pattern, recalling carvings of the ninth century at Comio, Milan and Rome. In the Treasury there is also a comb of ivory, ornamented with filigree and jewels. A comb of a similar shape but without the enrichments was found in 1771 on Barham Down, near Canterbury. The one at Monza is said to have belonged to the Lombard Queen Theodelinda. In the Museum at Cairo is a fragment of ivory carving in which the vine appears springing from a vase in true Byzantine fashion with birds about the branches, which Dr. Strzygowski considers to be Syrian. The arrangement of this is a good deal like the outside of the Ormside cup, of which I shall show you a drawing in connection with the Anglian crosses. Leaves of somewhat the same kind occur on the panel carved so well in the tenth century by Tutilo at St. Gall, in which he closely imitated the character of the older Italian work, to which he added the subjects of the Assumption of the Virgin and the legend of St. Gall; and an ivory in the cathedral of Tournai has leaves and stems arranged in much the same manner. A sarcophagus found in the cemetery of St. Saturnin, Bordeaux, dating from the sixth century, shows something of the same treatment, though rather freer in the underlying lines; and no doubt in all these cases a traditional mode of filling a panel with vine leaves and fruit was followed. A version of this treatment of the leaf may be seen in another piece of sixth-century work, a capital in the Cathedral Parenzo, imported from Constantinople. Mr. Butler says that in the Haurân the grape vine is the most common motif in the pre-Roman and Classic carvings, and that in Christian carvings of the North of Syria it is almost the only motif used, but with a tendency to a severe conventionalism; and that if animal forms were introduced they were subjected to an equally severe symmetrical conventional arrangement.

Recent researches by Dr. Strzygowski also seem to prove a direct influence of Syrian art upon the West. In an early Evangelist which he studied at Etchmiadzin, in Armenia, he found some Syrian miniatures of the sixth century inserted, which he holds to prove that it was customary to export miniatures from Syria. Charlemagne, shortly before his death, had a recension of the Gospel made, with the help of both Greeks and Syrians. This may explain the curious pavilions in the Godescalc and Soissons MSS., which are unlike any Western architecture but much resemble one of the Syrian miniatures, as well as the arcading beneath which the Eusebian canons are set, which are equally similar, and of which the sixth-century Syrian MS. of Rabula shows another example, with horse shoe arches. The resemblances between the school of Egbert of Trèves and Syro-Egyptian art may be traced back to the same source or may be the result of importation from Alexandria.

The fine ivory in the Louvre, showing Constantine and the hero of the faith, or Justinian, which Dr. Strzygowski believes to be Alexandrian, like the reliefs on the ambos at Aachen, belonged to a Rhenish church in the middle of the seventh century, probably to Trèves Cathedral. On its back it has 350 names of believers, arranged in six columns, many of which belong to the Rhine and the diocese, names of archbishops between the fourth and the seventh centuries.

\* From the Cantor Lectures by Mr. F. Hamilton Jackson, R.B.A., vice-president of the Society of Decorative Designers, published in the *Journal of the Society of Arts*.



and of others sprung from Trèves. At the end of the fifth column names of kings of Austrasia occur, from the second half of the sixth to the middle of the seventh century—Heldebert, Theudebert, Theuderic, Clothair, Sygisbert, Childebert, Athanagild, Fachileuva, Inganda. At Wolfsheim, near Mainz, in 1869 or 1870, a jewel was found which had probably formed part of a girdle. It was encrusted with jacinths and garnets, or red glass, and had upon it the name Artaxerxes in Pehlevi, the form of the letters making it probable that the first of that name was the person referred to. The discovery was of great interest as showing that the particular form of decoration of jewellery was practised in Persia in the third century, and also that there was direct communication between that country and Germany during the early Middle Ages.

In England we know the Romanesque as the Norman style, and the architectural ornament has not in general the variety and fancy which characterise the continental Romanesque. Bishop Stubbs says the Norman brought little in comparison with what he destroyed, and little that he brought was his own. Late examples are sometimes florid, as the fine door at Kilpeck, Herefordshire, the prior's door at Ely, and the door at Barfreston, near Canterbury. Decoration was generally focussed round the doorway, which frequently had four or five recessed orders, with shafts and carved members between. Examples may be seen at Lincoln, where the house of Aaron, the Jew, has the door beneath the projection of fireplace and chimney on the first floor; also a fine doorway may be seen in the cathedral; at Ilfley, Durham, Malmesbury, St. Peter's, Northampton, Kenilworth, the College Gateway, Bristol, St. Margaret's-at-Cliffe and many other churches; and other ornamental features at Romsey, Tewkesbury, Glastonbury, Exeter, Norwich, Worcester, Gloucester, Castle Rising, Rochester, St. Cross, Winchester, the Galilee at Durham, &c. Prior Ernulf used interlacing arcades as a wall decoration on the outside of the cathedral, Canterbury, about 1110, and repeated them at Rochester a few years later, when he became bishop. Here also the mutilated figures of Henry I. and Queen Maud or Edith show that the portals of Chartres and St. Denis had their influence in the south of England, but for the most part the figure sculpture is barbarous, though the monsters and animals show a quaint fancy, and the ornament is confined to the repetition of a few forms, of which the chequer, the billet, the zigzag, single or double, and an allied form like heraldic engrailing, the nailhead, chip carving patterns, the besant, beak-heads and interlaced arches occur most frequently. The patterns from Behioh and Safa, in Syria, show that some of these forms occur in sixth-century Syrian work, and scrolls like those of the church at Behioh, with winged cherubs of an Oriental type occur on the shrine of St. Mummolus at St. Benoît-sur-Loire (678-85). Capitals are sometimes scalloped or gadrooned when on circular piers, and a kind of cushion cap like a ball with slices cut off perpendicularly is common; these frequently had ornament painted on them. The carved caps often suggest initials of MSS. with animal forms, the interlacings treated flatly with scales and pearlins. On smaller objects, however, we often find beautiful and elaborate work. Examples of chessmen in the British Museum and at Oxford in the Ashmolean show considerable vigour of conception and carefully arranged ornament, as on the backs and sides of the chairs in the chessmen in the British Museum. Here, too, is a very fine example of an eleventh-century Tau cross of ivory belonging to a bishop's crozier, which is both finer in design and workmanship than the one in the Musée Cluny, found in the tomb of Abbot Morard at St. Germain des Prés and dating from the same period. An earlier one is in the museum at Rouen which came from the abbey at Fécamp. The drawings will show that the date of ninth or tenth century which has been suggested for this work is too early.

Some of the twenty-five lead fonts scattered up and down the country, most of them in the south, are Norman in design, as are a good many of those worked in stone, of which two very fine examples in Norfolk may be mentioned, at Toftrees and Shernborne, but those which are perhaps most typically Romanesque in appearance, such as those at Lincoln and Winchester cathedrals, which, as well as that at St. Nicholas, Brighton, are decorated with subjects from the life of St. Nicholas on some of the faces, and with roundels containing birds and monsters on the others, and made of black marble, were imported from Tournai ready carved and are not English at all. There are seven in England, six in France, and three in Belgium itself. There are sepulchral slabs of the same material and workmanship

at Bridlington and Ely. A very fine font, carved with different patterns on each of the four sides and signed by the sculptor Robert of Durham, still exists at Bridekirk.

At Durham the sanctuary-ring still hangs from the door, though the monster has lost his eyes of crystal. It is so much like a door-ring at Le Puy that it has been ascribed to the same smith, which seems improbable. The MSS. do not show any great advance upon those executed before the Conquest either in ornament or in figurework. The zigzag is a very ancient pattern, the earliest instances of its occurrence being prehistoric. It is found on vases from the tombs of Cnossos, on archaic pottery from Camiros, and on an Etruscan ossuary from Vetulonia of the second or third century B.C. On a piece of prehistoric pottery found in a tomb with a flint arrowhead, impressions of the arrowhead were so arranged as to produce a zigzag, tempting one to suggest this origin for the ornament. Its earliest use as architectural ornament is, I believe, on the modillions above a door at Spalato. Other of the characteristic ornaments have an Eastern derivation, such as the rosettes and besants, others from ease of production, as the nailhead and dentil, while the beakheads are probably Scandinavian, though they have a barbaric appearance which reminds one of Polynesia and New Zealand. In Sicily the Norman influence in ornament shows very little. At Cefalù there is an interlaced chevroned arcading on the façade. At Girgenti the door of the ruined church of St. Giorgio and the great window of the fourteenth-century campanile (both with pointed arches) have the familiar zigzag, and at Bivona the same details occur, while the door of Santo Carcere, Catania, which belonged to the ancient cathedral, has round arches with columns in the recessed jambs and some carving of the twelfth century. Mr. Phenè Spiers has informed me that two doors of one of the Cairene mosques bear decoration of Sicilian origin, one having the Norman zigzag and the other the cushion voussoir, which appears to be a Sicilian invention, though it is found in the church of the Holy Sepulchre, built by the Crusaders after the taking of Jerusalem in 1100. The usage of cushion voussoirs was carried back to France, and they occur in the abbey church of Evron (1150-75), the central window of the apse of Marolles-en-Brie, the doors of the churches of Chivy and St. Pierre at Soissons, of Bellegarde, Plassac and Marignac, in the chapel of St. Gilles at Pons, and the tower of La Croix, Aisne. The strangest use of the zigzag with which I am acquainted is on two caps in St. Mark's, Venice, which are surrounded with the ornament on a large scale with a very odd effect, and the occurrence of two precisely similar in the mosque at Kairouan suggests that they are importations from the East.

In Scandinavia an exceedingly elaborate ornamentation was developed at a rather late date, based upon the Romanesque intertwining scrolls, which was applied principally to the decoration of the doors of churches, as in the instance from Hallingdal, although also applied in a modified form to furniture and to caskets. The caskets are sometimes of bone and sometimes of wood; the rest of the work is executed in wood, often enriched with colour. Heathen symbols and incidents occur mixed with Christian, but it is pretty well established that most of the work is as late as the thirteenth century, though the Norsemen became Christians in the eleventh. From the ninth century onward they habitually robbed Western lands, and carried costly objects home with them. It appears therefore that these patterns are imitations or developments from Irish jewellery, &c., though some influence from the Continent is possible. Discoveries of Oriental coins in the North prove that exchange between Scandinavia and the East began after the fall of the Sassanian power, but relations became closer in the ninth and tenth centuries, to which periods thousands of Cufic coins which have been found belong.

**The Glasgow Corporation Committee** on the Glasgow Building Regulations Act, 1900, having taken into consideration the terms of Section 102 (5), which provide that after the expiry of seven years from the passing of the Act the provision that all window-sashes in dwelling-houses and in habitable rooms above the ground floor shall, except where there are sufficient outside railed balconies or platforms, be so constructed as to admit of the outside of the window being cleaned from the inside of the room shall apply to existing dwelling-houses, recommend, in respect of that period having elapsed on 30th ult., that it be remitted to the Master of Works to have the provision carried out.



## NOTES AND COMMENTS.

It is believed that the old Romans could command the services of itinerant artists who were able to decorate the walls of their houses at a cheap rate. Some fragments of the kind of work which served can be seen in the Naples Museum. In our time printed papers have taken the place of painters' work, and although stencilling and textiles are sometimes substituted paper is likely to be adopted for many years to come. In the volume on wall decoration by Mr. A. S. JENNINGS (Trade Papers Publishing Company) reproductions are given of a large variety of papers by Messrs. JEFFREY & Co., CHARLES KNOWLES & Co., Wall-Papers Manufacturers, Ltd., and others, which will suggest the success attained in this country. Many of them are printed in colours. The book may therefore be taken as representative of advanced production, and the critic must be difficult to please who is not satisfied with such abundance of fine designs. The pages will be found interesting not only by those who are in quest of wall-papers, but by all who have an interest in the extension of applied art.

THE annual report for 1906-7 of the Bristol libraries committee has unusual interest, for it records the opening of the new Central Libraries on College Green, designed by Mr. PERCY ADAMS. The building also serves for an exhibition of early books, bindings, illustrations, &c. The success of the Central Library is evident from the statement that 62,263 volumes were issued from the lending department during nine months. During the year 750,672 books were lent from the committee's libraries, and out of that large number only four were lost, of which three were stolen. The new Central Libraries have been visited by representatives of various local public bodies as well as others from outside the city, including a deputation from the public library authority of Hamburg (Hamburgische Gesellschaft), the latter authority having expressed themselves highly gratified with the arrangements, especially in regard to the administrative methods.

MORE than any other class that can be named, more even than writers, since man may elect not to read while he must see, architects, says the *American Architect*, have the opportunity to excite pleasure in or inflict disgust on their fellow-men through the exercise of their creative faculties, and if architects gave more heed to this fact, possibly the architectural aspects of our cities and countryside might benefit. Conscientious and progressive architects, in their later years, must look with a good deal of regret at the enduring expression of their youthful efforts, but we fancy that when the late WILLIAM H. RUSSELL, who died abroad, reviewed the work he had accomplished, he found pleasure in perceiving that so much of it was of a nature to give more pleasure than pain to his fellow-citizens. In their class the buildings designed in late years by the firm of CLINTON & RUSSELL—the Hotel Astor, the Seventy-First Regiment Armoury, the immense Hudson Terminal building, the Atlantic Mutual building and the great apartment-house on upper Broadway—are among the notable buildings of New York City, competently designed, although not exactly manifesting genius on the part of the designer, and admirably planned and built. Mr. RUSSELL, who was born in 1856 and was a graduate of Columbia College, received his early architectural training in the office of his great-uncle, the late JAMES RENWICK, eventually becoming a partner in the firm of RENWICK, ASPINWALL & RUSSELL. In 1894 he was taken into partnership by Mr. CHARLES W. CLINTON, who for many years had enjoyed the friendship and confidence of an important group of owners of

real estate in the commercial districts of the city. From that time forward his career was clear, though it demanded the mental and physical effort that often wears out too soon the man of artistic temperament.

## ILLUSTRATIONS.

UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.

HEREDOS IN CHAPEL, CONVENT OF ST. MARGARET, EAST GRINSTEAD.

CLOCK TOWER, ST. GEORGE'S CIRCUS, S.E.

THE donors of the above tower are Mr. WILLIAM FAULKNER and Mr. FREDERICK FAULKNER, of Blackfriars Road, S.E. In an open competition, instituted in May 1905, Mr. JAN F. GROLL's design, from among 126 competitors, was awarded the first premium. He was appointed architect and carried out the work. The style of the clock tower is Classic, with a dome in Hindoo Saracenic, the prevailing style in British India, where Mr. GROLL has been in practice as architect. Depth of foundation is 18 feet, height of tower from pavement to top of stone finial is 70 feet, material to main body is Portland stone known as "Whitbed," base of tower to a height of 10 feet is in Cornish grey granite from the quarries of Messrs. W. HOSKEN & Co., LTD., Penryn (near Falmouth), Cornwall. On each side of the tower above the cornice of the granite base an escutcheon carved in Portland stone respectively carries the armorial bearings of the Borough of Southwark, the City of London, the Bridge House Estates and St. GEORGE. There is an iron staircase inside leading to the clock chamber, balcony and belfry. The clock, by Messrs. GILLET & JOHNSTON, of Croydon, with four clock faces each of 3 feet 6 inches diameter, illuminated by electric light from the inside, and provided with a set of five bells, strikes the hours, half-hours and quarter-hours, and chimes the Westminster chimes. An "Excello" arc electric lamp of 4,500 candle-power, supplied by the Union Electric Co., Ltd., of Park Street, Southwark, suspended to an artistically wrought-iron bracket guarded by the St. George's winged dragon, is on each side of the four corners of the tower at a height of 30 feet, throwing its powerful rays far into the six main roads converging on the Circus. On the east, south and west side of the granite tower base bronze memorial tablets are fixed, of which one sets forth the deed of gift, the names of the donors and the architect; the other the names of the mayor, town clerk, borough engineer, builders, sculptor and clockmakers; and the third the removal of the Obelisk, &c. The bronze and ironwork are by the Birmingham firm of Messrs. HARDMAN, POWELL & Co., the same who supplied the artistical ironwork to the Houses of Parliament. The artistically executed carvingwork is by Mr. G. S. ARROWSMITH, the sculptor, while the builders are Messrs. WILLIAM KING & SON, of London. The total cost of the clock tower is about 3,500*l*.

BANGOR FREE LIBRARY: SECOND PREMIATED DESIGN.

ADDITIONS, NORTH SUTTON, SEAFORD, SUSSEX.

THE interesting "Old Farm House," of timber and tile construction, has long since disappeared in the evolution of a later development of brick and slate. The alterations now contemplated being intended to bring the house more "up to date," and to impart as much sunlight into the rooms on the south and eastern fronts as it is possible to get. Our illustration is from a water-colour sketch by the architect, Mr. PHILIP TREE F.R.I.B.A.

CATHEDRAL SE<sup>1</sup>ES.—SOUTHWARK; THE LADY CHAPEL.



# LANGLEY MARISH.\*

LANGLEY as a place name is not uncommon in England. King's Langley and Abbots Langley are places whose distinctive titles possess obvious meanings, having been respectively royal and monastic possessions. In the case of Langley Marish, or Marsh, the distinctive name is not so obvious, and three different meanings have been allotted to it.

First, that the parish lies in a marsh, which is not the case now, if it were so in the bygone past. It is true that the country is flat here, and the great canal is close by. Secondly, it is suggested that Marish is a variation upon Maries, the church being dedicated in honour of St. Mary. And, thirdly, it is stated by Lipscomb that the manor was held by Christiana de Mariscis for a short period only in the reign of Edward I., from which it is suggested with the greater show of reason that de Mariscis was the family name, giving the village and the parish its name. The family, later called Marreys, resided at Ockwells, near Maidenhead, and their historic home, which was ravaged by fire in 1778, is described by Mary Russell Mitford in her "Recollections." Its character may be inferred from that lady's description of it as "a curious and beautiful specimen of domestic architecture in the days before the Tudors."

The parish originally formed part of Wyrardisbury, or Wyraysbury, and its church was a chapel of ease to that parish, so that in Domesday it was not surveyed separately. At the time of the Survey it was the property of Robert Gernon, and in the "Testa de Nevill" is said to have belonged to Richard Monfichet as parcel of his barony of Stansted in Essex. This Richard was the eldest son of Robert Gernon, and took the name of Monfichet. The manor passed out of the hands of this family to Edward I., by reason of the minority of Ralph Plaiz, the cousin and heir of Aveline Mountfichet, notwithstanding a claim to the state put in by Elizabeth, Countess of Oxford, as being heir to Ralph. It was retained by the Crown till 1447, when it was granted to Eton College; then again it passed to the Crown by exchange, for in 1492 Henry VII. granted the manors of Langley Mareys and Wyrardisbury to Elizabeth, the queen consort, as appears by the Patent Rolls, 7 Henry VII. The eighth Henry had a finger in the Langley pie, as a matter of course. When about to marry his deceased brother's wife, Catharine of Aragon,

Edward VI. gave the reversion of the manor to Thomas Hennage and William Willoughby, and also granted it in 1551, as part of the Honour of Windsor, to his sister, the Princess Elizabeth, and the park there with the bucks and does therein. Then the said Princess Elizabeth, when she became queen, in the year 1585, in consideration of services done by Sir James Crofte, knight, and at his request, granted to Edward Wymarke, gentleman, 6 acres of land, 2 acres of wood and other lands and hereditaments in Langley Marish and Iver, called the Rayles, the Middle Close, the Galewick Marsh, Galewick Wood and the Little Close.



ST. MARY, LANGLEY MARISH.

In the reign of Charles I. came the turn of the Kederminsters, the family which has left the most lasting name on the church and manor. The manor was granted in 1626 to Sir John Kederminster, knight, and Dame Mary, his wife, and their daughter and heiress, Elizabeth, carried the estate in marriage to Sir John Parsons, knight, of Boveney. Sir William Parsons, created a baronet in 1661, succeeded, and on his death his executors sold the manor to Henry Seymour, Esq., of the family of the Duke of Somerset. This was in 1669, and Seymour died in 1686, and was buried here. His only son, Henry, was created a baronet when seven years old, while his father was still living. Henry Seymour died, unmarried, in 1714, and the estate passed to Sir Edward Seymour, Bart. The latter was grandson of Edward, brother to Henry Seymour, the first purchaser. Another Sir Edward Seymour, Bart., conveyed the estate to Lord Masham in 1714, who sold it in turn to the Duke of Marlborough in 1738. The latter conveyed it by deed, dated September 30, 1788, to Sir Robert Bateson Harvey, Bart., in whose family it still remains.

Such is the varied and far from uninteresting roll of the owners of the manor of Langley Marish, for which we cannot be too grateful to Dr. Lipscomb. That valuable chronicler of Buckinghamshire history tells us, of the home of these notable men, that "the manor-house was originally built by Sir John Kederminster, Bart., but soon after the Duke of Marlborough came into possession it was pulled down and a new mansion built. It is a large square stone edifice with little exterior decoration, situated in a park beautifully wooded, rendered more celebrated by the taste and elegance with which the grounds were laid out by his son George, Marquis of Blandford, who resided there during several years, and commenced that beautiful specimen of ornamental gardening which his Grace subsequently carried out to so great a degree of perfection in the noble demesnes at Blenheim."

The church of St. Mary, Langley, was built by the Kederminster family, according to Lipscomb, but much of the structure is anterior to 1626, the date of the grant of the manor to Sir John Kederminster. There is a stone carved with a star pattern in the Norman style built into a wall at the east end of the nave arcade, and a plain Early English arch may be seen on the north side of the west end of the nave. In the fourteenth century the present chancel and north chapel were rebuilt, and the north aisle somewhat later. The windows of the chancel and north aisle retain their Decorated tracery. A later addition was the Perpendicular window on the south wall of the nave (there does not appear to have been a south aisle); this window



ALMSHOUSES, LANGLEY MARISH.

conveyed to her, when Princess of Wales, in full satisfaction of dowry, &c., *inter alia*, the manor of Langley Mareys. The deed was dated June 10, 1510, and the manor was held by Catharine when queen. The deed was attested by William, Archbishop of Canterbury; Richard, Bishop of Winchester, Keeper of the Privy Seal; John, Earl of Oxford, Great Chamberlain; Thomas, Earl of Surrey; George, Earl of Salop; Sir Charles Somerset, knight; Lord Herbert; and Sir Thomas Lovell, knight, Treasurer of the King's Household. Again Henry VIII. dealt with the manor, granting it in 1523 to Henry Norres, knight, of the Body, with the appurtenances and all rights of fisheries, for his lifetime, together with the office of keeper of the King's Woods in the County, Plaunte or Park of Langley Maresse.

\* Read at a meeting of the Upper Norwood Athenæum on July 6, by Mr. Theophilus Pitt, F.C.S.



has been blocked up. In the seventeenth century the work of Sir John Kederminster begins. He took down the arcade separating the nave from the north aisle, and replaced it by wooden pillars, putting the date 1630 upon the architrave. Then, on the south side of the church a chapel was built to contain the monuments of the Kederminsters; this was also used as a family pew. It is raised many steps above the level of the church, and surmounts a vault. At this time also the upper portion of the tower was rebuilt in brick, and also the library, which is the special feature of the church. Sir John Kederminster left it "as well for the perpetual benefit of the vicar and curate of the parish of Langley, as for all other preachers and ministers of God's word that would resort thither to make use of the books therein." John Milton is said to have made use of the library, which is not improbable, considering his connection with the neighbourhood. The chief distinction between this parvise and others of a similar type lies in the fact that the room in this case was built for the library. Usually the parvise over the south porch of a church was built for the convenience of the clergy, and was mostly attained by a winding staircase opening into the church. Those who would like to acquire further information with regard to the Langley library may consult "The Care of Books," by W. J. Willis Clark, 1901, and a paper by Charles Knight in *Once a Week* for July 1859. In 1792 a screen made of "Coad's artificial stone" was erected to separate the manor pew from the church. In modern times there has been no "restoration," and to this fact is due, no doubt, that some interesting details are left to us. The sedilia and piscina of Early English date, some old encaustic tiles in the chancel, fragments of fourteenth-century glass in the north aisle, and a shield with the Stuart arms encircled with the Garter are intact. The ancient roofs remain, and the decoration of the chancel roof in gold and colour is left. The Perpendicular chancel screen is of oak, and the Jacobean pulpit bears the arms of Kederminster, with the date 1625. The brass candelabrum was placed in the church in 1709. Of the monuments, the chief is one to John Kederminster, d. 1556, and his wife Elizabeth, d. 1590, with two sons and three daughters; and Edmund Kederminster, d. 1607, and his wife Anne, d. 1618, with two sons and six daughters.

Langley Park is the seat of Sir Robert Grenville Harvey, Bart. The mansion was built by Charles, Duke of Marlborough, and contains a full-length portrait of Mrs. Siddons by Sir Joshua Reynolds, Lady Hamilton by Romney, and many other valuable pictures.

### ARCHITECTURAL CRITICISM: SIR R. SMIRKE.

IN the first half of the nineteenth century the criticism of buildings by architects then living was allowed to be expressed with more severity than afterwards. One of the reasons was no doubt the monopolising of important works by a few men. Having official appointments, they were supposed to possess exceptional ability by clients of an ordinary class. An architect who could testify to the change in criticism was Sir Robert Smirke. He died in 1867, but he was fortunate in obtaining commissions almost in the beginning of the century. He was a pupil of Sir John Soane, and made the usual tour through Greece and Italy. In 1831, when the following criticism was written, his tide of prosperity was at its height, and there was some courage required, as well as much knowledge, to explain the shortcomings of the works he had executed:—

Were we called upon briefly to sum up our opinion of the professional talents of the architect of King's College we should describe him in the words of Pope, as one who is "Content to dwell in decencies for ever." Mr. Smirke never indulges in vagaries of any kind, for he never steps out of the beaten track. His style is not a little insipid, yet perfectly decorous and well-bred. Notwithstanding which, although he never shocks us by any very glaring improprieties of commission, he generally contrives to disappoint us by those of omission. As far as it goes, his system is a safe and secure one; but then it goes a remarkably little way, hardly ever exceeding the limits of mediocrity, and stopping short of the confines of genius. He seems rather to be content with the negative merit of merely not offending, than ambitious of the higher praise of delighting us by eliciting new beauties and displaying original powers. He never sinks below, but neither does he ever rise above, the ordinary level. His porticoes are classical, his columns are classical;

still they are classical merely by routine, being just what any one else could produce with the assistance of St. "Athens." They are correct because they are facsimiles; their correctness therefore is not the result of study rather it is of that species which is attainable without study at all beyond that of mechanical imitation. The accuracy he exhibits is precisely the same as what would be shown by a Chinese workman were he set to copy a Grecian column with an original before him. It happens, oddly enough, too, that although he always affects an ultra-classical in his designs, he rarely infuses into any of the spirit of the antique; nay, seems so little to understand it that he not infrequently mars and disfigures them by blemishes which, although apparently of minor importance in themselves, impart a vulgar taint to the whole. Clever as a copyist, as an imitator he is for the most part both unskilful and unfortunate, for as soon as authorities desert him and he is thrown upon his own resources, he betrays such a sterility of imagination, such a deficiency of taste, and so much feebleness and insipidity that we almost question whether he really feels the beauty of the style he professes to follow. As to originality, hardly anything like a virgin idea can be pointed out in any of the numerous works he has executed.

The new Post Office, which, by-the-by, has been set up as a wonderfully fine piece of architecture, will not found to contradict our criticism. That it is a very fine building, in a style immeasurably superior to that of almost every one of the most lauded productions of the last century is indisputable; and that we ourselves can view it with sufficient satisfaction, although not with unqualified approbation, we as readily concede. Still we cannot help suspecting that we must attribute the improved taste which exhibits quite as much to the age as to the artist. Even a lad who had passed only two or three years in an architectural office could not fail to produce something many degrees better in point of design to what we find was able to command distinction upon its author about a century ago. At least he could not well commit such egregious solecisms or indulge in such offensive puerilities. Not having seen any of the projects sent in by the other competitors, we cannot judge how far Mr. Smirke's merited the preference it obtained; but we must say, when we look around us, we do not think he has at all advanced beyond the average ability of contemporaries.

In estimating an architect's talents people seldom enter into the account how much he has either been favoured or impeded by external circumstances, making no allowance in the latter case, while in the other they gratuitously impute to superior skill and talent what is chiefly attributable to propitious opportunity. Thus many a man has obtained considerable reputation, if not altogether perdurable fame, merely because he has been employed upon great works. We are much of the opinion of Molière's miser, when he tells his cook that anyone could make a handsome dinner with a plenty of good things, that the great art consists in making a splendid banquet of almost nothing. While, therefore, we are far from denying that the Post Office possesses much dignity, we also think that it would have required a more than ordinary degree of perverse ingenuity to have rendered a façade of such extent and constructed of such material, otherwise than imposing and possessing some pretension to grandeur. Unchecked and counteracted by extreme littleness of manner, mere quantity can hardly fail to produce, *ceteris paribus*, a striking effect than is attainable upon a smaller scale. A species of merit, therefore, depends far more upon the accident than talent; and we will venture to affirm that there never yet was, and to predict that there never will be, an architect who would erect a small building if he were at liberty to erect a large one.

The question then becomes this:—Has Mr. Smirke exhibited here any of those finer qualities of art which evince superior taste and intelligence? Is there anything in the general composition that indicates a master mind? any bold conception, any original idea, any peculiar feeling of expression, any particular beauty of detail, or anything that the architect has stamped as exclusively his own? There be it is more than we have yet been so fortunate to discover. Where he has quoted the ancients (architects we cannot help observing, frequently do little more than quote, and sometimes with little propriety, too), Mr. Smirke does as well as anyone else, and anyone else would do equally well as Mr. Smirke, but when he ceases to quote and gives us Mr. Smirke we instantly become sensible of the difference.



Where, we ask, was his classical taste—his perception the *to kalon* and the *to prepon*—when he could either sign for a Grecian Ionic hall those miserable windows fitly for a kitchen or a stable and those three insignificant, d-looking arched doorways with the clumsy gallery above them, or could think of putting up Ionic columns in a vestibule of that description? At least, why did he not attempt to preserve some degree of keeping and accommodate the building more to his own architecture—if he could not render the latter more of a piece with the order—by leaving the columns unfluted? We beg pardon for such a question; Mr. Smirke would not be guilty of anything so unclassical in the world. Where, too, we must again ask, was either his invention or his taste, when he made the design for the building in front of the building, in which it is impossible to trace the least similarity of character with anything else?

If we seem to be trying Mr. Smirke by a rather severe test, it at least proves that we consider his works worthy of a critical examination; and also because such defects do us far more than they would if the whole were more uniformly mediocre, when such inconsistencies would be so striking and less offensive. Nay, we will admit that far more violations of propriety are to be met with in the works of his predecessors, and that if he chooses to be measured by such a standard, he will undoubtedly not appear to disadvantage. Yet it would be but a poor compliment to an architect of the nineteenth century to say that he has steered clear of the vices and barbarisms of more or less disfigure nearly every building of every architect from Inigo Jones to James Payne inclusive. This would be rather too much like commending a poet of the present day for not being so dull as Sir Richard Blackmore, affecting to admire a face-painter as being at least equal to Jervis or Hudson. By lowering our standard in this way it is not difficult to make anything appear great; compared with the "Castle of Otranto" the production of almost the meanest imitator of the Waverley school will seem a masterpiece; by the side of Hoole any tolerable versifier may pass as a poet.

Now Heaven forbid that we should set up such an insulting defence for Mr. Smirke as to say that, compared with the Swans and the Lewises, the Taylors and the Pynes, the Carters and the Carrs of the last century, he is only Grecian where it pleases him to be Greek and Gothic where it pleases him to be Gothic; that if sometimes quite frigid and tame, he is infinitely more pure if not more imaginative—never so *bathetic*. Praise of such description would, in our estimation, be infinitely worse than a hundred spoons—"very tolerable," as the worthy Dogberry says, "yet not to be endured." Mr. Smirke seems to have got his architecture "by heart," or rather by rote; to have furnished himself with a goodly assortment of ideas, not exactly new, indeed, but as "good as new," of which he seems to be solicitous to make the most by ekeing them out in the thriftiest manner. To such an extent does he exercise his caution that it would really be difficult to point out three or four bona-fide original ideas in all that he has done, which is saying a good deal, since he has had as many opportunities as any one of the present generation of architects.

If, considered as a work of art and not merely as so many columns and windows and so many square feet of face, the Post Office must be content with our acquiescence rather than our approbation, the terms in which we have ourselves compelled to speak of some of Mr. Smirke's other works will not bring down upon us the accusation of severity. In the church in Wyndham Place he seems to have lost himself entirely. It is bald even to meanness in meeting-house with a steeple; and that steeple, moreover, is as uncouth in every respect as could well have been devised. It would be downright libelling even Mr. Nash's design in Langham Place to compare it with the structure in Wyndham Place. Belgrave Chapel is infinitely better, because there he has ventured upon nothing more daring than a plain tetrastyle portico of the Ilyssus Ionic, and the building is in good keeping and free from offensive anomalies. A very different character is the structure containing the London Club House and College of Physicians, than which it would not be easy to point out a more huddled-up composition, or a more disagreeable kind of antithesis than that afforded by the classical columns and the exceedingly unsuitable aspect of the other features, and the manner in which they are put together. All that we can prevail upon ourselves to add by way of qualifying the opinion we have expressed is that it must be understood with reference to

the east side of the building, and also with reference to the improved architectural style of the present day; otherwise it would be exceedingly easy to point out far greater offenders.

Mr. Smirke's *rifacimento* of the front of the Custom House may be appreciated at a glance. He has, we confess, so far rendered it all of a piece, that the centre is now of no more importance than the wings. Mr. Laing's design was certainly a very so-so affair upon the whole; still it did possess some propriety of character and some degree of balance and contrast. These Mr. S. has "poked out" altogether; consequently the building has not been at all improved by the "reform" to which it has been subjected; on the contrary, it is now as insipid and flat a pile of stone and mortar as can be imagined.

As yet it would be premature to speak of what Mr. Smirke has done at the British Museum. It was asserted some time back in the House of Commons that when completed the whole pile will form one of the most splendid pieces of architecture of modern times. The value of the opinion must of course depend altogether upon the judgment on which it is founded. We can only say that, as far as we are guided by present appearances, we are not particularly sanguine in our expectations. The exterior of the wings towards the court presents but a cold and sullen aspect, and, if we may trust those who have seen the designs, the façade will be rather tame and commonplace. Perhaps, however, the honourable critic in Parliament spoke rather with allusion to the interior of the structure, where we admit that Mr. Smirke has greatly surpassed himself in the Library in the east wing. On this we can bestow unqualified approbation, which we do most cheerfully. Here there is no drawback upon our admiration, the whole being as much distinguished by the uniform elegance that reigns throughout, as by the beauty of its materials and its imposing extent. Whatever the architect, too, may opine of the general tone of our criticism and our censorial strictures, he will hardly undervalue our praise or suspect us of adulation.

Without extending this examination of his other works we shall now speak of his latest work, King's College, Strand, which ought to have been noticed long before. We, however, have preferred marshalling our paragraphs more according to the etiquette observed in a royal procession, where the post of honour is not in the van. We must not be understood as intimating by this that King's College deserves this kingly situation by its intrinsic merit. With regard to the elevation of the college itself, if there is nothing in it to warrant particular animadversion, there is likewise nothing to excite our approbation beyond the pitch of calm complacency. We greatly question the propriety of deviating from the plain and unadorned yet not displeasing style of the opposite range of building; or we should rather say we think it would have been better had that model been adhered to, as by that means uniformity and economy would have gone hand in hand. At present, the consistency that would have atoned for embellishment is quite destroyed, although it is hardly possible for anyone to divest himself of the idea that the structures opposite, and thus opposed to each other, essentially form a portion of one extensive whole. We think, too, that even if it were desirable to give a more ornate character to the new building, it would have been as judicious to have adhered to Sir William Chambers's model in the elevations towards the court, upon which Mr. Smirke has certainly not improved. He is less Italian than his predecessor, without being a whit more Grecian, and has deviated materially from him both in his basement and his order, without substituting anything better. Everyone who compares either the back-front of the part towards the Strand or the opposite end of the court with Mr. Smirke's design must be sensible of this, for while the detail is far less picturesque, the general aspect is of an inferior stamp. It is certainly neat and pretty enough, but it is altogether destitute either of nobleness of manner or gusto. Compared with the order, the architraves of the windows look bald and feeble; and we may here observe, too, that Mr. Smirke also invariably employs the same design for his windows, be the order he introduces, or the general character he aims at, what it may; as to character, indeed, his style exhibits but a very limited compass. In the order the plain modillions of the cornice do not harmonise particularly well with fluted shafts; as little do we approve of projecting and retiring divisions being introduced into this façade, as it tends still more to destroy that degree of balance and general correspondence of outline, if not of



detail, which the eye naturally looks for in a vista of this nature. We will nevertheless own that we may be somewhat hypercritical here, since the architect may plead that this was done expressly in order to prevent that degree of uniformity between the opposite ranges of building, which would have rendered their discrepancy in other respects more displeasing, and he may further say they are as independent of each other as buildings facing each other in the same street. Be this as it may, we regret that he did not employ material of the same hue and texture as that used in the ornamental parts of Sir William's building. If Portland stone was considered too expensive, it then becomes a question whether it would not have been better to have carried the principle of economy still further, making the exterior of the college similar to the opposite building and to have expended all that would have been thus saved in forming a more noble approach from the Strand, and rendering that, if not an extensive, at least an imposing piece of architecture, a character to which the present entrance has no pretension whatever.

Were it not for the arms of the college—which stand like the columns of the open loggias on the terrace, above a mere arch, and consequently threaten to fall upon the heads of those who venture beneath it—were it not, we say, for the arms, this homely gateway might be mistaken for one leading to some mews, or to a porter-brewery. Still, however dissatisfied we may be with it in itself, we are satisfied that it will be found to confirm some of our remarks, being an evident proof that Mr. Smirke either does not possess, or does not care to employ, the talent of effecting much with apparently little means. The frontage towards the street is certainly narrow, not quite equal to that of the Post Office; nay, a few feet more would not have been amiss; still, even as it is, there was a fine opportunity to produce a noble propylæum, of strikingly original and picturesque design; something, in short, stamped with an air of sublimity, and rearing its lofty crest with majesty. But, most unfortunately, Mr. Smirke has too much of that disposition which, although so amiable in ethics, is so fatal in art, ever to indulge in ambitious aspirations. He is perfectly content to adopt the very first idea that presents itself, be that idea ever so homely or hackneyed. He has accordingly given us here what we have seen over and over again, a stale and vapid design; exempt, it must be confessed, from any notable vice, yet equally exempt from any particular beauty. It is just the kind of design a mere builder would have furnished, and had we been told that Mr. Cubitt was the author of it we might have deemed it a sufficiently respectable affair.

No one, we will venture to say, not even the architect of the New Palace, flings away opportunities at the rate Mr. Smirke does. Here, for instance, was one—we could name many others—of which an architect of any genius would have eagerly availed himself, to have erected not only a noble exterior façade, but also a fine and varied scenic perspective from the street, which might have been effected in many different ways, all more or less highly novel and striking, but all neglected. Wherefore, too, is this gateway, such as it is, made to form a gap between the houses, since there seems to be as little meaning and motive in it as there was occasion for so doing? In some cases a break of this kind is made to conduce to effect; here it is attended with none that we can discover, except it be a disagreeable one, appearing to arise more from mere accident than purpose. In fact, this circumstance even tends to render the entrance still more insignificant by giving it the appearance of being squeezed in between the houses. Perhaps, however, we may be mistaken after all; and certainly its coy retiring modesty is commendable, arising, as without doubt it does, from the consciousness that it loses nothing in our esteem by not being more conspicuously placed. Or it may be that the gateway is thrown back in order to give the opportunity of railing it off by a barrier which is still uglier than the palisading in front of the Post Office, such as a common carpenter would design, absolutely mean and uncouth both in its general appearance and detail, and in a style infinitely inferior to what we now perceive aimed at even in ordinary shop fronts.

The Trustees of the Cowper Museum, Olney, are about to appeal to lovers of the poet for funds to enable certain necessary alterations and improvements to be carried out. In particular, it is intended to throw open the entire house where the poet resided for many years, and to show the room in which he wrote "John Gilpin."

## A LIVERPOOL ARCHÆOLOGICAL EXPEDITION.

ONE fine day the Vice-Chancellor of the University of Birmingham, recuperating in the healing air of an Egyptian desert, was strolling about and reflecting, how different it all was from the familiar English scene; how far off and faint the sights and sounds of the ordinary routine life seemed, when he came upon a great plume which made him rub his eyes. On it he found inscribed "University of Liverpool Institute of Archæology." Being inquiring into the causes of this phenomenon he discovered members of the staff of the Institute busy about the excavations, and spent an interesting afternoon with them. His respect for the enterprise of his Liverpool neighbour is said to have been much increased by this experience.

A traveller in the remote parts of Asia Minor last summer might have had, says the *Liverpool Courier*, a sensation similar to that of the Vice-Chancellor by stumbling on the camp of a small band of adventurers from the centre and on the same quest—the extension of archaeological knowledge. Under the captaincy of Professor Garstang, the Rev. M. Linton Smith, Herr Horst Schliephack and Dr. Arthur Wilkin, starting from Constantinople and travelling by train to the rail head at Angora, set forth from that place on an expedition of inquiry into the archaeological possibilities of that portion of Asia Minor which is held to have been covered by the ancient Hittite Empire. For its dimensions this group of explorers was well equipped on many sides. Professor Garstang, with his wide experience of archæological work both in England and Egypt, has the skill in the methods and practice of the science and the knowledge of the problems which are so vital and pressing in that field of work requisite in the leader of such an enterprise. The Rev. M. Linton Smith is an expert in Greek antiquities, of which it was certain that a number would be found in a region where the Greeks (the Romans after them) are known to have been. Dr. Arthur Wilkin, in addition to his archæological interests, is a physician, and his presence was a valuable insurance against possible physical miseries which, in those wild parts far away from medical aid, would have otherwise entailed. Happily the members of the expedition enjoyed excellent health throughout their travels. Herr Schliephack is a skilled photographer, and the harvest of over four hundred photographs which have been gathered and brought home will be of the greatest value for the record of this journey.

The expedition, it should be explained, was of the nature of a "prospecting" tour. There were reasons which we need not go, for believing this part of the journey into Asia Minor to be particularly rich in archæological material, the object was to take a first survey of the whole field in order to test this conviction, and, if it were verified, to mark out the spots where later and more detailed investigation would probably be most fruitful. In the result the expectations of Professor Garstang were more than realised. They have come back greatly impressed with the wealth of material there and with the magnitude of the importance of the civilisation indicated by it. It is believed that there will be found "documents" which will afford material assistance in investigating the problems of Babylonian, Assyrian and Egyptian history. What may be brought to light from the ruins of the Hittite Empire will, it is thought, when fitted into its place, make clear a number of historical puzzles insoluble at present for want of missing pieces. The country again is in the track of some of the great historical movements of peoples and armies from the East to the West and from the West to the East. The memorials of these migratory representatives of the various civilisations which passed this way are to be expected. The expedition found many signs of both Greek and Roman handiwork in their travels.

The first destination was Boghazkeni, the ancient capital of the Hittite Empire in 2000-1000 B.C. The expedition found excavations in progress there, and were fortunate in obtaining a complete and striking series of photographs of the ruins of the temple, the ancient city walls, and the fortifications. Among these photographs are to be specially marked those of the sculptures known as "Jasily Kaya." These represent the groups of figures in relief as in a remarkably fresh state of preservation. The significance of these sculptures is not yet quite made out. The most probable suggestion is that they represent a Hittite religious festival. But as illustrations of Hittite art, and as a consequence indications of the maturity of this civilisation, they are of great interest. Euyuk, notable for its sphinxes, was also



visited. Two new sphinxes were discovered by the party. The photographs of the Euyuk sphinxes are among the most impressive in the whole series, and will create a good deal of interest when they are published. The expedition then passed on to Cæsarea, and in its neighbourhood were fortunate in finding a number of Hittite inscriptions and antiquities. In this district on the banks of the Halys river a particularly good find was made. This was the (headless) figure of an eagle standing on three lions. The figure is a massive piece of work many times the bulk of a man and reveals much strength and boldness of design.

Passing by Bor and Killisse Hissar to the Cilician Gates, Professor Garstang and his friends spent some time in the Taurus mountains examining Hittite remains and racial types. Through the noble and splendid scenery of this part of the journey the party descended to Cilicia. Thence they pushed on to the north of Syria. Here a solid piece of work was done in the exploration and mapping out of the valley of the Afrin, a river which flows into the Orontes at Antioch. This wild and desolate region has been very little known hitherto. In this great silent waste it was impressive to come in several places upon the remains of old Greek cities. At one spot—Huru Pegamber—photographs were taken of a remarkable instance of such a city, with theatres, columns and public buildings. The fireside stay-at-home peruser of these photographs can partake in part of the thrill which this spectacle of a city in the wilderness must have given to the discoverers. In this same lonely valley of the Afrin, near the head of the river, the exploring party examined several Hittite sites, and had the fortune to find numerous sculptures and inscriptions, of which, of course, a record has been made.

This work done, the members of the expedition had completed their business for the season and had to think of home. Tracks were made for Aleppo, which was reached in safety; thence to Beyrout by train, and so on to England again. Professor Garstang, after a few days' delay in London in connection with the business of the exhibition of Egyptian antiquities, the fruit of his last season's excavations at Abydos, reached Liverpool a few days ago. He expresses himself as more than satisfied with the results of this pioneer journey, which, by the way, was in all about 5,000 miles in length. He is persuaded that in the region from which he has just come there is an archaeological mine which will yield considerable treasure, and which, therefore, calls for the serious attention of archaeologists. The journey was made possible by the courtesy of the officials at Constantinople, and agreeable by the local Turkish officers, who were almost invariably kind and helpful. There was some puzzlement in the Turkish mind at finding a German travelling in the company of Englishmen. The view that science has no boundaries had not travelled thus far. But no serious difficulty was caused. The conjunction was in the end, no doubt, regarded as part of the general "madness" of the party. The good offices of Quilliam Bey were of much value to the expedition.

special reference to the profession of architecture, and further to encourage investigation in connection with all branches and departments of knowledge connected with the profession.

Such an ambitious undertaking is certainly worthy of all commendation, and if the formation of the Institute will make for the improvement of the architectural profession in Canada it should undoubtedly be given every possible encouragement.

In the present condition of the country it must be apparent to everyone that the small country town practitioner is afforded very little opportunity of rubbing elbows with his fellows, or even of realising that they and he have interests in common to the extent of interchanging professional ideas. Will the formation of the Institute better this condition? The membership is intended to comprise architects practising over the entire Dominion—a vast territory. With such wide jurisdiction and scattered membership, it is questionable whether it will ever be possible for the Institute to aid materially in the betterment of the profession without the aid of local chapters, acting in a capacity subordinate to it. While doubtless one great central organisation, such as the Institute promises to be, would serve as a means of maintaining the status of those within the pale legally and professionally, its activity might end there, and what is avowedly the main purpose of the Institute, viz. the interchange of professional knowledge, as quoted above, would be entirely overlooked. In the larger cities there are already chapters or associations which ought to work hand in hand with the central organisation, if a complete network of influences is to make for the good of the profession.

The State recognition which the Institute seeks aims at improving the status of those who happen to be within its pale. The part the Canadian architect may be expected to play in the future history of Canada will be no inconsiderable one, and it is undoubtedly an opportune time for him to assume something of the position he merits in the public estimation. It is possible by a proper scheme of registration to materially benefit the profession in its practical as well as in its higher aspects. No one has a better reason for seeking every legitimate protection from the "charlatan" than the man who, by earnest study and much labour, has proved himself fully qualified to pursue the practice of his profession.

A considerable difficulty arises here, however, by reason of the proposal to limit the word "architect" to members of the Institute only. That the test of an entrance examination should be the means of determining membership is a feature of the new organisation that will receive considerable opposition from a large part of the profession. While there is no doubt that anything looking to the better educational preparation of young men entering the architectural profession is highly desirable, it seems scarcely wise to so suddenly institute an innovation in the present procedure, and limit the title "architect" solely to those who have succeeded in passing an examination of the character proposed by the Institute. Good architects are to-day enjoying the confidence of their fellow-men, and have risen high in the profession without having passed any examination whatever.

In any profession it is the standard of practice that is the vital question, and it is doubtful if this can be raised by an entrance examination, hastily prepared for and extremely limited in its scope. The fact of his architect having passed such an examination weighs but little with a client, neither does it guarantee for that architect any greater ability to provide for the public safety. On this particular stress has been laid by some exponents of registration in the United States, not, however, to the welfare of the cause. The opponents of registration point scornfully at the unsavoury history attaching to the Pennsylvania Capitol at Harrisburg, and contend that if, as so many claim, one of the strong reasons for registration is to insure the safety of the public against incompetent architects making mistakes, the sooner that claim is dismissed the better. They contend that if the Government is to be urged to license architects, it should also hold a moral and commercial inquest.

However, it must be admitted that there should be a better opportunity afforded students of architecture for preparation at our universities. It is to be regretted that in Canada the existing opportunities for academic training along architectural lines are shockingly inadequate. In Toronto University a "tacked-on" course at the School of Practical Science is all that Ontario can offer. McGill, of

## INSTITUTE OF ARCHITECTS OF CANADA.

FOLLOWING the agitation that for so long has been maintained by the architectural profession in Great Britain and the United States, says the *Canadian Architect*, the question of registration, the time has apparently arrived when Canadian architects are about to take definite steps in the matter of forming what is to be known as "The Institute of Architects of Canada." So much has been written in English and American architectural journals regarding the vexed question of registering architects that scarcely anything new can be said upon the subject that has not hitherto been directly or indirectly referred to. Statistics have been brought forward to prove that in some States of the Union, where there has been put into practice some such system of registration as is now being contemplated in this country, the beneficial results accruing therefrom have been considerable. On the other hand, just as strong testimony has been adduced to show that in places where the registration system has been given a fair trial no good results have been obtained.

Referring to the outline of the project of incorporation of the proposed Institute, with which doubtless most of the profession are by this time familiar, we note that the "Institute of Architects of Canada" has as its object to facilitate the acquirement and interchange of professional knowledge among its members, and more particularly to promote the acquisition of that species of knowledge which has



course, offers better facilities. However, if the new Institute will endeavour to secure in Canadian universities more complete and satisfactory courses of study than now exist it will be doing a commendable work. Greater culture for the architect, to be obtained by a good university training, in the humanities as well as in science, will be an infinitely more satisfactory object of attainment than the hasty preparation in the rudiments of heating and ventilating a building that would be the general result of "cramming" for the entrance examination, as outlined in the act of incorporation, for which examination the average student would of necessity prepare himself by private study.

With its many desirable features, the act of incorporation as it now stands will bear some modification. In any case, it is unlikely that it will escape criticism at the hands of at least some members of the profession before it is finally accepted *in toto*. In the main, however, Canadian architects appear prepared to co-operate in any action that looks to the betterment of the profession.

#### ADAM BEDE'S COUNTRY.

THE members of the North Staffordshire Field Club held their fourth excursion of the season on the 27th ult., when, to the number of about ninety, they visited the "Adam Bede" country, including Norbury, Ellastone (where the earlier scenes of George Eliot's novel are laid), and Wootton. At Norbury, says the *Staffordshire Advertiser*, the old manor-house was first inspected, by the kindness of Captain H. A. Clowes. The hall was occupied by the Fitzherberts of Norbury until about 1649, when the estate passed into the hands of the Fitzherberts of Swynerton. The rooms contain some fine oak panelling, and one is traditionally known as Sir Anthony's study. The manor-house was rebuilt in the fourteenth century by Nicholas Fitzherbert, and there is an archway leading from it to the church. This ancient edifice was next visited, and its numerous interesting features were pointed out by the rector (the Rev. A. G. Metcalfe), who first drew attention to the tomb of Sir Henry Fitzherbert, dating back to about 1300. The monument consists of a recumbent effigy in stone with chain armour. The chancel was built in the fourteenth century, when one of the Kniveton was at Norbury. The attention of the club was drawn to the fine heraldic glass in the chancel windows, which is said to be amongst the finest in the country. The east window was sold to a Roman Catholic church in Yorkshire, and for some time the aperture was boarded up, but in 1847 this gave way to the insertion of glass from different parts of the church, the finest portion of the present window being a representation of the Trinity. In the chancel are situated the tombs of Nicholas Fitzherbert, which dates back to 1473, and Ralph, his son. Nicholas had eight sons and five daughters by his first wife, and two sons and two daughters by his second, and figures representing the family of seventeen occupy arched compartments around the tomb. The Rev. A. G. Metcalfe said that it was the opinion of Dr. Cox that the two tombs were executed about the same time. In the centre of the chancel floor is the monumental brass of Sir Anthony Fitzherbert, who was a noted judge in his time. The brass was intact until 1847, when some portions of it were removed and not reinstated, the rector remarking that it was known that some of the pieces were used as playthings by a former incumbent's children. The brass is of great antiquity, for on the reverse side there are indications of its having been used before the death of Sir Anthony. It was explained that the tower of the church was built in the fifteenth century and its position (between the two chapels on the south side) was possibly accounted for by the existence of the archway from the manor-house to the church. The edifice was dedicated to St. Barloke, as was proved by the wills of two of the Fitzherberts, who directed that their bodies should be interred "in the church of St. Barloke at Norbury," but nothing was known of that saint and the church was now called St. Mary's. At the conclusion of the inspection of the church a hearty vote of thanks was passed to the Rev. A. G. Metcalfe.

A pleasant walk across the fields brought the party to Calwich Abbey, to which they had been invited by Mr. A. C. Duncombe and Lady Florence Duncombe. At the entrance to the grounds they were cordially welcomed by Mr. Duncombe, who conducted them round the beautiful gardens, where they were subsequently joined by Lady Florence

Duncombe. The members were at once interested in exceedingly delightful surroundings, and the various points explained by their distinguished host and hostess were followed with much appreciation. It was mentioned that the abbey was built about sixty years ago and that Han was a frequent visitor at Calwich. After partaking refreshments, the club were invited to view the interior of the mansion, a privilege which was highly appreciated, and much admiration was shown for the exquisite panel and needlework executed by Lady Florence Duncombe. Before leaving, the Rev. C. F. L. Barnwell thanked Mr. Duncombe and Lady Florence for their great kindness in entertaining the club. Mr. Duncombe said that he and his wife had been delighted to see the members, and hoped that it would be the last occasion on which Calwich Abbey would be visited by them.

After another pleasant ramble through the fields the stone Church was reached, and there the Rev. F. J. Wrottesley, vicar of Denstone, explained the features of interest in the absence of the Rev. E. H. Birley. Mr. Wrottesley said that the edifice had undergone two restorations. On a doorway on the south side of the chancel was the date 1588, and he thought this portion of the masonry had been taken from another part of the building and placed in its present position, with the Langton arms. Looking at the church at the east end, Mr. Wrottesley thought that the north aisle was of later date than the south aisle, and that it was a copy of the latter, the date of this being probably about 1480, while the tower was no doubt erected in 1470. The interior of the church was then visited and the great width of the nave arches was pointed out. The monument of one of the Fleetwoods, who came from Lancashire, was inspected, the guide explaining that the tomb was in memory of John Fleetwood and Joan, his wife, a daughter of Thomas Langton, baron. John Fleetwood died in 1590, and although he directed that his remains should be buried at Ellastone Church, the interment took place elsewhere. The features of the tomb and the arms having been explained, Mr. Wrottesley said the church registers commenced as far back as 1538.

A vote of thanks was accorded the conductor, on the proposition of Mr. A. Scrivener, of Hanley, who remarked that his theory as to the great width of the present arch was that there had been at one time four arches instead of two.

The interior of "Adam Bede's" cottage was then visited, and the rooms which remain of the old house where Robert Evans lived were pointed out. Dr. and Mrs. Covey were heartily thanked for their kindness in throwing open their residence. Wootton Lodge was next visited, the excursionists being welcomed by Colonel and Mrs. Heywood. It was explained that this building was fortified by the Royalist troops under Sir Richard Fleetwood in 1643, but surrendered to a large force of Parliamentarian troops. Sir Richard and his retainers were captured, but he was liberated shortly afterwards, the reason for which was probably to be found in the fact that his brother-in-law married Cromwell's daughter. The position occupied by Cromwell's battery was pointed out, and it was not thought that he had ordnance large enough to knock down the massive walls of the house from such a distance.

#### INFLUENCE IN ARCHITECTURE.

THAT architects should endeavour, above all things, to give character to their compositions, as being one of the chief and most speaking excellences in design, was the advice of Sir John Soane. Character, as a term in architecture, must be distinguished from style, for there may be many characters in the same style; and also from expression, for there may be many expressions contributing to the same character. By style is understood a particular description of order; but character alludes to the specific manner in which such style may be applied. Expression, which details only are spoken of, is synonymous with character, but, as every member conveys a distinct expression, it is left for their combination in an entire erection to decide and confirm its character. Although character is, in fact, simple, though forcible, language of the features in architecture, it is notwithstanding the most abstract, and, it may be said, even the most immaterial attribute that strikes upon the mind. It is immaterial, because it derives its realisation all its essentials from the effects produced by collected objects relatively, and not so much with regard to the objects themselves. To exemplify these positions



assertions more clearly, and touching the progressive influence which they respectively have on our feelings, it will be found that, on the view of an edifice, we recognise its style, we perceive its expressions, but we are impressed with its character. Hence it becomes, as it were, the conducting medium between the intrinsic beauties and qualities of the art and the pleasures and feelings they excite. If space or vastness improve its commanding character the response is wonder; if delicacy or minuteness invite examination, it is met by concern and curiosity; if variety vaunts worth its merits, it is respected for richness and value; and if uniqueness, too humble almost to claim its due, tenderly renders its cheerful tribute to harmony. The vividness of these impressions may be more or less biased by preconceived ideas, or prescience of the purposes of an erection with which the character should have some affinity; but as this may, and probably will, be different with each individual, the cause rests entirely with him, and does not concern any effect of the architecture.

The influences which act upon character from without—that is, by means entirely foreign to itself—are considered to be two, viz. locality and aspect. Locality, which includes every distinction of region and climate, it will be easy to prove, has as many distinct powers over the operations of character in building. The pyramids of Egypt, the temples of India, the mosques of Turkey and the cottages of Switzerland all partake of their several localities, and of the notions that might naturally be suggested by their respective climates and scenery. Locality, however, within our own land is equally subservient to our subject. Let us suppose ourselves placed before a prospect of a great eminence with a building on its summit, having for its details turrets, battlemented walls and pointed apertures; the character suggested by such a locality would be that of a castle; and, to show that it is the scene only that so influences the character, we will imagine that in the valley beneath there is an erection having a similar combination of parts; but there, at once, they are altogether changed in our imagination, and the same expressions that in the one case formed the striking idea of a castle in the succeeding instance assume only the characteristics of a village church. It is only with places of pilgrimage that difficulty of access is recognised; ordinary churches are expected to be approachable by young and old worshippers. The mere circumstance of an approach to a building being altered as to its level will sometimes make a very sudden and great difference in the effects which its character had previously produced.

There is not any very perceptible difference in the actual construction of buildings in this country which may be attributed to their being exposed to any particular severity of weather on certain aspects. The influence, then, that character in architecture receives from this cause may be reduced to the single circumstance of the power of the sun, as it varies shadow and, to a certain extent, colour. A northern aspect, with the sun during the greater part of the day behind it, is not only enveloped in shade itself, but casts a shadow on all before it, which is a kind of type of the gloom that is generally felt to be its characteristic impression. A southern aspect, consequently, obtains the greatest duration of the sun's rays on it; and is the most influential, by the depth and perspicacity which it gives to the details, and (contrary to the northern aspect) it receives additional clearness from the reflection of the ground before it. The eastern and western aspects are, of course, neither so long nor so powerfully under this influence of the sun. As the habits of society in general have introduced rather an artificial change in what may be called daytime, they have not much opportunity of judging of the effects of the sun when in the east, and it already begins to retire from that aspect by the time they are leaving their houses. Therefore, as we are speaking of effects worked upon their minds, the eastern aspect has not so great a share of their favour as the western, because when the sun is in the west, and even setting, it is, with the fashionable world, comparatively midday. In porticoes especially, where the force and depth of the shadows are most important and desirable, their character is much deteriorated by being subjected to a negative influence as either the northern or eastern aspects receive. A comparison between the north and south elevations of a church or other building, being constructed exactly similar, will better show the difference of character caused by aspect than any other illustration. The most successful method that has been adopted of remedying this detrimental effect of aspect seems rather to consist in the use of internal recesses from the line of a

building, in preference to extraneous projections, which often fail in procuring the desired effect. Perhaps the north front of Somerset House may have received this consideration, as to a great extent it may be applied to this principle.

Having thus pursued the subject in the view of its influence upon the mind and also the influence it receives, the third point of view in which it presents itself concerns its composition, or in what it consists. Perhaps the fact of its having been represented, in the first place, as an immaterial subject, may make it appear rather paradoxical to descend at once to the consideration of its reality. It is immaterial from the expanse of its description and its indefinite nature, yet, like character in the human disposition, it is only such by its maintenance, and the construction that aids that maintenance forms the reality from which it is extracted as an essence. Character in architecture then is, in brief, originated and upheld by the consistency of combined expressions. In the design of an erection the data of some previously executed model are often taken for adoption to a greater or less extent; but to have also a claim to originality there must be sufficient variation to avoid its being a copy, and yet sufficient similitude in such variation to preserve its character. A too close adherence implies servility, and, again, too great a freedom with any given basis is at the risk of its injury. It is the confusion of having one datum in an original model, another in the present purpose of the building, and a third in the architect's invention, that is so likely to occasion a mingling of the whole together, and probably the destruction of all character in the architecture. This has been much complained of in the modern addition of a steeple to the primitive and ancient form of a temple, as in St. Martin's, St. Pancras, and other London churches where (independently of the alleged defect in construction, which consists in placing the steeple over the pediment) it produces an equally important defect, by the injury which it does to the character of the architecture, by the union or rather confusion of two very opposite expressions. Simply, the appropriation of a particular order is the most usual and prevalent course; and this, while it leaves scope for originality in its adaptation, limits the data to those which are available with the greatest facility as precedents. Hence increased novelty of form, produced from the same materials, becomes the main cause of distinction in character, and in the aptness of these changes, and in the suitableness of these variations, lies the great art of producing this effect.

Of course, novelty, for its own sake alone, can be achieved with a much freer hand by breaking forth from all precedent whatever; but the preceding remark is made with reference to architecture of an orthodox kind (if such a term may be used), and not to any occasional eccentricity. Indeed, the architecture which is least known, and which is most remarkable for its singularity, is the furthest from what could be desired in character, the perfection of which is comprised in its producing the same unequivocal admiration from the greatest possible number of minds. Instead of which, there can scarcely be two similar opinions of any building, the only deducible proofs of the worth of which, the absence of all comparison, are wrapped up in the conceit of the inventor.

#### EDINBURGH ARCHITECTURAL ASSOCIATION.

THE last of the series of four lectures at the architectural exhibition in the rooms of the Royal Scottish Academy was given by Mr. Ramsay Traquair. The subject was "The Church of Sta Sophia and the Imperial Mosques of Constantinople." The church was described by Mr. Traquair, as were also the mosques, which, the lecturer said, were built by the Turks after the Turkish Conquest on the model of Sta Sophia. Mr. Traquair went on to describe the rise of the Byzantine style and its culmination in Sta Sophia, and thereafter he showed on the screen some examples of the Persian tiles used to decorate the buildings. An excellent series of views of buildings in Constantinople concluded the lecture, for which Mr. Traquair was cordially thanked by Mr. Hippolyte J. Blanc, who occupied the chair.

Sir Thomas Gibson Carmichael, in supporting Mr. Blanc, said he could only hope with regard to some of the buildings recently erected in Edinburgh that they were more charming inside than outside. To Mr. Blanc he moved a



vote of thanks for the splendid manner in which he had organised the exhibition.

Mr. Blanc, in acknowledging the vote of thanks, referred to the excellent way in which the secretaries and the committee had carried through the work connected with it. The advantages of such an exhibition to the citizens of Edinburgh could not, he said, be measured in pounds, shillings and pence.

#### NATIONAL PORTRAIT GALLERY.

THE following donations to the National Portrait Gallery have recently been received and accepted by the Trustees:—

John Frederick Lewis, R.A., 1805-76, the well-known painter, a sketch in oils by Sir William Boxall, presented in accordance with the instructions of the late Mrs. J. F. Lewis.

Rev. Sydney Smith, 1771-1845, Canon of St. Paul's Cathedral, the eminent preacher and wit, painted by Henry P. Briggs, R.A., and presented by the Viscount Knutsford, G.C.M.G., a Trustee of the Gallery.

Samuel Sharpe, 1799-1881, translator of the Bible and Egyptologist, and Joseph Bonomi, 1796-1878, sculptor and draughtsman, both painted by Miss Matilda Sharpe, and presented by the artist and her sister.

The following portraits have been acquired by purchase:—

Thomas Osborne, first Duke of Leeds, K.G., 1631-1712, a full-length portrait in Garter robes, as Marquis of Carmarthen, attributed to Sir Godfrey Kneller.

John Hookham Frere, 1769-1846, diplomatist, author, and translator of Aristophanes, drawn by Henry Edridge, A.R.A.

Charles George Gordon, 1833-85, the hero of Khartoum, a sketch in oils by Professor Leo Diet, of Graz, taken at Cairo just before he left on his last journey to Khartoum.

#### GENERAL.

The Bethnal Green Borough Council, having modified clauses 4, 7 and 10 in the instructions to competitors for the municipal buildings, in accordance with the views of the President of the Royal Institute of British Architects, he has now appointed an assessor in the competition.

M. Albert Kaempfen, who during nearly a quarter of a century was connected with the administration of art in France, died on Sunday last. For five years he was director of the Louvre. By birth he was the son of a Paris doctor. He was in his eighty-first year.

Mr. Thomas Cartwright has been appointed headmaster of the Macclesfield School of Art, in succession to Mr. Ward, who was lately appointed to the Dublin School.

The Memorial Arch of the Royal Dublin Fusiliers at the entrance to St. Stephen's Green, Dublin, will be opened on Monday. It was designed by Mr. Howard Pentland, with Sir Thomas Drew, P.R.H.A., as consulting architect.

The Durham County Council invite applications before August 24 for the following situations in the Education Department:—(1) Assistant architect (salary 250*l.* a year), (2) a draughtsman (100*l.* a year), (3) a quantity surveyor (200*l.* a year), and (4) assistant to latter (100*l.* a year).

The Newcastle Corporation Town Improvement Committee have decided that unless the Northumberland War Memorial in Newcastle, which has remained in an incomplete state for months, is finished within six weeks, the city engineer will be instructed to remove the scaffolding and hoarding round the figureless column.

On Friday Mr. J. Wyatt Papworth, assistant electrical engineer to the Kilmarnock Corporation, was, out of eighty applicants, appointed manager of the Corporation Electricity Works, Stirling.

At the Next Meeting of the Hales Owen Council it will be proposed that a committee be empowered to consult with Lord Cobham, the owner of the abbey, and also the Birmingham Archæological Society, with a view to something being done to prevent the ruins suffering from decay.

The Manchester City Council last week resolved that the Lord Mayor and the Deputy Mayor be requested to ascertain the terms and conditions upon which the Platt Hall estate can be acquired, and to negotiate for its purchase, subject to the approval of the Council and the Local Government Board.

In the Excavations for converting the old sexton cottage at Ribchester into a villa residence the base was discovered of a column which it is believed formed part of a Roman temple. It was unearthed about 2 feet underground, well within the ascertained lines of the military camp, and not far from the spot where about nine years ago Professor Garstang discovered the granary and a great mass of charred wheat and barley.

The Edinburgh Dean of Guild Court have granted a warrant for the demolition of Falconhall mansion-house, another of the landmarks of the Scottish capital. The house was advertised to let last Whitsunday, but nobody came forward to take it, and being so near tenements, the Governors of the Edinburgh Merchant Company, to whom the place belongs, have, as already indicated, received a warrant to have it taken down so as to clear the ground for feuing.

A Collection of photographs of buildings occupied by the French embassies and legations throughout the world is to be prepared by order of the Foreign Minister.

Approval has been given by the French Council of Roads and Bridges of the plans for a tunnel which will connect the Marseilles Canal with the Rhone. The cost is estimated at 34,500,000 francs.

The Chicago City Council have appointed Messrs. Holaberd & Roche, of Chicago, as architects, and Mr. J. Ewen as consulting engineer for the new city hall, which is to be erected at a cost of 4,500,000 dol.

The Roman Camp at Newstead has been the scene of continuous investigations during the past six months, and connected with the large bath is a well, which has just been explored, and the following articles found:—A Pompeian bronze vase with finely-engraved ornamentation, and a chased handle with a terminal female head with eyes inlaid of silver; three smaller bronze vases of various shapes, one piece of playing dice of bone; two Roman swords and a bronze mask of Greek type which had been originally gilded.

A Chelsea Embellishment Association has been established on the lines of the Verschönerungsverein, which lately has done much towards the beautification and improvement of German cities. At a recent informal meeting held at More's Garden, Cheyne Walk, Chelsea, an address was given by Professor Geddes pointing out the actual and latent possibilities of Chelsea as an art and culture city and the ways of utilising and further developing these.

At the Last Bi-monthly Meeting of the Leicester and Leicestershire Architectural and Archæological Society attention was called to the recent discovery of a tenth century psalter at Bosworth Hall. There is said to be ample evidence to prove that this psalter was at one time in the possession of Archbishop Cranmer, and was part of a collection purchased by James I. for the Prince of Wales, and finally passed to the nation as the gift of George III. How it came to Bosworth Hall remains a mystery, but it is understood that the owners have offered it to the British Museum.

Mr. Lonsdale, M.P., on Monday asked the President of the Local Government Board whether he was aware that the rural district councils desired to co-operate with county councils in the mitigation of the dust nuisance by spraying the roads with tar; whether the Local Government Board had decided that the rural district councils could not incur expense in this direction; and whether some modification of the decision was possible. Mr. Burns replied as follows:—"I am aware of the desire referred to. I presume that the roads to which the hon. member alludes are main roads. These in rural districts are maintained by the county council, and the question is whether a rural district council can legally contribute towards the cost of spraying them with tar. They could do so if the operation could be brought within the terms of section 3 of the Highways and Bridges Act, 1891, but I am advised that cannot safely be held that this is the case."

Lord Knollys writes to the clerk of the London County Council:—"The King has been informed that there appears to be some chance of Crosby Hall, a building of great historic interest, being pulled down. His Majesty has seen the report presented to the London County Council on the subject, and commands me to inquire whether this report has met with a favourable response, and to express his hope that means may be found to preserve such an interesting relic of old London."



The Architect, Aug<sup>t</sup> 16<sup>th</sup> 1907.



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REREDOS IN CHAPEL, CONVENT OF S. MARGARET, EAST GRINSTEAD.

J. STANDEN ADKINS, Architect.









PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

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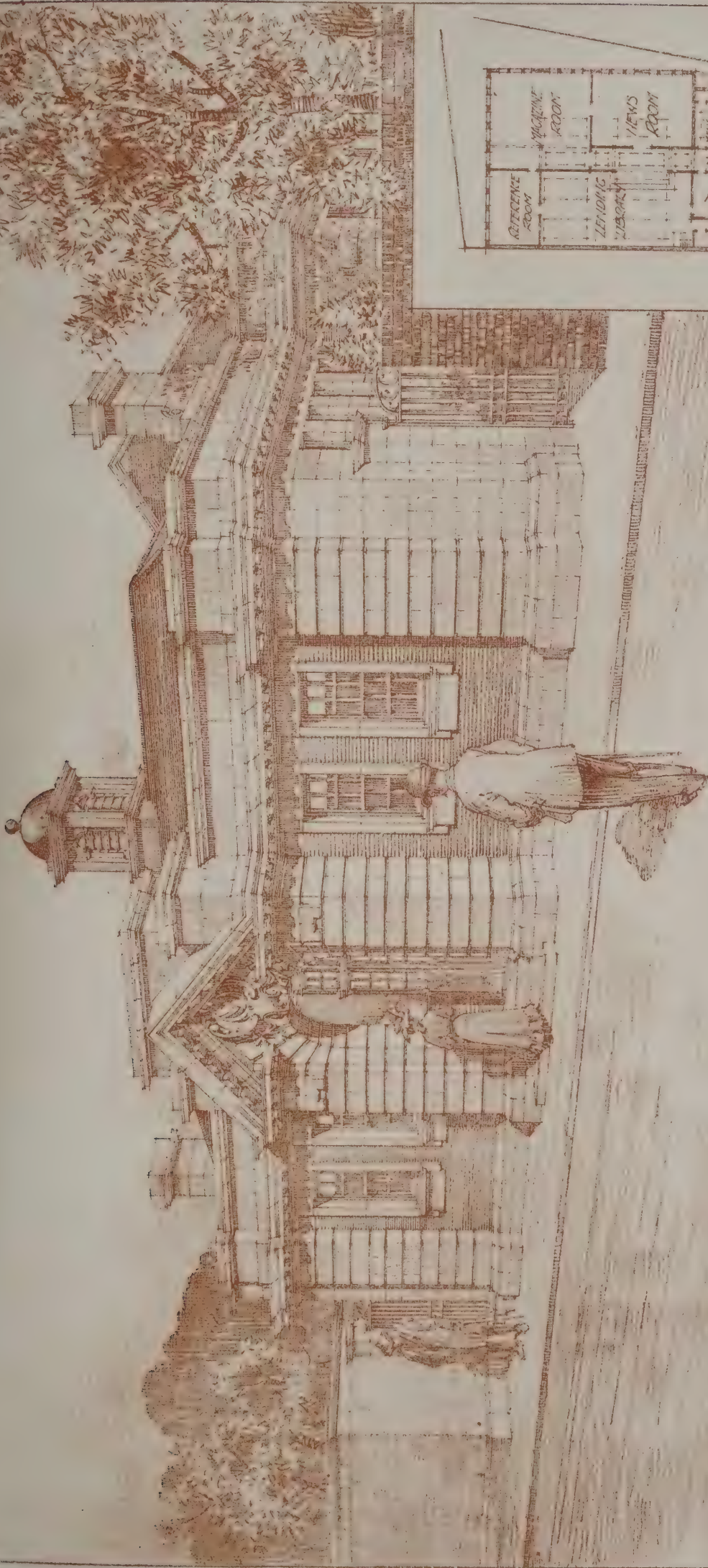
CLOCK TOWER, ST. GEORGE'S CIRCUS, S.E.

JAN F. GROLL, B.I., Architect.



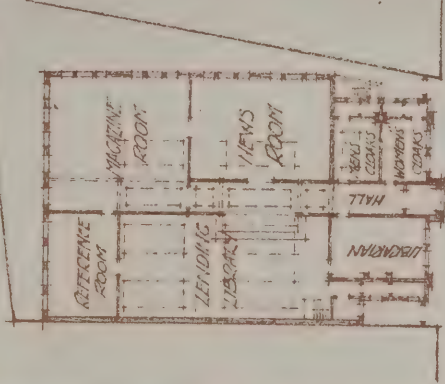






V.H./07

**BANGOR FREE LIBRARY SECOND-PRIZE DESIGN:**  
 VERNON HODGE ARCHT. TREDINGTON



Scale of Feet  
 0 10 20 30 40 50 60 70 80 90 100  
 Feet









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ADDITIONS: "NORTH SUTTON," SEAFORD, SUSSEX.

PHILIP TREE, F.R.I.B.A., Architect.



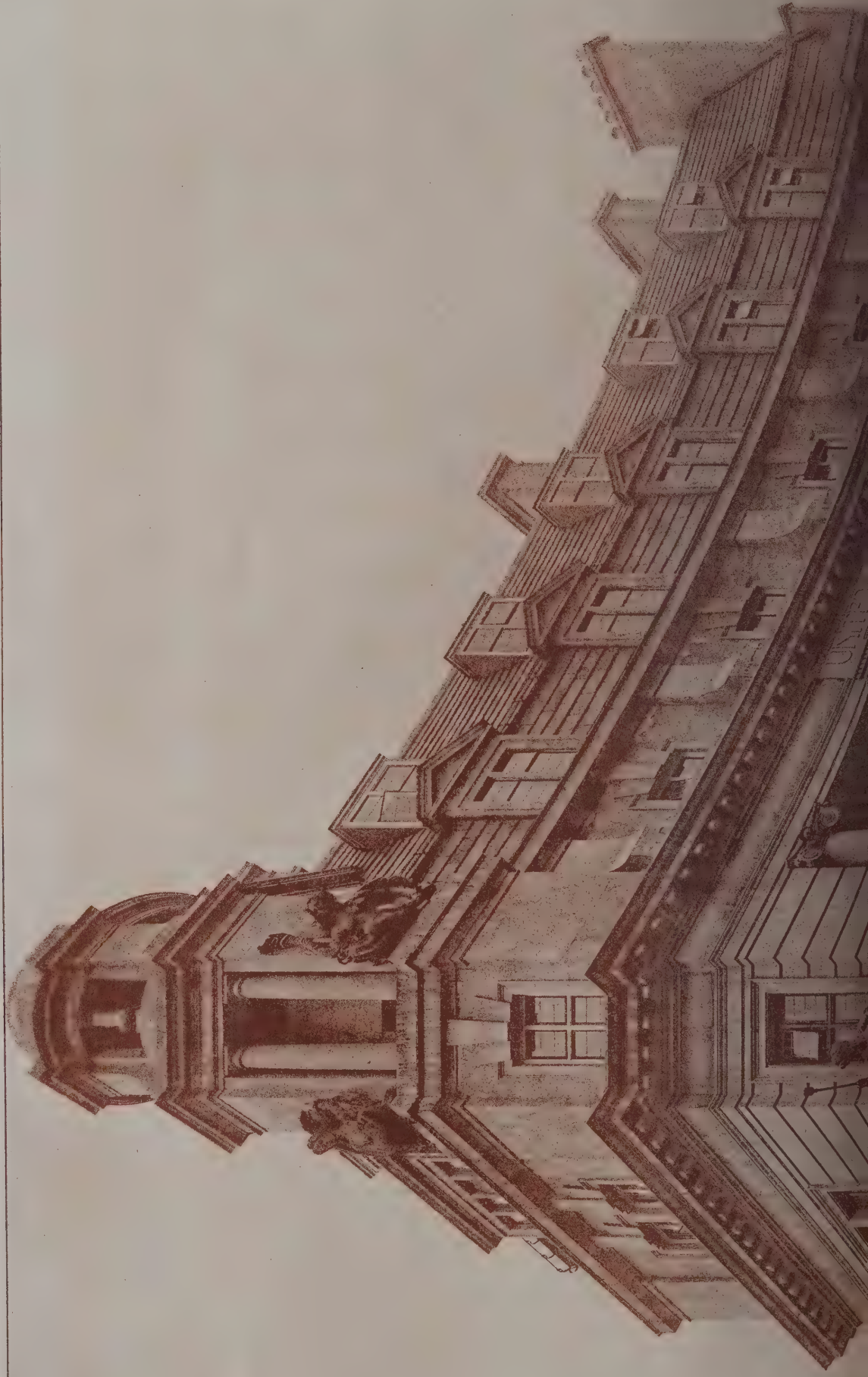








The Architect, Aug<sup>t</sup> 16<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

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# UNITED KINGDOM PROVIDENT INSTITUTION STRAND, W.C.

H. T. HARE, F.R.I.B.A., Architect.













PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.



th 1907.



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K: THE LADY CHAPEL.







# The Architect.

## THE WEEK.

It is satisfactory to learn that one public body has recognised that in a competition for a building a great many architects lose their time and labour in preparing designs without receiving a reward. An opinion to that effect was expressed at a meeting of the Southport Town Council last week. It is doubtful, however, whether the remedy adopted will be deemed satisfactory, if it consists in dispensing with a competition. It is proposed to erect a new school in Southport at a cost of £13,500; and it was arranged that the architect for a fee of 900*l.* was to provide all plans, specifications, quantities, measurements, and to pay his travelling expenses. It was contended that the sum was too high, and that competent architects were to be found in Southport who would perform the work for 500*l.* The Mayor said it was possible to have the plans prepared for 250*l.*, but from 6,000*l.* to 7,000*l.* might be lost under that arrangement. The expenditure of 900*l.* was therefore approved.

The invitation for British sculptors to take part in the competition for the erection of a statue of CONSTANTIN PALÉOLOGUE in Athens is, we suppose, a recognition of the skill attained during late years. The subject is interesting. Byzantine art has excited some interest in this country, especially since an adaptation of it was employed in Westminster Cathedral, and CONSTANTIN was the last Christian sovereign of Byzantium. He was, however, a vassal of the Ottomans, and in his time it was resolved that Constantinople should become the capital of the invaders. Unwisely CONSTANTIN asked that the subsidy he received should be increased, and that was taken as an excuse to make war upon him. He anticipated that the Christian States would come to his aid, but he was disappointed in the number of his auxiliaries. From the autumn of 1452 until May 1453 the city was besieged by MOHAMMED II. On the last day there was no difficulty in making several breaches. CONSTANTIN stood almost alone at one spot against his enemies. But he was killed and trodden under foot. His body was so defaced by the crowd of troops that it was only identified by means of some of the ornaments which he wore. It is suggested that the emperor should be represented standing on foot with the body of one of the janissaries stretched before him. On the pedestal there to be four reliefs illustrating the history of CONSTANTIN. The first prize will be 200*l.*, the second will be 80*l.*, and there will be three prizes of 40*l.* each. The committee reserve to themselves the right to give the commission for the memorial to one of the prize-winners or to another artist. The minimum height of the models in the first competition is to be one metre, including the pedestal.

In one of the reports of the factory inspectors we find the following complaint:—"It is difficult for us to deal with the prevention of accidents in the construction of buildings in the absence of any obligation on the part of the contractors or undertakers to notify their proceedings. Most master builders have been circularised as to their liabilities under the Act, but little notice is given until the matter is brought home by the occurrence of an accident. Even then much inattention is exhibited, and it has been necessary to take proceedings in some instances." By section 105 of the Factory and Workshop Act of 1901 several of the provisions are applicable to premises in which machinery is temporarily used for the purpose of the construction of a building. Practically the word factory comprises any building which exceeds 30 feet in height and which is being constructed or repaired by means of a scaffolding, and any

building exceeding 30 feet in height in which more than twenty persons are employed for wages. A builder takes the same position as the occupier of a factory; in other words, there are analogies between the Workmen's Compensation Act and the Factory and Workshop Act. It is no doubt a great inconvenience that not only builders' workshops but any works on which builders engage temporarily should be treated as if they were immense Lancashire or Yorkshire factories. But in this case the law is no respecter of persons.

At the time when eligible building sites are costly in England, it may appear incredible that in the neighbourhood of Birmingham a plot of land should be considered as derelict, and therefore allowed to be appropriated without any formal title. Over thirty years ago the Birmingham Freehold Land Society purchased an estate at Erdington, and divided it into lots. A Mr. DANIEL obtained one; but, as he thought it would be better adapted for building at a later time, he neglected it. To utilise the grass two donkeys were turned loose on the ground, and it was used for that purpose from 1879 to 1902. Then the owner wished to assert his rights. But the grazier claimed that his undisputed possession constituted him as owner. An action was brought to recover the land, and was brought before Mr. Justice SUTTON, who decided in favour of the owner of the donkeys. Owners of neglected building sites will do well to take a warning from the case and adopt occasionally some measures to assert their ownership.

ACCORDING to the returns of the Local Government Board for Ireland up to February 1, 1907, no less than 57,906 applications had been made for cottages, plots, additional allotments and tracts of land. Ulster made 11,572 applications, Munster 21,139, Leinster 17,332, and Connaught 7,863. Authority was given to erect 26,210 cottages, of which 21,948 were provided and 21,782 actually let. The rents paid up to March 31 last amounted to 50,795*l.* 2*s.* 10*d.*, and the arrears on that date amounted to 4,202*l.* 1*s.* 8*d.* It is not, however, within the power of statistics to record all the advantages which must arise from the introduction of so many improved dwellings. Some of them may not be so well constructed as is desirable, but the worst among them are far superior to those which for centuries sheltered the Irish peasantry. If comfort, convenience and cleanliness have any influence, then the Irish labourer should, under the altered conditions of life, attain qualities which will be advantageous to himself and his country. The author of one of the papers read before the British Association at Leicester maintained that the Mediæval churches produced surprising effects on the character of the humble classes of the Irish people, and if that theory can be accepted it can be concluded that to improved dwellings they will be also susceptible.

THE fortress of Kronberg at Helsingör is supposed to be the Castle of Elsinore which SHAKESPEARE has made immortal, and the flag battery is the platform in which the opening scene of the tragedy takes place. A statue of SHAKESPEARE by the Danish sculptor, M. HASSELRÜS, has been lately placed in the hall of knights of the fortress. The work becomes still more interesting through the inscription on the pedestal, which is to the following effect:—"Three centuries after SHAKESPEARE had composed his 'Hamlet,' and in the year when the Danish Princess ALEXANDRA was crowned Queen of Great Britain, the resolution was taken to erect this memorial, 1602-1902." When the great English poet utilised the Danish legend for his tragedy he could not have anticipated that such a tribute would ever arise in Denmark. But the statue will be another link in the chain which binds the two countries.



## TRIUMPHAL ARCHES.

THE power of association and tradition which has so long prevailed in architecture was again revealed on Monday by the inauguration of a triumphal arch in Dublin. If it had been said that a new entrance gateway was added to the large square known as Stephen's Green, not much interest would be attached to the ceremonial. But an imitation of a Roman memorial, although it may not be altogether adapted to meet modern necessities, has an attraction which compensates for its shortcomings. Whatever was done in the most high and palmy state of Rome is supposed to be unapproachable by modern efforts. In that way a gateway in Roman style is not tested or criticised by the ordinary rules.

HUME brought forward a great many arguments to prove that ancient cities, and Rome in particular, did not possess such large populations as was commonly imagined. Among others he investigated the total length of the streets. But he might have introduced the triumphal arches as evidence that the traffic could not have been very large. The nuisance of Temple Bar will not readily be forgotten in London. But only one was tolerated in the Metropolis, while in Rome there were several obstructions in the form of triumphal arches and other gateways. According to one account there were no less than thirty-seven gates in Rome, and apparently in designing them the question of tolls must have been considered, and the openings were accordingly of narrow span. Wider than any at Rome is the arch at Rimini, and yet the opening is only 31 feet, while the central span of the Arch of Septimius Severus in Rome is 22 feet. In the latter case it is doubtful whether there was a passage, and the structure was merely a memorial. The two arches on the boulevards in Paris—the Porte St. Martin and the Porte St. Denis—are now regarded as obstructions by most business people; and the magnificent Arc de l'Etoile, which is unsurpassed by any ancient work, is closed to traffic, and few people on foot care to pass under it. The Arc du Carrousel is also treated as a public monument, a mere spectacle. Even in Berlin there are proposals for the removal or transformation of the large Brandenburg Gate, which closes the principal thoroughfare at one end.

There is no doubt that when men began to congregate in cities there was a necessity to enclose them to insure safety. Earthen mounds or stone walls were employed for the purpose. The entrances required extra care, and were generally more efficiently fortified than other parts. If a prince or warrior who had benefited the inhabitants returned victorious, it was only fitting that some mode of decoration should be employed at the entrance where he was to be received by the people. But on such occasions temporary adornments would serve. It is not likely that the commonplace ornamentation which used to be set up at Temple Bar on special occasions differed much from what was adopted long before in a great many cities or towns.

It is well to distinguish between ordinary city gates and triumphal arches. It is doubtful whether such a phrase as *porta triumphalis* possessed any equivalent outside Rome and its dependencies. We suppose there was no entrance which was more dignified than the Propylæum of the Acropolis at Athens. But there is nothing to show it was ever utilised to perpetuate the fame of any Greek citizen. The Roman structures known as triumphal arches, on the contrary, had all a personal character. In some cases, as in the Arch of Constantine, there was a victory to commemorate which was the opening of a new era, and no scruple was made in carrying off the sculpture which was expressive of the victory of another emperor in order to gain better effect for the memorial. The Arch of Titus is supposed to celebrate not only the victory of the arms of Rome but of its gods over those of the East. They might even be used to re-

cord a much simpler incident. The Arch of Rimini which still exists, was simply intended to celebrate the mending of the roads of the district in the consulship of AUGUSTUS. With quite as much fitness an arch with Corinthian columns might be set up in any shire in England to demonstrate to posterity that the chairman of the roads committee had ordered the highways to be tarred and other improvements adopted in order to meet the wear and tear of motors. TRAJAN'S arch at Ancona is the celebration of the completion of the moor. The Arch of Septimius Severus, to which we have just referred, corresponds with the bridge said to exist near Blarney in Ireland, which is intended to span a river but was constructed in a place where no river was known. The Roman arch was never used for a military procession, although the sculpture on it suggests victories over Parthians and Arabians.

There were, no doubt, other triumphal arches in Rome which were removed, partly, perhaps, because they were in the way. But at the present time the nearest approach to a typical commemorative structure is the Arch of Titus. Unlike that of CONSTANTINE there is only a single opening, which at one period served as a gateway to the Frangipani fortress. From the circumstance that the Composite Order was first employed in connection with the arch we might conclude that unusual richness was sought after on all the faces which allowed of ornamentation. But severity prevails. It is remarkable to find the great reliefs which are the glorification of TITUS not on the external faces where all the Romans could see them, but on each side of the piers within the archway. One represents TITUS in chariot, the other suggests the captives and spoils of Jerusalem. On the exterior frieze the triumph over the Jews is further represented. The apotheosis of the emperor also appears on the intrados of the arch. It is now impossible to determine whether the exterior faces were not to be adorned with additional reliefs, for with the exception of the keystones the only sculpture to be seen outside is the narrow frieze. There was a field for the display of historic representations, and from the height given to the attic a large quadriga or other groups could have been erected without appearing as disproportionate. The Arch of Titus, as we now see it, contains a large amount of work which is not older than 1822. Because of the honesty of VALADIER, who had charge of the restoration, no one need confound the part which is ancient with the modern masonry.

The Arch of Constantine, on the other hand, suffers from an excess of sculpture. The figures are faded, and the full effect of the architecture is accordingly diminished. From the summit to the ground the hand of the sculptor is to be seen, and, as in the Arch of Titus, reliefs appear within the principal archway. When in a perfect state the figures were of higher character than is usually supposed. Apparently they represent the public as well as the private life of the emperor, or rather the emperors. Why it should be necessary to despoil the Arch of Trajan for the figures of the captives and for several of the reliefs is inexplicable, unless we can suppose there was an eagerness to have the work completed. But that one man's records should serve for the honouring of another man who lived more than two centuries later is a circumstance which is not creditable to the Roman people. Where the arch stood which was plundered is now uncertain. Its fate and that of other structures are enough to suggest that the temporary decorations of the simple Fabian arch referred to by CICERO were quite adequate for the Romans, who were not constant in their reverence for their great men. At one time, as we have said, there were thirty-seven triumphal arches in Rome, and the few which now remain are enough to suggest how difficult it is for any kind of structure to resist the influence of time.

Where the conditions are limited, as in Dublin, it may be advantageous to set up a gateway which is



imitation of a Roman example. But it must be said the days for triumphal arches of the Roman type have passed away. They may serve as entrances to a park or to mark the limits of the roadway of a bridge, but in the streets of a city they are impracticable. Traffic is now so onerous in the majority of cities that only wide streets can serve. The span of the Arc de l'Etoile is 165 feet and the height of the opening is about 96 feet. At the present time if the monument were intended to meet the traffic at that part of Paris the roadway should at least be 100 feet in width. We can thus imagine the height to which the structure would have to be carried in order to appear proportionate. CHALGRIN's great work is therefore a memorial in the form of a covered roadway, but one which, owing to its value, cannot be used for the purpose for which it was designed. It is consequently a warning against the adoption of a triumphal arch, unless people prefer imitations to realities.

### DA VINCI'S "CENACOLO."

THE value of DA VINCI's *Last Supper* has been so well recognised of late years, the old allegations about the rain pouring down the wall on which the painting was executed, the broken windows and the open door no longer apply. But recently works were undertaken for the purpose of more efficiently preventing damp and securing ventilation—the two evils of the large room—and they have been completed. A new doorway has been opened into the refectory, and on passing through it the great picture appears more impressive at first sight. It is believed that every year at least 50,000 people visit the place, and though large photographs are easily to be obtained, copies continue to be made of the famous work.

As in other cases connected with LEONARDO DA VINCI, *The Last Supper* from the first appeared, as were, controlled by an adverse power. It is now possible to say when the work was commenced. DA VINCI was engaged by the Duke of MILAN at some time between 1483 and 1485, and he rendered manifold services until the fall of LUDOVICO in 1499. There is no document to show whether before or after that event the great painting in S. Maria delle Grazie was undertaken. The belief prevails that he was at work on it in 1496 and 1497.

Several studies exist for the figures, and they show the great care DA VINCI employed over details. BANCELLO, the novelist, may not have the position of an historian, but he relates that he often saw the painter during the hottest days of July suddenly abandon the great statue of SFORZA, on which he was engaged, and rush to the convent in order to add two or three strokes to the painting. At other times he was observed to remain in contemplation before it during a whole day, regardless of the flight of time. The then Dominican prior, for whom every hour had its fixed duty, could not understand so much absorption unless in a religious ecstatic; and he complained to the Duke of the inconvenience suffered by the community through the painter's inactivity. But, slow as was the representation of the eleven Apostles, it seemed expeditious compared with the time required to realise the highest and lowest of all, *i.e.* CHRIST and JUDAS. JUDAS might be supposed to have been the easiest of all the Apostles to imagine, for the early study at Windsor, which suggests a cruel, rapacious man, does not differ in character from the countenance which was subsequently painted. The other heads are supposed to correspond with the characteristics suggested by the Evangelists. But it is worth remembering that, in one of the sketches for the painting, LEONARDO inscribed the names over the heads, in that way the tradition of identification has come down to us.

At the close of the fifteenth century oil-painting might be considered somewhat as a novelty. It was,

however, adapted to the habits of DA VINCI. Fresco required decision as well as expeditious handling. A large picture could not be produced in that medium at the rate of a few strokes a day. DA VINCI loved to play with painting, as with everything else, and, in the interval of laying on the colours, to make many experiments. It is possible that the paints he employed were the results of his own discoveries in chemistry, for the painting was hardly completed before it exhibited signs of decay. That was an unusual effect in those days. VASARI, when he saw it some years afterwards, considered the painting was not finished, and what had been done, was, he declared, owing to the dampness of the wall, in a deplorable state. All the accounts given by travellers agreed in recording the decay of the work. Cardinal FREDERIGO BORROMEO considered the monks were to blame for the state of the picture and ordered measures to be adopted to prevent further injury.

The first English traveller to mention it was JOHN EVELYN. In 1646 he was in Milan, and in his diary he says:—"We concluded this day's wandering at the Monasterie of Madona della Gratia, and in the Refectorie admir'd that celebrated *Coena Domini* of LEONARDO DA VINCI, which takes up the entire wall at the end, and is the same that the great Virtuoso FRANCIS THE FIRST of France was so enamoured of, that he consulted to remove the whole wall by binding it about with ribs of iron and timber to convey it into France. This incomparable piece is now exceedingly impair'd." In the early years of the eighteenth century the picture was seen by the RICHARDSONS, who were painters as well as connoisseurs. The account given is one of the most exact which has appeared, and deserves to be better known:—

In the refectory over a very high door is the famous picture of *The Last Supper*, figures as big as the life; it is excessively ruined, and all the Apostles on the right hand of the Christ are entirely defaced; the Christ and those on His left hand appear pretty plain, but the colours are quite faded, and in several places only the bare wall is left; that which is next but one to the Christ is the best preserved (he that crosses his hands upon his breast) and has a marvellous expression, much stronger than I have seen in any of the drawings. Armenini (who wrote about the year 1580) says this picture was half spoiled in his time. That story of the head of the Christ being left unfinished, Leonardo conceiving it impossible for him to reach his own idea, is certainly false, because one part of that head which remains entire is highly finished in his usual manner. They have nailed the Emperor's arms over the Christ's head so low that it almost touched His hair, and hides a great part of the picture.

In 1739 the President DE BROSSES, who might be supposed to have visited Italy in order to make an inventory of the works which half a century later were to be wrenched from the Italian galleries in order to enrich the Louvre, glanced at the *Last Supper*, but evidently confounded it with the *Crucifixion* of MONTEFANO, which is on the opposite wall and is still fairly bright, for he says it was the first example of fresco which gave him pleasure, but he considers all the faces were very ugly. In justice to DE BROSSES it must be said that what he saw was not DA VINCI's picture but BELLOTTI's restoration of it. His handiwork was not, however, destined to be perpetuated.

JAMES BARRY visited Milan in 1770, and in the course of a lecture which he delivered in the Royal Academy he described what he saw perpetrated:—

This glorious work of Leonardo is now no more. I saw the last of it at Milan; for, in passing through that city on my return home, I saw a scaffold erected in the Refectory, and one half of the picture painted over by one Pietro Mazzi; no one was at work, it being Sunday, but there were two men on the scaffold, one of whom was speaking to the other with much earnestness about that part of the picture which had been repainted. I was much agitated, and having no idea of his being an artist, much less the identical person who was destroying so beautiful and venerable a ruin, I objected with some warmth to the shocking ignorant manner



in which this was carried on, pointing out at the same time the immense difference between the part that was untouched and what had been repainted. He answered that the new work was but a dead colour, and that the painter meant to go over it all again. Worse and worse, said I; if he has thus lost his way when he was immediately going over the lines and features of Leonardo's figures, what will become of him when they are all thus blotted out, and when, without any guide in repassing over the work, he shall be utterly abandoned to his own ignorance? On my remonstrating afterwards with some of the friars, and entreating them to take down the scaffold and save the half of the picture which was yet remaining, they told me that the convent had no authority in this matter, and that it was by the order of the Count de Firmian, the Imperial Secretary of State. Thus perished one of the most justly celebrated monuments of modern art, particularly for that part of design which regards the skilful delineation of the various sentiments of the soul in all the diversities of character, expression of countenance and of action.

At the time of the French invasion the monastery was converted into a cavalry barracks and the refectory was used for the storage of hay. BUONAPARTE took care to visit the place, and made a show of having as much admiration for DA VINCI's work as was displayed by FRANCIS I. It is related that when seated before the picture he wrote on a paper placed on his knee an order by which the place was to be exempted from military use; but no one knew better than himself that under the circumstances the monastery could not be given up. When EUGÈNE BEAUHARNAIS became governor he took care to have the refectory cleared, and he had a scaffolding placed before the painting, partly for its protection and partly to enable the visitors to examine it more closely. But too many tourists committed depredations. They were the culprits rather than the troops who were supposed to have made a target of the painting. Although an examination has been made, pistol marks have not been discovered on any part of the surface.

GOETHE did not see the painting until about 1780, and yet he was under the delusion that he saw it in an unrestored state. There is little doubt that several restorations took place, and the latest was passed off as the first. The German traveller could only judge of the arrangement or dramatic action, and it suggests his power of insight when we find him producing so excellent a description. GOETHE believed the ruin of the picture commenced with the opening of the door to which a part of the figures had to be sacrificed. But the colouring had faded at an earlier time. We learn from GOETHE that towards the close of the eighteenth century the dampness had so far increased, it was considered necessary to close up the entrances. Anyone who wished to see *The Last Supper* had to ascend a ladder and peer through a very small aperture. At a later time another policy was adopted and more windows were formed. It can be said, however, that rational remedial methods were not adopted before the works just completed. Everyone must desire they will be effectual. It is true that the world must henceforth be satisfied with a costly restored work. We cannot be certain that the colouring corresponds with DA VINCI's, and the treatment of the figures is wanting in that magic which he could impart. But in composition and scale the restored work is on the whole trustworthy, and while it exists it will be one of the wonders of art. Besides, more importance is attached to such an old copy as that belonging to the Royal Academy, or those to be seen in Milan, for they cannot be considered as imaginative.

**An Appeal** has been made for subscriptions towards the balance—about 15,000*l.*—required to complete the purchase for the Church of England of Glastonbury Abbey. The Bishop of Bath and Wells, through the generosity of a layman who advanced the money, was able to purchase the ruins for the sum of 30,000*l.* The bishop is forming a committee to hold the property in trust, and to determine the way in which it shall be used.

## THE LIGHTING AND VENTILATION OF CLASSROOMS.\*

I AM afraid there is nothing new that can be written on this subject, and I make no claim to any originality in these remarks, merely recording my own experience on what I believe to be the present practice in England. The reason, I presume, that led to this subject being selected for discussion at this Congress is the importance of the classroom as that section of the school building in which the scholastic portion of the teaching is carried on. Here the scholars spend practically all their school hours, here their mental powers are put to the greatest strain, that it is desirable that everything possible should be done to place them under the best physical conditions. The size of classrooms is obviously closely related to the subject of lighting and is necessarily regulated by the size of the classes. These vary from the fifty or sixty scholars more allowed in a public elementary school to the fifteen to thirty in a secondary school. The size is also regulated by the seating arrangements adopted, single seats taking more space than dual, the width of gangways and master platform being also factors in the case. The purpose for which a classroom is put will also necessarily affect its size, but I am assuming that the classrooms at present under discussion are the ordinary ones in which general subjects are taken.

The Board of Education lay down an average of not less than 10 square feet of floor space for each scholar in public elementary schools, and in this country this is generally adhered to; while in secondary schools, where single desks are used, a floor area of from 17 to 18 square feet is required, though, under certain circumstances, a minimum allowance of 16 square feet will now be accepted by the Board of Education. Given therefore the number of scholars to be provided, the above requirements fix the floor area of the classroom; but there still remains the comparative length, breadth and height to be determined, matters on which the effective lighting and ventilation must largely depend. The breadth and length are, to some extent, governed by the type of seat employed, but the nearer the room approaches a square the better, with the limitation that a room can hardly be satisfactorily lighted more than 24 feet wide, while 22 feet is better.

We will assume that the room is lit, as it should be, from one side only, which at once limits the depth from 20 to 24 feet; the length will then depend upon the number to be seated. The height of the room is also an important factor in the lighting, as the deeper the room the higher should be, if the seats furthest from the window are to be properly lighted. For the purposes of acoustics and ventilation 12 feet is generally a sufficient height, though, if a large number are to be accommodated, 13 to 14 feet height may be necessary. These regulations work out for a classroom in a secondary school for twenty-five scholars at 23 feet 6 inches by 19 feet by 12 feet high. Having settled the size of the classroom, the question of lighting has to be considered more in detail. It seems hardly necessary to mention that it should be lighted from the left hand of the scholar only. The size of glass area to be provided is most difficult to lay down. This will be affected by two considerations—the aspect and the situation. To take the latter first, it is obvious a town school in a crowded part would not obtain so much light from a window of a given area as buildings opposite as a building situated in the open country with an unobstructed prospect. The same applies in some degree to the aspect, windows quite satisfactory for a northern aspect being unsuitable for a southern one. Classrooms should be so placed that they have sun in the morning during part of the day, but not always; north, west or south-west, if unprotected, should be avoided. The Board of Education lay down one-fifth as the approximate area of window glass to the floor area to light a classroom satisfactorily. In very confined sites, however, one-quarter sometimes found necessary and in open and exposed sites one-sixth will sometimes suffice. Anything beyond this amount of glass actually necessary to give a satisfactory light is undesirable, as it tends to make the room cold in winter and hot in summer, and adds considerably to the difficulty of the effective treatment of the room, both externally and internally. The glass line should not be more than 4 feet above the floor, with the heads of the windows carried up as near the ceiling as possible.

The windows should be so arranged in the wall that

\* An address by Sir Aston Webb, R.A., delivered at the International Congress of School Hygiene.



the seats are equally well lighted. This is apt to leave the master's desk somewhat under-lighted, and in order to rectify this Mr. Bell and I provided in the classrooms at Christ's Hospital a small window to light the master's desk, kept low down so that he can also see out of it, and I believe this has been appreciated. Under no circumstances should there be windows facing the scholars, and windows in the opposite wall facing the master are almost equally objectionable. Mullions, transoms and window bars are, in my opinion, unobjectionable if the glass area is calculated independently of them. Plain sheet or plate-glass is the best for glazing, and the view of the sky should not be shut out from the scholars. Glazed brick or tiled walls, except as dados, are not suitable for classrooms of the character we are considering; the reflected light is trying to the eyes, and being non-porous they are not considered hygienic for crowded rooms. A white plaster ceiling is the best with light green or grey walls according to aspect, the woodwork painted white or, better, left its natural colour. A glare in a classroom is to be as carefully avoided as gloom. The artificial lighting of classrooms, perhaps, hardly comes under consideration to-day, but it is of equal importance where much evening work is done. Carefully-regulated incandescent electric lighting is the best, and greatly simplifies ventilation. Gas is better avoided. Perhaps the best illuminant is composed of inverted arc lights with the room lit by reflection from the ceiling, but it is extravagant in current. Single incandescent lamps equally distributed over the ceiling give a pleasant and well diffused light. Groups of lamps in electroliers should be avoided in classrooms. One eight-candle lamp, if not hung too high, should light sufficiently 24 feet super of floor area.

For the ventilation of classrooms it is more difficult to lay down any definite rules. The problem may be simply stated as follows:—

The time required to contaminate the air in a classroom of an elementary school of the capacity required per scholar—i.e. 10 feet per scholar—is eight minutes, while for that of a secondary school it would be a quarter of an hour. The temperature of the room, according to the rules of the Board of Education, has to be kept at from 56 degs. to 60 degs. Fahr. The problem, therefore, is how to change the air of a classroom from four to eight times an hour, and, at the same time, to avoid draughts and keep the temperature at from 56 degs to 60 degs. In discussing ventilation it is not possible to exclude altogether the question of heating. This can be done by open fireplaces, hot water, or steam and warm air. In one set of competition conditions sent to me I was surprised to find a condition, drawn up by an eminent architect, stating that the top of the fireplace openings should be 4 feet 6 inches high above the floor. I subsequently learned that this was provided on the strength of an instance where it appears such openings were provided, and it was noticed the boys did not progress so well after they had grown above this height, the idea being that the air in the room was better at the lower level through the ventilation of the fireplace. Whether this was a fact I cannot say, but the regulation was not insisted upon when the building came to be erected.

Still there is, I think, undoubtedly in England a strong preference for the open fireplace and the open window, and no doubt there is much to be said for them, especially in small schools; in larger ones it is impracticable. At the same time, I am strongly of opinion that an elaborate system of heating and ventilation such as may be very necessary in such buildings as law courts or hospitals is not necessary in a school for healthy boys and girls. The open fireplace not only provides heat, but also a means of ventilation, and should be placed in the angle on the inner wall near the door, not on the window side, which is an outside wall, and which in such a position must place the unhappy master in a draught between the door and the fireplace. An extract can be obtained by another flue in the chimney-stack, and fresh air may be admitted at the back of the grate and from the corridor. By this means, however, it is impossible to insure with any certainty a regular change of air in the classroom or an even temperature. All extracts which are worked by what are called natural causes are, in my opinion, unreliable and under certain variable conditions of temperature or wind pressure work uncertainly and sometimes even in directly opposite directions to that intended. To obtain results unaffected by these variations, mechanical means must be employed in the shape of rotary fans or other contrivances either to move the air by extraction or propulsion. If extraction is adopted, probably the best plan is hot-water radiators under the windows fitted

with bafflers, behind which the fresh air admitted from outside is warmed by passing over the radiators and the foul air is mechanically extracted at the ceiling level in the wall opposite. By this means, and with regulators on the inlets and outlets, the system can be sufficiently regulated, but it is as well also to supply an open fireplace, though the mechanical extract may interfere with its draught at times. The size of both the inlet and outlet depend upon the power of the fan employed. The alternative is the propulsion of warm air into the room by a fan, the air being admitted into the room about 2 feet below the ceiling, the outlet being at the floor level into the corridor immediately below the inlet over. The advantages of this system are the more equal distribution of the heat throughout the room, the absence of all heating apparatus such as radiators in the room, the avoidance of draught, the air in the room being under slight pressure, and the ease with which the apparatus can be used for ventilation purposes in summer time. The system requires to be planned with the building, and cannot, therefore, well be applied to old buildings. Each system, however, has its advantages, according to the size and special circumstances of the building; and with mechanical means now so readily at our disposal, there should be no difficulty in providing either the temperature or change of air that our medical advisers may decide from time to time to be necessary or advisable, for, after all, we must look to the medical profession to lay down the hygienic requirements of the children to be accommodated in these rooms, which it is our humbler but equally necessary part to see carried out as effectually and economically as possible.

### CORROSION OF IRON.

SOME important investigations of the effect of stress on the corrosion of iron have been in progress, which Professor William H. Walker and Mr. Colby Dill have been conducting at the research laboratory of technical chemistry at the Massachusetts Institute of Technology. The authors consider, says the *Engineering Record*, that a definite relation exists between electromotive force and corrosion, and that the corrosion of iron in water depends essentially upon three factors, the electrolytic solution pressure of the iron, the electrolytic solution pressure of hydrogen, and the condition of surface of the iron or metal in contact with the iron, in so far as it affects the ease with which molecular hydrogen may be liberated on it. In an experiment the last two factors may be held practically constant, and the electromotive force of the system made to depend for the greater part on the solution pressure of the iron. In the paper read before the American Electrochemical Society the authors deal with a single one of the conditions which affect the electromotive force of iron, the effect of stress on the metal. The particular problem investigated was the determination of the sign and magnitude of the potential changes caused by straining a piece of iron, particularly below the elastic limit.

The magnitude of the increase of potential which one would expect to be produced can be easily computed on the assumption that the energy stored in the specimen below the elastic limit is available as potential. Some very pure Swedish charcoal iron was tested in the usual manner to determine the modulus of elasticity and the elastic limit. From these data the maximum amount of work which it is possible to do on 1 cu. in. of soft iron by stretching it to its elastic limit was calculated to be 5.16 in.-lbs., which is equal to 5.83 joules. One cubic inch of soft iron weighs approximately 126 grammes, the specific gravity being 1.7. The work done in joules per equivalent is therefore 1.30, and the change in electromotive force which would be expected is 1.30 joules divided by 96,540 coulombs, or 0.0000134 volt. The magnitude of this change is therefore very small; its direction should be positive, because it is the manifestation of energy stored up in the metal.

The paper gives the results of experimental measurements by the Poggendorf method, using a cadmium cell as standard electromotive force. The specimens of iron tested were made from two lots of exceptionally pure Swedish charcoal iron. One lot was hard-drawn wire about 0.25 inch in diameter, and the other was bar-iron about 0.5 inch in diameter. The bars were cut in lengths of about 18 inches and the central portion reduced in a lathe for a distance of about 1 inch until a zone of bright new metal was exposed. This band was smoothed in the lathe first with a file and finally with emery cloth. With the exception of a narrow zone about 0.25 inch wide at the middle, the bars were



covered with several waterproof coatings of ordinary shellac to insulate the metal from the solution except at the desired point.

The cell consisted of a central tube about 3 inches long and 1 inch internal diameter, open at both ends. To this were bound by means of adhesive tape three smaller tubes of the same length closed at the bottom. The bottom of the central tube was closed by a rubber stopper, carefully cleaned, through which the iron part projected, so that the reduced portion came at the middle of the tube. The central tube containing the specimen was filled with ferrous sulphate and then the three outer tubes were filled, one with ferrous sulphate and two with potassium chloride. All four tubes were then connected by syphons. The syphon of the normal calomel electrode dipped into the last potassium chloride tube. These precautions were successful in preventing the diffusion of  $\text{FeSO}_4$  into the tube containing the normal electrode. The  $\text{FeSO}_4$  solution was protected from air by a layer of paraffin oil carefully washed to remove traces of alkali or acid. The loads were applied with a testing machine operated by hand, as a power machine rendered potential measurements out of the question.

Tests were made with a large number of pieces of iron which were subjected to increasing stress up to the breaking point; a typical test was as follows—the stress was applied uniformly and gradually increased. The potential dropped simultaneously very slowly until at a stress of about 31,000 lbs. per square inch of original section the electromotive force had decreased 0.9 millivolt. When the machine was stopped at this point the beam of the machine sagged. When stress was again applied the potential rose suddenly 3.9 millivolts, and when the machine was stopped it dropped to its former value in fifteen seconds, then sank more slowly to a minimum and then started slowly to rise again. When load was put on a second time the character of the change was similar to the first, there being first a sharp rise of electromotive force while the load was increasing, followed by an abrupt fall when the machine was stopped, then a slower fall, then a rise to a constant value. The magnitude of the sudden rise depended upon the rate at which the stress was applied. The final value after fracture was about 8 millivolts higher than the initial value.

The cause of the abnormal rise observed at high stresses was next investigated. Change in temperature suggested itself as the most probable cause, although iron under these conditions has shown itself to have a negative temperature coefficient. In order to duplicate as nearly as possible the thermal conditions which obtain in the iron electrode, a device was used whereby there was a continual flow of heat from the electrode to the solution. A hole about  $\frac{1}{8}$  inch in diameter was drilled throughout the length of one of the electrodes. The upper end was joined by a rubber tube to a reservoir directly above, holding about two litres. A copper-nickel thermopile was soldered to the surface of the electrode where it was in contact with the liquid. The copper, nickel and solder were insulated from the solution by means of shellac. Hot water was placed in the reservoir and allowed to flow down through the electrode, the rate being regulated by a screw pinchcock. The test showed that a rise in temperature produced a decided decrease of electromotive force. The experiment was repeated with additional precautions and entirely concordant results were obtained.

If the sudden rise in potential above the elastic limit is caused by temperature changes in the electrode, then, since iron has a negative temperature coefficient, the specimen must cool off as the breaking load is approached. Such a phenomenon, though highly improbable, is perhaps conceivable. Experiment showed, however, that there is a continuous rise in temperature from the elastic limit to the breaking load. The rise in temperature in this test was determined by means of the copper-nickel thermopile previously used.

An experiment was also made with normal ferric chloride as electrolyte to see if this change in potential below the elastic limit also occurred. The specimen was prepared in identically the same manner as the previous ones. Soon after immersion in ferric chloride it became coated with bubbles of hydrogen and the surface lost its metallic lustre and grew black. The potential rose rapidly during the first and second days. On the third and fourth days the potential was not measured. On the fifth day it had risen from 0.5279 to 0.6638 volt and was very constant. Scraping the specimen by means of a sharp wire produced a decrease of 0.0031 volt. On the sixth day the bar was

pulled nearly to fracture. The potential decreased gradually 0.0006 volt from 1,200 to 32,600 lbs. (yield point) per square inch. Here the potential rose as in all previous cases, but the subsequent behaviour was irregular. This experiment confirmed the previous ones with ferrous sulphate as electrolyte.

If there is any permanent difference in electromotive force between a strained and an unstrained piece of metal, it should be apparent in the case of hard-drawn wire when compared with the same wire annealed. A number of specimens of steel wire in its strained condition were obtained and portions of each specimen carefully annealed in a vacuum. In almost every case a difference of potential was observed between the annealed and unannealed specimen; but further investigation showed that as great, and frequently greater, differences existed between the different portions of the same wire, both in the strained and the annealed condition.

The results of the experiments are summarised by the authors of the paper as follows:—

1. The magnitude of the potential changes suffered by soft iron when tested in a tension machine below the elastic limit is exceedingly small. In the majority of cases it was less than 0.0001 volt. The maximum change was 0.0004 volt.
2. The change, when great enough to be measured, was negative, *i.e.* the strained metal had a slightly lower potential than the same metal unstrained.
3. Somewhere above the elastic limit the potential rises suddenly several hundredths of a volt. The magnitude of the increase depends on the rate of straining and ceases abruptly when the straining ceases.
4. Measurements on specimens under torsional stress give results similar to those obtained from tension tests.
5. Out of a considerable number of specimens strained to breaking, the potential of six reached a constant value shortly after fracture. The difference between the initial and final potentials varied from -0.00019 to +0.0077 volt, and the single potential of unstrained metal was found to be 0.156 volt.

#### DUBLIN MEMORIAL ARCH.

THE Royal Dublin Fusiliers Memorial Arch, which was inaugurated by Field-Marshal His Royal Highness the Duke of Connaught, K.P., on Monday, is in the form of a Roman triumphal arch, spanning the north-west entrance of St. Stephen's Green Park, and was originally suggested by Sir Thomas Drew, P.R.H.A. (one of the members of the committee), who has kindly acted as consulting architect.

Mr. Howard Pentland, R.H.A., whose services were lent by the Board of Works, is the architect, and in his design, which in its main proportion bears some resemblance to the Arch of Titus at Rome, he has very successfully worked in the four existing granite piers, raising them on a continuous curved plinth, increasing their apparent width by the introduction of some rusticated courses, and running their main lines to the piers to form the impost. The archway is 12 feet in width, and springs from rusticated piers, each intersected by a pedestal and a pair of pilasters, supporting a Doric entablature. The frieze bears on its four elevations the names in gold of the principal actions in the South African war in which the regiment took part, viz. "Talana, Colenso, Tugela Heights, Hartshill, Ladysmith, Laing's Nek."

The entablature is surmounted by an attic storey broken over the pilasters, and bearing two inscription panels. The obverse contains the Latin words suggested by the Right Hon. Mr. Justice Ross (a member of the committee):—

"Fortissimis suis Militibus  
Hoc Monumentum  
Eblana dedicavit. MCMVII."

The first word alludes to the compliment conferred on the Dublin Fusiliers by the Commander-in-Chief of the Natal army, who directed the regiment to lead the relieving forces into Ladysmith.

The reverse contains the following inscription:—

"In memory of the Officers, Non-Commissioned Officers and Men of the Royal Dublin Fusiliers who fell in the service of the country in the South African War, 1899-1900 A.D."

The inscriptions are in keeping with the severity of the arch itself, composed, as it is, of granite and millstone.

The front keystone supports a bronze cartouche flanked by branches of bay, bearing the arms of the regiment. This has been modelled by Mr. Emery, of Great Brunswick



Street, from a drawing made by Mr. Pentland. Within the arch appear the names of the gallant 212 who fell in the war.

The total width of the arch and piers is about 33 feet, and the height is about the same. The total width of the new entrance, including the flanking piers and curved railings, is about 86 feet.

The main structure is of grey granite from Ballyknocken, co. Wicklow, and the inscription panels are of Sheephouse limestone, from Drogheda. The style, too, is Irish, recalling the days of Gandon, Castle and Ivory, whose Renaissance work has contributed so much to the characteristic qualities of eighteenth-century Dublin.

The site was granted by the Commissioners of Public Works. The contractors are Messrs. Henry Lavery & Sons, Ltd., of Belfast and Dublin. The sub-contractors for the iron gates and railings and for the bronze cartouche are Messrs. J. & C. M'Gloughlin, Ltd., of Dublin.

### A DUNDEE RELIC.

DURING the course of extensive alterations on the property in the Vault, Dundee, so long occupied by the late Colonel William Smith, and now by his son, Mr. Harry K. Smith, some curious structural features have been disclosed which connect this building with pre-Reformation times. The architects in charge, Messrs. Thomas & Wilkie, F.F.R.I.B.A., having called attention to these discoveries, an examination of the proprietary history of the building, says the *Dundee Advertiser*, has given the following results, which rest upon documentary evidence. The facts disclose something of the social life in Dundee nearly four centuries ago.

The church of St. Clement, which was the oldest church in Dundee, dated from the beginning of the twelfth century. It stood on the site of the present Town House, and its ruins were only cleared away in 1730, when the building was erected. In 1868, when an extension of the Town House was made, some of the carved heraldic stones that had decorated the original church were built into the new addition, and may still be seen on the west gable. But St. Clement's Church had lost its dignity hundreds of years before these recent dates. When David, Earl of Huntingdon, about 1199, decided to build a church in Dundee dedicated to St. Mary, the doom of St. Clement's was sealed. The Earl's Church became the fashionable resort, and the older edifice was permitted to crumble away. About 1500 the structure had been partly repaired, though at the attack on Dundee by the English in 1547 the old church was laid in ruins. Shortly afterwards, when the Town Council wanted a new Tolbooth, they used some of the ruined walls of St. Clement's Church for that building. Previous to 1564 the kirkyard of St. Clement's was the chief cemetery of Dundee, until Queen Mary gave the orchard of the Greyfriars (now the Howff) as a burying-ground. Before that time, however, some of the leading merchants and town councillors had helped themselves to feus on the ground of the kirkyard, and the house with which we are now dealing was one of the earliest buildings so erected.

George Rollok was one of the prominent merchants in Dundee early in the sixteenth century, and held the office of bailie for several years. He was married to Margaret Wedderburne, a member of another important Dundee family, and in 1535 they vested their property in their son, Richard Rollok. It is probable that the house in the Vault was built by George Rollok before his death, which took place about 1540. The son, Richard Rollok, lived in this mansion, and when he died, in February 1560, his son, Robert Rollok, obtained possession of the house as heir of his father. In the Sasine Records of Dundee the house is described as "lying on the west side of St. Clement's church, having the said church's cemetery on the east, the great Close built by James Lovell on the west, the land built by the said James Lovell and occupied by James Mitchell on the north, and the land of George Lovell on the south." This exactly describes the present position of the house. The mansion remained in the possession of the Rolloks until July 1643, when "the heirs of the late David Rollok" sold it to Robert Fletcher, who was then proprietor of the tenement immediately to the south of it. In course of time the Fletchers had sold portions of the property, but late as 1865 a flat in this building belonged to Agnes Watt, widow of Robert Fletcher, "some time spirit dealer, Vault, Dundee." The southmost of the two shops (Nos. 9 and 11 Vault), which belonged to the late Colonel Smith, and which was the original Rollok

mansion, was in the hands of "Paul Farquharson of Pear-side, some time vintner in Dundee," early in the last century. From existing title deeds it appears that Paul Farquharson had "rebuilt" the tenement, though this can only mean that he had covered portions of the stonework with plaster, which still remains. Unquestionably the main structure is as it was erected by the first of the Rolloks nearly four hundred years ago. Paul Farquharson removed about 1850 to 3 Barrack Street, where he established the Swan Inn, which was carried on by his widow for some time after his death in 1855. About this time the ground storey and cellars of Nos. 9 and 11 were the property of Isabella Campbell, daughter of the deceased James Campbell, who had been a farrier and veterinary surgeon in Dundee from the beginning of last century; and it was during Campbell's time that Paul Farquharson altered the front of the shop, covering up part of the old stonework with cement. The shop No. 9 was occupied by the late Colonel Smith from 1865 till his death, and is now in possession of his son, Mr. Harry K. Smith. Colonel Smith's predecessor was William Paxton, who began business here as ale and porter merchant in the late "thirties," and latterly developed a wholesale trade.

The centre archway formed the door of the frontage of the southmost shop facing the vault in the early sixteenth century, giving access to the ground floor, and the arches on each side were originally openings which may have been filled with glazed casements reaching down to the pavement. The pillars are well-proportioned and show distinctly Scottish character in the bases and capitals. The arches vary slightly in width, but are constructed on the same principle, with keystones, the springing of the outer arches being from pilasters uniform in style with the centre pillars. When the front was covered up with cement, the centre arch had been partly cut away so as to make a higher square-top door; and it proves the strength of the old masonwork that this alteration has not affected the stability of the building. Indeed, the whole structure displays the idea that these old mason-builders "built for posterity." The inner wall is nearly 7 feet thick, although there is no apparent reason for such solidity. The cellars, which extend below the building and out beneath the pavement, are strong barrel-vaulted structures; and what appears to have been the kitchen is also constructed of masonry that has withstood the tooth of time. An old doorway in the kitchen leads out to an area from which access is obtained to Crichton Street by a stone staircase. It is the intention of Mr. Smith to alter this shop on the ground-floor and arrange it in a style that will accord with the architecture of this venerable old building.

While the alterations were in progress a curious stone lintel, over 6 feet long by 13 inches high, was discovered. The initials I. M. are those of John Man, a leading merchant and bailie in Dundee from 1670 to 1690; while the monogram surmounted by the figure 4 shows his merchant's mark, that figure having indicated from a remote time the "Four Burghs"—Edinburgh, Berwick, Stirling and Roxburgh—that regulated the commerce of Scotland. The other initials are those of John Man's wife, M. S., whose surname has not yet been discovered. There is no document as yet found to show that Bailie Man was proprietor of the mansion in 1675, though he would not have carved a lintel so elaborately for a house unless he was sure of "fixity of tenure."

In His Second Report to the executive committee on the progress of the work of preservation of Ayr Auld Brig, Mr. W. S. Wilson, C.E., Glasgow, the engineer, states that the pointing of the two arches and two piers, as well as two-thirds of the third arch, is done. The roadway for a length of 200 feet has been removed, and arches Nos. 1, 2 and 3 have been strengthened in the manner described in his last report. The central spandril walls have been built on three arches. The external spandril walls of arches Nos. 1 and 2 were found to be of substantial thickness, but in arch No. 3 they are too thin, and he proposes to strengthen them by adding a foot to their thickness on the inside. A good deal of grouting has been done. The hand machine having been found to be too slow, a small  $\frac{3}{4}$  horsepower electric motor has been hired, and this part of the work will now go on more rapidly. The pits in piers Nos. 1 and 2 are being sunk—the first being down 26 feet from the road level. There are twenty-one men employed on the bridge, and the expenditure to date, including wages, plant and material, has been 437/.



## NOTES AND COMMENTS.

It was mentioned recently that designs had been received by a committee for a canopy which it is proposed to erect over the statue of the late QUEEN at Winchester. Like all the works of Mr. A. GILBERT, R.A., it merits to be carefully preserved and properly placed. At present it is in the Abbey gardens; but the immense statue of King ALFRED, which is near it, has had an injurious effect. And, moreover, for a work which contains such delicate details, an unsheltered position in the open air is not advantageous. When it was completed the county hall was suggested to contain it. But there was opposition, and for a long time the beautiful statue remained covered with a tarpaulin in the Castle yard. It has now been arranged that a small committee shall take the subject into consideration and consult with the sculptor concerning the canopy and other matters. It will not be creditable if the least injury should arise to so important an example of English sculpture.

THE recent inquiry into the outlay on the Hammersmith Workhouse has been accepted as a lesson by the Local Government Board. For a while at least a more rigorous investigation of proposals will be adopted. A workhouse infirmary was proposed to be erected at Edmonton at a cost of 160,000*l.*, and the designs were sent about a month ago to the Local Government Board. The plans have been returned, but the deductions suggested are roughly estimated at from 50,000*l.* to 70,000*l.* The building was the subject of a competition, and therefore it may be concluded that without instructions to the contrary economy was recognised by the authors of all the plans. It is only when a designer has a free hand that avoidable expense prevails. To suppose then that a building of the kind could be produced for nearly one-half the amount estimated is suggestive of want of experience. Such a method of dealing with plans which have been carefully considered is likely to do more harm than good. It would be interesting to have a drawing which would represent the official standard, in order to compare it with the design approved by the Guardians. The Edmonton Union does not correspond with the metropolitan union; and those who administer the Poor Law are not under temptations like those which assail Guardians in the East End.

THE British Consul at Stockholm has sent to the Commercial Intelligence Branch of the Board of Trade a copy of the "program" issued with reference to a proposed bridge in the Swedish capital, for which designs and plans are invited. Prizes of 7,000 kr., 4,000 kr. and 300 kr. are offered. The bridge is an important one, owing to its situation as an approach to the new Houses of Parliament and to the State Bank; it is estimated to cost over 20,000*l.* Sketches, drawings, photographs, &c., to assist an architect in forming an idea of the place may be obtained from "Stockholms Stads-byggnadskontor" by paying 25 kr. Designs, in sealed envelopes, bearing a motto and marked "Tafnings-forslag till bro öfver Norrstrom," must be delivered to "Dratselmannens registrator, kansli, No. 2 Stora Nygatan, Stockholm, Sweden," not later than 3 P.M. on December 15, 1907. The designs must be accompanied by two envelopes bearing the competitor's motto, one containing his name (which is opened only in case the designs receive a prize or are purchased), and the other an address to which the designs are to be returned. The "program" may be seen at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, E.C.

IN many of the guide-books to France, as well as in encyclopædias, the original name of Havre is said to be "Le Havre de Notre-Dame de Grace," and it was derived from a small chapel which stood on the site of the town of which FRANCIS I. was the founder. The British Consul-General, Mr. HEARN, gives a different interpretation of the title, and one which archæologists

will consider more prosaic. He says the flat, low-lying marshy land which was left by the Seine was known in the fourteenth century as the "Plaine de Grasse." The name was derived from the low Latin word "grassus," which signifies mouth, estuary, port or place where vessels can touch the low-lying land—land often inundated and always marshy—a creek or bight and narrow passage leading thereto from the sea. Thus the Haven of Grace actually takes its name from those features of the land which have been both an advantage and a disadvantage in its progress. The advantages lay in the creeks and fosses which have now become basins and docks, while the obstacles have made themselves apparent in the difficulty and expense in laying foundations in such fickle ground, and this has been particularly the case in building the great half-tide dock of the new harbour works. It is worth remarking that, according to some French authorities, FRANCIS I. wished to have the new port known as "Franciscopolis," but the name of the old chapel was too closely associated with the place to be superseded even by a royal command.

## ILLUSTRATIONS.

UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.—  
DETAIL OF ENTRANCE.

THE site occupied by the new offices of the United Kingdom Provident Institution is not without interest, for on it stood the publishing office of the *Illustrated London News*. It stands at the angle formed by the junction of a narrow street and the Strand. It will be observed from the general view we published last week that a part of the building had to be set back in order to avoid interfering with the light of a shop in Milford Lane. The sculpture on the ground floor gives an important character to the building, and a strong contrast is offered between the vigorous seated figures and the standing figures in relief which flank the second-floor windows. In the interior, as will be seen from illustrations to be published subsequently, marble has been largely employed, and the principal rooms are most effective. The works were carried out by Messrs. HIGGS & HILL, under the direction of the architect, Mr. HENRY T. HARE.

TOWN HALL, LEIGH.

THE new town hall occupies a site of 1,882 square yards, with frontages to the market place, Market Street and Newton Street, Leigh. The two main fronts are in Darley Dale stone, and the building, both externally and internally, is designed in a Late Renaissance style. The main entrance has a projecting portico with grouped columns and carved capitals, with a richly moulded frieze and cornice. The large entrance hall is enriched with scagliola columns and pilasters. Spacious offices accommodate the various departments, and in each room is left space for future expansion. There are committee-rooms, a mayor's parlour and smoke-room, and a council chamber so arranged that three rooms can be thrown into one for occasions of public assemblies. Stained glass and heraldic devices are freely used. The whole of the work has been designed by Mr. J. C. PRESTWICH, of Leigh; the contractors were Messrs. ROBERT NEILL & SONS, of Manchester.

WESTMINSTER CATHEDRAL—CHAPEL, SS. AUGUSTINE AND GREGORY.

NEW PREMISES FOR THE ANGLO-EGYPTIAN BANK, TANTAH.

REREDOS IN CHAPEL, CONVENT OF ST. MARGARET, EAST GRINSTEAD.

THIS reredos, of which an illustration appeared last week, has been presented by an anonymous donor, and recently erected in the chapel. It is executed in oak with gilding on the carving and hollows of tracery. The work has been carried out by Mr. A. ROBINSON, of the Bloomsbury Carving Works, from the design of Mr. J. STANDEN ADKINS, of the firm of Messrs. JAS. BROOKS, SON & ADKINS. The illustration is from a photo by Mr. W. PAGE, of East Grinstead.



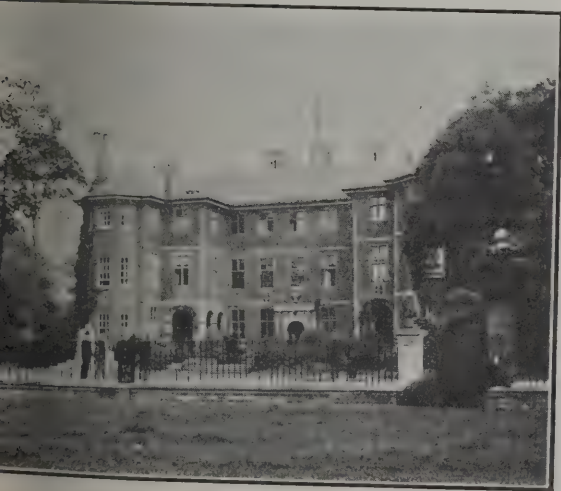
# HAM AND PETERSHAM.\*

PETERSHAM is a manor and village of very old standing, going back long before Domesday Book. It appears to have formed part of the original endowment of the convent of Chertsey, and is mentioned in the charter of the founders, Frithwald and Earkenwald, dated 666. It afterwards also mentioned in Domesday Book as being part of the possessions of the abbey of Chertsey. It so remained until 1415, when it was conveyed to Henry V. in exchange for some land at Ewell. In 1541 it was granted, with other estates, to Anne of Cleves, and she afterwards rendered it to Edward VI. In 1610 it was part of the estate settled on Henry, Prince of Wales, and shortly after his death it was settled on the king's second son, afterwards Charles I. In 1637 he granted the manor on lease to William Murray, afterwards created Baron Huntingtower and Earl of Dysart, and ultimately in 1666 the manor was granted to his eldest daughter and heiress and her husband Charles II. The earldom of Dysart was created in 1633, when the title was conferred on William Murray, the remainder to his heirs male and female. He had no sons, and his eldest daughter Elizabeth succeeded to the title. She obtained from Charles II. in 1670 a confirmation of her honours, with a clause in the charter allowing her to nominate any of her issue she pleased as her heir. She married Sir Lionel Tollemache, the descendant of an ancient family of Saxon origin, and had several children. He died in 1668, and in 1672 she married the Duke of Lauderdale, by whom she had no family. This was the gentleman depicted in Sir Walter Scott's "Old Mortality" as the president of the commission who tried the Covenanters after the battle of Bothwell Brigg. As a matter of fact, he was at Whitehall at the time, but he had acted in a similar way on former occasions, and the description Scott gives of him appears to have been well warranted by facts. The portraits of him in Ham House represent a man of a coarse, sensual and unscrupulous type. His duchess succeeded him, and died in 1697. She was succeeded in the earldom of Dysart by her eldest son by her first husband. Her eldest daughter married Archibald, first Duke of Argyle, and the Duke of Argyle immortalised in the pages of the "Heart of Midlothian" was born at Ham House. The title is peculiar, as it is in tail general, and not tail

by Hoppner, Sir Joshua Reynolds, Vandyke and Sir Godfrey Kneller. Adjoining is a small chapel, wainscotted, and here there is a prayer-book presented by Charles I. to the first earl, most handsomely bound, and with the royal arms worked on the covers in gold and silver filigree. In this chapel Lady Sudeley, the cousin of the present earl, was married. Near this chapel and close to the ground staircase is a small staircase in the thickness of the wall leading to a small room above, and is said to have been of value to fugitives in the time of the Commonwealth. Closely ad-



HAM HOUSE—SIDE ENTRANCE.



HAM HOUSE.

and passes to and through females as well as males in equal degree having the preference. It has been by several ladies in their own right; in fact, the present earl succeeded a lady, and presumptively will be succeeded by a lady. Ham House was built by Sir Thomas Vavasour about 1634, and that date, with the words *Vivat Rex*, are carved on the broken front door of the house. It was sold to the first Earl of Dysart in 1634. The house is built of red brick; the exterior presents no special features, and the rooms, with the exception of the great hall and picture gallery, are not very large proportions, but they are absolutely packed with treasures of art. The main hall is a large and lofty room paved with black and white marble, and having a gallery round the upper part. This hall contains full-length portraits of various members of the Dysart family

joining is the grand staircase, most beautifully carved in representations of ancient weapons. The rooms on this floor are mostly used by the family; the dining-room, instead of paper, has the old-fashioned Spanish leather hangings. In the breakfast-room is an original picture by Cuyp—a portrait of Sir Lionel Tollemache, who married the first countess, and a lovely picture by Correggio of *The Pentecost*. The walls are covered with tapestry said to have been made at Mortlake. There is a small adjoining room called the picture-closet, containing a large number of original miniatures and small portraits by some of the most eminent old masters; and here is preserved a small lock of the hair of Queen Elizabeth's Earl of Essex. On the upper floor are the State apartments, and here is the celebrated room called the "Cabal Room," from the meetings there of Charles II.'s Council, whose initials form the words Clifford, Arlington, Buckingham, Ashley and Lauderdale. This room and its furniture and ornaments are said to be in almost the same condition as when the Council met there. The floor is of parquetry, with the monogram "E.D.L.," surmounted by the ducal coronet. At the end there are two chairs, said to have been occupied by the Duke and Duchess of Lauderdale. The furniture in this room includes several magnificent cabinets, and there is here a portrait of the Duke and Duchess of Lauderdale by Sir Peter Lely. The mantelpiece is well worthy of attention, and also the old iron firebacks. As an example of the lavishness in furniture it may be mentioned that the very fire-irons are of wrought-iron and solid silver.

In the adjoining room are still preserved the chair used by the first Countess of Dysart and her walking staff. There is a magnificent Venetian mirror framed in silver, said to have belonged to Marie Antoinette.

On this same floor is the picture gallery, upwards of 80 feet in length, with portraits mostly by Vandyke and Sir Peter Lely, the most important being of Sir Lionel Tollemache, second Earl of Dysart, by Vandyke; Charles II., and the Duke of Lauderdale, both by Lely; Charles I. and Sir Harry Vane, both by Vandyke; Maitland, Mary Queen of Scots' Chancellor; Murray, first Earl of Dysart, and Elizabeth, his eldest daughter, the celebrated countess; Elizabeth, Duchess of Argyle, the mother of the celebrated

\*Read at a meeting of the Upper Norwood Athenæum on July 7, by Mr. George Thatcher.



duke, and others. There is also a miniature said to be of Elizabeth, Queen of Bohemia (Queen of Hearts), the eldest daughter of James I., though there is some doubt as to its authenticity. It will be remembered that it is through her our present royal family trace descent both from Tudors and Stuarts. There are a pair of Rose du Barry vases in this room said to be worth more than 3,000 guineas. There is also a very ancient jewel case, the lock of which is especially curious.

In another room not far from this is a second collection of miniatures, and here is a document of great interest to the antiquary, being none other than the charter fixing the division line of England and Scotland at the time of the Union.

The library contains a very large number of old books. There are no less than fourteen Caxtons and some of Wynkyn de Worde. There is also a large number of manuscripts, which, however, are not accessible at present.

There is a very large, old-fashioned garden of great extent, containing old English trees, shrubs and plants of all descriptions.

There was the pouting rose, both red and white,  
The flamy heart's-ease, flushed with purple light;  
Blush-hiding strawberry, sunny-coloured box,  
Hyacinth, handsome, with his clustering locks:  
The lady lily, looking gently down,  
Pure lavender to lay in bridal gown,  
The daisy, lovely on both sides, in short,  
All the sweet cups to which the bees resort,  
With plots of grass, and perfumed walks between  
Of sweetbriar, honeysuckle and jessamine.

Behind the garden extends the park, and here is the celebrated "Ham Walk," almost a mile long and terminating on Ham Common.

Separating the garden from this walk are the large iron gates, the tradition in respect of which is that they are only opened for an Earl of Dysart—and then only twice; first, when he brings home his bride and then when he departs on the last long journey from which there is no return. This, however, appears to be only a tradition and not to have any real foundation; the fact that the gates are never used probably gave rise to it.

Petersham Church is a small building dedicated to St. Peter and stands on a very old foundation, though the chancel appears to be the only part which is really old, and this dates back to the early part of the fifteenth century; traces of a Norman window on the north side of the chancel can be seen on the outside; the rest of the church was built in 1840, and is of red brick. There are several monuments well worthy of attention, particularly the altar tomb on the north side of the chancel, containing the full length recumbent statues of George Cole and Frances his wife. There are long Latin epitaphs from which it appears that he died in 1624 and his wife in 1633. Beneath in a recess is a small recumbent figure which represents Gregory Cole, a grandson of George Cole. There is a tablet opposite the pulpit to the memory of the discoverer Vancouver. The inscription runs as follows:—"In the cemetery adjoining this church were interred in the year 1798 the mortal remains of Captain George Vancouver, R.N., whose valuable and enterprising voyage of discovery in the North Pacific Ocean and round the world during twenty-five years of laborious survey added greatly to the geographical knowledge of his countrymen. To the memory of this celebrated navigator this monument is erected by the Hudson's Bay Company. March 1841."

There are many other monuments and tablets to various eminent persons which will repay examination.

The church plate comprises chalices, flagons and patens of silver, mostly presented by members of the Dysart family. The earlier church registers have been destroyed, but an entry has been preserved of the marriage of Prince Rupert with Frances Bard on July 30, 1664. She was the daughter of Sir Henry Bard, Viscount Bellamont in the peerage of Ireland. They had one son, Dudley Bard, who was known by his mother's surname; he was born in 1666, and killed at the siege of Breda in 1686. This register is especially interesting, as the fact that Prince Rupert was married has been generally doubted, and it seems pretty clear it was more or less kept secret. Rupert died in 1682. Had his son lived and had children who were Protestants, interesting questions might have arisen about this entry of marriage, as it will be remembered that our present royal family claim title to the throne through the Electress Sophia, the

youngest daughter of Rupert's mother, the eldest daughter of James I., she being declared the nearest Protestant succession.

Petersham itself seems to have altered very little from what it must have been in the past, and still preserves a quiet, peaceful, rural state, far different from Twickenham, its busy neighbour opposite, with its railways, electric lights, electric tramcars, busy streets and large shops. The river seems a division of 200 years. I think all will agree that, although there may be far more magnificent scenery nothing can excel the quiet beauty of the Thames Valley. Here let me quote a passage from one of our great masters describing this spot or the immediate neighbourhood:—

"The carriage rolled rapidly onwards through fertile meadows, ornamented with splendid old oaks, and catching occasionally a glance of the majestic mirror of a broad placid river. After passing through a pleasant village, the equipage stopped on a commanding eminence where the beauty of English landscape was displayed in its utmost



HAM HOUSE—PRINCIPAL ENTRANCE.

luxuriance. Here the duke alighted and desired Jeanie to follow him. They paused for a moment on the brow of the hill, to gaze on the unrivalled landscape which it presented. A huge sea of verdure, with crossing and intersecting montories of massive and tufted groves, was tenanted by numberless flocks and herds, which seemed to wait unrestrained and unbounded through the rich pastures. The Thames, here turreted with villas and there garlanded with forests, moved on slowly and placidly, like the might monarch of the scene, to whom all its other beauties were but accessories, and bore on its bosom a hundred barks and skiffs, whose white sails and gaily fluttering pennants gave life to the whole."

In conclusion, I should like to quote the following lines:—

My eye, descending from the Hill, surveys  
Where Thames amongst the wanton valleys strays—  
Thames, the most loved of all the ocean sons  
By his old sire, to his embrace runs,  
Hasting to pay his tribute to the sea,  
Like mortal life to meet eternity.  
Oh! could I flow like thee, and make thy stream  
My great example, as it is my theme—  
Though deep yet clear, though gentle yet not dull,  
Strong without rage, without o'erflowing full.

The Sheffield Corporation is considering the desirability of establishing municipal links either in one of the parks or on one of the large estates of the water committee, as gathering ground for the reservoirs. Several meetings have been played by members of the Sheffield Corporation against members of the Rotherham Corporation.



# BYZANTINE DOOR TREATMENT.\*

THE earliest of the bronze doors which still exist in the south of Italy were importations from Constantinople, beginning with those of the cathedral, Amalfi, which are seen in their present position by Desiderius in 1062, then to the church by Count Pantaleone. Members of his family gave those at Atrani, St. Paolo fuori, Rome, of which only a few poor remains escaped the fire, Monte St. Angelo and Monte Cassino, the last-named being practically unaltered. In these doors the figures are incised on the bronze, and the lines filled either with silver or with a gilded mastic, and some of the panels have crosses chased applied to the surface which bear great resemblance to others nearly contemporary at Sta Sophia, Constantinople. The doors of the cathedral, Salerno, given in 1099 by Landolfo-Butromilo and his wife, are similar, and at St. Mark's, Venice, is a pair of doors of the same type brought from Constantinople, and another pair made in the twelfth century in that city in imitation of them. These doors are all inscribed, so that there can be no mistake as to the time and place of their manufacture. At Salerno are two very fine doors made by Oderisius of Benevento in 1119 and 1127, which combine the Byzantine technique with a feeling for grotesque and relief work, and engraved patterns of a western type; and at Canosa two remarkable doors made by Roger of Amalfi about 1150, on which the applied flat ornament is quite Saracenic, and some of the figures were executed in the usual Byzantine manner, and others cast and applied. Amalfi had a flourishing commerce in the early medieval period. While in Salerno Arab science came into contact with Christian and that of the West, Amalfi was the centre of exchange for Eastern and Western merchandise. The Arabs brought thither Oriental manufactures and received in exchange Western products; and the Amalfitans carried Western manufactures to the maritime cities of North Africa and Syria. They also had relations with the Greek ports, bringing especially the purple robes which the Greek nobility used to wear. It became the chief emporium of the silks of Greece. Amalfitans were established in Constantinople, Sicily and other places. Beautiful marble ambroses of the twelfth century, of which this at Salerno is an example, are the product of this mingling of Oriental influences with the Lombard. It was in the reign of Romuald, the Salernitan bishop and councillor to William I. and II. of Sicily, who spent a great part of his life in Palermo, and, no doubt, employed Saracen workmen to fulfil his commission, though the sculpture of the Easter gospels especially shows the chisel of a Campanian sculptor. The fine doors at Benevento, of about 1150, show Byzantine influence in the design of the subjects and many of the architectural details, but combined with a sense of nature and a variety in the arrangement of poses which at first sight seem alike, and show that the design was not an affair of carrying out a recipe. The doors made by Bonannus of Pisa and Barisano of Trani, which stand near each other in the cathedral of Monreale, show considerable feeling for relief. In the west doors at Trani and Ravello, Barisano employed the same moulds as Monreale with somewhat different surroundings, basing himself on his models on the panels of the Byzantine ivory caskets, on which figures of warriors fighting, &c., are carved. The ornament between the panels is also quite original in its suggestion frequently, and this detail from the door at Ravello shows how the various pieces were joined. He was a commercial craftsman, and thought of repeating the same panel over and over again in the same door; indeed, both in this door and in that at Trani the two leaves are repetitions of each other, and the figures of the panels at the top of the door (which is square-headed) shows that it was originally designed for one which was within an arch—the door at Trani, in fact. Bonannus did not mind repeating the general arrangement of his design and that at Monreale is very like that at Pisa, with the exception, of course, for Pisa must have been the original with a square head and long panels at top and bottom. At Monreale the top panel is hidden by the arch. In 1891 Graeven made a curious discovery at Pesaro of an archway of Adam and Eve being driven out of Paradise, which is identical with some little figures on Bonannus's door at Pisa, and which makes it certain that ivories were used as models by the Italian bronze workers, and by

further discoveries has shown that the ivory workers sometimes copied miniatures. He found in the Museum at South Kensington a panel with two ends added to a central portion. The centre was the reproduction of a miniature from the Joshua roll in the Vatican Library, a MS. of about 500, while two figures on the piece added to the right were taken from another miniature in the same roll. One of the panels of the cover of the Psalter of Charles the Bald and a panel in the Zurich Museum also show the use of miniatures as copies, in this case from the Utrecht Psalter, and the cover of the Veroli casket he shows to have been put together from various classical sculptures and mosaics, specially the Europa corner from a mosaic found at Pales-trina and now in the Barberini collection at Rome.

The northern tradition is seen in the doors of S. Zeno, Verona, which were probably originally made in Saxony and show great resemblance to work at Hildesheim, Augsburg and Nijni Novgorod, at which last-named place there are doors which came from Magdeburg. These doors of S. Zeno were burnt in 1160 and restored, and additions by a third hand, probably a local craftsman, may be recognised. The piercings in the dividing rolls are probably a reminiscence of the cloisonné glass and garnetwork which the early Goths practised—the plate prepared for the jewels. The German influence in this part of Lombardy was very strong; it was reunited to the empire by Otho I., and in the lists of monks and nuns on the various religious foundations names of German or Lombard derivation are far more numerous than Italian names.

Architectural ornament, both painted and carved, appears generally to have developed in accordance with the progress in the Scriptoria, though it is questionable in some cases whether the design of the goldsmiths' work influenced that of the MSS. or whether the reverse was the case. At any rate details of ornament which appear in architectural decoration in the twelfth century are to be found both drawn and worked in metal at an earlier date. At Reichenau and Ratisbon were schools of illuminators whose designs were used for wall-paintings, and in the MSS. the ornamental details show the plan of Romanesque scrolls, with Byzantine forms in the accessories of the miniatures with Lombard interlacings, and in one case at least with a development of Syrian carved patterns of the sixth century. The north door of the cathedral of Basle, 1010-19 (to which Henry II. presented the fine antependium now in the Musée Cluny), shows ornament which has Eastern suggestion though obscured by restoration. In Frederic Barbarossa's castle at Gelnhausen the Oriental suggestion is stronger, the general form of the caps bearing a likeness to Saracenic shapes (as we have found also at Le Puy), coupled with the Byzantine super-abacus elaborately carved. Similar arcades to this one occur at Schloss Münzenberg, Goslar, the Wartburg (which is perhaps the finest example, having several storeys), Wimpfen, Seligenstadt and in other castles. Frederic went with his uncle Conrad to the crusades in 1147-8, and perhaps this may account for the character of the ornament to some extent. The date is 1170, and there is a curious difference between the extreme richness and elaboration of the ornament of the archivolt of the door to the great hall and the simplicity of that applied to the fireplace. At each side is a carved panel—one has an interwoven pattern met with in Rome in the sixth century, and the other a well-known ninth-century pattern of interlacings. The arch of a window opening above and the shafts of the fireplace have a simple zigzag and chevron, and if the two panels were not of the local stone one would suppose that they had been imported in the same manner as Charlemagne imported marbles for his palace at Aachen. On one of the capitals the imperial eagle appears, but it is doubtful whether it has any heraldic signification, for capitals almost precisely similar occur at Toulouse and in other places where there could be no question of imperial rule. The little town has a very fine church of rather a later date, probably about 1220, but the carving retains the Romanesque patterns in the elaborate ornaments of the jambs and archivols, and gives a very good idea of the richness of the later Romanesque. Here you may still observe an inferiority in the treatment of the figurework to that of the ornament, and a certain stiffness of pose, though it is a great advance upon the earlier Romanesque figure sculpture; but the carving of the ornament is excellent, and indeed has been styled "unsurpassable" by a German art historian.

The cathedral of Bamberg in its present state dates from the twelfth and thirteenth centuries; the western choir was finished in 1274, a consecration is recorded in

\* From the Cantor Lectures by Mr. F. Hamilton Jackson, vice-president of the Society of Decorative Designers, given in the *Journal of the Society of Arts*.



1237 and an earlier one in 1111. To the earlier building the doors at the eastern ends of the aisles belong, one of which has a very beautiful range of capitals with half-lengths of saints, forming a kind of super-abaci. The other has had figures attached to the columns in imitation of the French portals at a later date; and the fine door on the north with similar figures and a Doom in the tympanum is also of this period, several of the figures being evidently carved by the same sculptor. The grimacing figures, by another hand, show that the French influence had not been fully absorbed, though the capitals are many of them quite excellent in design but no longer distinctively German in character.

It has been claimed by some German writers that the Romanesque style was firmly established in Lower Saxony in the second half of the tenth century. If that is so, it can only have been as simple construction, for after the Ottoman impulse was exhausted the level of carving was very low until the end of the eleventh century. Many of the examples have been dated too early, and the latest German opinion appears to be that the carving on the Holy Grave chapel at Gernrode, some tombs of abbesses and other carvings in the Schlosskirche at Quedlinberg, and the figures on the parapet of the west gallery at Kloster Groningen are the earliest examples extant. These are all of the twelfth century. A good deal of beautiful archaistic work was done in stucco, at Hildesheim, Halberstadt and Hecklingen, for instance, with which the figures at Cividale may be compared, which are probably of the same century. The influence of Byzantine ivories is evident in the casting of the draperies, an influence which is even more noticeable in the Christ of the fine tympanum of St. Godehard, Hildesheim, of the end of the century. Herr Goldschmidt has published a photograph of this figure side by side with an enlargement of a Byzantine ivory which proves the influence incontestably. This is before the French influence appears, the earliest certain instance of which is in the choir of Magdeburg, where a craftsman who had worked in France commenced working between 1210 and 1220.

Although the most important factor in the making of Romanesque ornament has been proved to be motifs of Oriental origin, modified by local peculiarities and Lombard tradition, the influence of the antique must not be left out of consideration, though its strength varies greatly in different districts. We have seen, for instance, how much the ornament of the south of France was affected by the remains of antiquity still extant there, and at Modena the carving of Willigelmus on the façade of the cathedral shows classical details in the moulding, and even absolute copies of a winged genius with reversed torch used as decorative panels; but around Spalato a school arose in the twelfth century which based its ornament so closely on the imitation of classical details that the buildings upon which they appear have been held to be entirely antique, though it is only certain portions of them which are so. The door of S. Salvatore in Crocefisso, now the chapel of the cemetery, for instance, and the tympanum of the Temple of Clitumnus, a few miles away, both have the cross interwoven with their ornament in a manner which shows that they are not of Pagan origin—though in each case considerable portions of the building behind are antique and the character of the carving in accordance. The church of St. Pietro, Spalato, has older reliefs worked into the ornament of its façade with bestial subjects, but is work of the end of the twelfth century. Yet the patterns carved upon the jambs of the central door are so antique in style that it is only the perfect fitting of the ornament to the space which it fills which makes it certain that it was carved for its place. An enlarged detail will show this character more clearly. Now it is a very curious fact that this pattern is almost exactly like the jamb of a door of the Syrian second-century church of Kanawât, figured in the report of the American archæological mission to Syria; and it is strange and inexplicable that two sculptors so far away from each other should hit upon the same treatment of much the same details. Observe also that the rosette patterns of inlay are most of them Oriental. At Narni the doors of Sta Maria Impensole are surrounded by similar ornament which is plainly the work of the same school, the principal of which, the main door of the cathedral, Spalato, is signed by Melioranzo, who perhaps was the founder. At Verona, too, classical details are frequent. The arcaded cornice of the font in St. Giovanni has among the heads which serve as corbels a Jupiter Ammon with ram's horns, a Midas with ass's ears and a head of Zeus. And at Pisa the pillars at the sides of the central door of

the western façade are covered with elaborate arabesques, which are so antique in feeling that they too have been claimed as antique fragments though the proportions of the columns are not antique, and the corresponding columns of the door of the baptistery are worked with equally beautiful arabesques, the work of Diotisalvi in 1153, while Giovanni Bigarelli of Como's font in the centre shows a combination of inlay of coloured marbles mixed with foliage, in which the antique influence is often very visible, though the design on the lintels is inspired by Byzantine ivories. At the cathedral of Lucca are other columns with beautiful arabesques based upon classical data, and in the cloister of Monreale, Sicily, one of the most beautiful features is the groups of four colonnettes at each corner carved with similar arabesques.

Again, the scrolls of ornament on the doors of the cathedral, Zara, are based on classical forms, though directly, and they bear great resemblance to those used by Benedetto degli Antelmi on the archivolts of the door of the Baptistery at Parma, and a still closer resemblance to the ornament on the font within. At Borgo San Donnino he used the same kind of details, which themselves are like the carving directly derived from antique models which we have seen at Arles and St. Gilles, and make it probable that certain Benedetto had lived and worked in the south of France. Certain details of costume (such as the curule chair, which is also found on a terra-cotta dug up at Afridi near Samarcand) and ornament occur in France, and not all in Italy at any earlier period. His most evident use of the antique is in a figure of a griffin, which is taken almost line for line from a well known antique, but vivified.

It was probably from the sarcophagi that the arcaded patterns with figures or ornament beneath them, which occur as part of Romanesque decoration, originated. Such compositions, as that from the western façade of the cathedral at Modena, in which subjects from the history of Adam and his fall fill a series of arched spaces, and form a decoration of the either side of the main doorway, are not infrequent. At Verona, the arched spaces contain a greater variety of subjects, in four rows, each beneath a single arch, ranging from the Creation to the legendary death of Theodoric. The patterns on the bands between, evidently of classical origin, and in the columns of the high altar of St. Mark's, Venice, probably brought from Sta Maria in Canneto, Pola, and dating from the fifth century, a whole series of Scriptural subjects is treated in this manner, one figure generally tenanted each niche, which make them rather difficult to comprehend when many figures are required for the expression of the subject. This rather inconvenient method of rendering scriptural and legendary subjects was sometimes used at a later date; the similar pillars at the base of the canopy at San Marco are of the eleventh century, though very inferior in workmanship to those which they imitate; and in the courtyard of the archbishop's palace at Verona is a column of a later period, as the trefoiled arches show, carved with scrolls with very decorative effect, but was in fact the decorative effect which was sought rather than the effective presentment of the subjects: in the arcadings ornament is often found in place of figures, as in the well-known well-head from St. Samuele, Venice, in which the Byzantine character of the ornament is so pronounced.

#### TESTING SLATE.

A SPECIAL number of the American publication *Stone*, published by Mr. A. Lent, New York, is devoted to the important subject of slate, and contains several articles on various phases of the industry. The following paper is taken from the nineteenth annual report of the United States Geological Survey, and has also been issued as a bulletin. It will suggest the practical character of *Stone*.

Methods of testing the elasticity, absorption, fissility, and resistance of roofing slates have been in use for many years, and many more or less complete chemical analyses of slate have been published. In recent years, however, more exact methods of reaching these results have been devised. All such methods have here been brought together. If parts of one specimen, fairly representing the average quality of the product of any quarry, or if parts of each of a series of specimens, representing all the different varieties and qualities obtained, were to be subjected respectively to the tests described, such a slate or slates may be said to have been for all economic purposes exhaustively investigated. Several of these tests are of so simple a character as to be



easily applied. This list of methods is largely compiled from Böttinger, Fresenius, Hutchins, Jannetaz, Merriman, Reverdin and De la Harpe, Sorby, Umlauf and J. F. Williams. Although they all offer valuable suggestions, the most useful papers on the subject are those of Fresenius, Umlauf and Merriman.

**Sonorousness.**—One of the first and most time-honoured tests of roofing slate is to suspend a good-sized piece of the usual thickness and tap it with some hard object. If it possesses the molecular structure of a slate it will yield what might be termed a semimetallic or semivitreous ring. It is because of this property that when at the quarries refuse slates are thrown upon the dumps the sound produced is not unlike that made by the smashing of a large quantity of crockery.

**Cleavability.**—This test should be applied by an experienced workman. The block should be freshly quarried, unfrozen and moist. The chisel should be very thin and about 2 inches wide. The cost of slate is closely related to the degree of its cleavability.

**Cross Fracture ("Sculping").**—This is to determine the character of the "grain." This test should also be applied by an experienced hand to a large block several inches thick with a stout chisel and a long-handled, heavy mallet. Jannetaz published a method for determining with scientific precision the direction of the grain in slate when it is but obscurely shown on the cleavage surface. The slate is sawed in a direction parallel to its cleavage, and one of the sawed surfaces is made exceeding smooth and covered with an even and very thin coat of grease. The point of a red-hot platinum wire is applied to the slate opposite the centre of the greased surface. The greased surface reached by the heat will, in cooling, leave an oval outline, the long axis of which will show the direction of the grain, the heat having travelled more rapidly within the slate in the direction of the grain than in any other. He also made a disc of slate 4 inches in diameter of ordinary thickness, with a central perforation. This disc was fastened by the extremities of the diameter parallel to the grain and afterwards by that at right angles to the grain, and was made to vibrate by tapping the sides of the perforation. The sound produced when the disc was fastened by the diameter at right angles to the grain was louder than when fastened by that parallel to it. In other words, the direction of the grain was that in which elasticity and vibration were greatest.

**Character of Cleavage Surface.**—The cleavage surface should be examined with an ordinary magnifying glass. A superior slate should scale along the cleavage surface into very thin chips with translucent edges. If the grain is pronounced it will appear in fine transverse lines. If false cleavage, which is fatal, be present, it can usually be detected on the cleavage surface. Ribbons, which are sometimes lines of weakness, should be noted. There is a great difference in the smoothness of the surface in slates of different regions. Ordinarily the constituent minerals ought not to be visible. Minute lenses or crystals are not necessarily detrimental, but they retain dust and thus afford a foothold for mosses and other cryptogams, which render moisture and thus aid the decomposition of the slate.

**Presence of Lime.**—This can be determined by the application of cold dilute hydrochloric acid to the edges of a freshly quarried slate. Rapid effervescence implies presence of carbonate of lime; slow, that of a lesser quantity of it or dolomite—carbonate of lime and magnesia.

**Colour and Discoloration.**—The colour of the freshly quarried slate should be noted and compared with that of slates exposed for several years to the weather, either on the quarry dumps, or with that at the top of the quarry close to the gravel, although this last comparison is not always so perfectly conclusive. The value of slates is somewhat affected by the extent of their discoloration.

**Presence of Clay.**—This should be tested by breathing on a fresh and clean piece of slate and observing whether there is any argillaceous odour. The very best slate will emit any such odour.

**Presence of Marcasite.**—A slate containing lenses or streaks of a pale yellowish metallic mineral which on exposure decomposes, forming a yellowish white film and spots, is poor.

**Strength.**—Merriman finds the modulus of rupture in the best slates should range from 7,000 to 10,000 lbs. per square inch. J. F. Williams shows a limit of compressive strength ranging from 8,040 to 24,760 lbs. per square inch and a tensile limit at from 4,850 to 10,260 lbs. in the purple,

red and green slates from Rutland and Washington counties. Campbell and Donald give 20,000 lbs. as the crushing weight for 1 cubic inch of slate. Wilkinson, in his "Practical Geology of Ireland," gives 30,730 lbs. as the crushing weight of the Killaloe slates. Watrin gives the maximum crushing weight of some French slates as 2,000 kilogrammes per square centimetre, but 1,700 as the average.

**Toughness or Elasticity.**—Merriman finds the ultimate deflection in certain Pennsylvania slates, when placed on supports 22 inches apart, to range from 0.270 to 0.213 inch. Certain blue-black slates in Eldorado County, California, when split seven to the inch and 18 inches square, and fastened solidly at the two ends, are said to bend 3 inches in the centre without any sign of fracture. J. F. Williams tested beams of slate from Rutland and Washington counties, 1 inch square and 10 inches long, with supports 6 inches apart. Bending without breaking was effected by from 770 to 1,200 lbs., and when the supports were placed 3 inches apart by from 1,710 to 2,400 lbs. The great elasticity of the slates of eastern New York and western Vermont is apparent to any one visiting the shanties where the splitting is done.

**Density or Specific Gravity.**—This is determined in the usual way, by weighing a piece of the slate in and out of water and dividing its weight out by the difference between its weight in and out. The specific gravity will be considerably affected by the amount of magnetite or pyrite. Merriman's tests of Pennsylvania slates give 2.761 to 2.817. Meyer's "Konversations-Lexikon," 1894, gives 2.8 to 2.9 as the normal specific gravity of a good roofing slate.

**Porosity.**—This is best determined by drying, then weighing, then immersing for twenty-four hours and weighing again, in order to ascertain the percentage of water absorbed. Merriman takes a piece 3 by 4 inches, with rough edges, dries it in an oven at 135 degs. Fahr. for twenty-four hours, cools to the normal temperature of room, weighs and immerses it for twenty-four hours and weighs again. His tests of Pennsylvania slates showed from 0.099 to 0.303 per cent. of absorption. Porosity is sometimes roughly indicated by immersing a roofing slate edgewise one-half in water and observing how far the water ascends by capillary attraction. In good slates it ought to rise but very little.

Reverdin and De la Harpe state that slates are liable to deterioration from the chemical action of gases arising from woodwork beneath the slate, as well as from the action of the atmosphere, and that they are also liable to an increase of porosity by the physical action of changes of temperature and by the unequal conductivity of heat in the direction of cleavage and of grain. They state that the porosity in a fresh slate should be below 0.1 per cent., and after treatment less than 0.2 per cent. Their somewhat elaborate method is this:—For determining porosity as produced by acids the slate is treated with 10 per cent. cold acetic acid, and the flask is made vacuum from time to time. The piece is then washed, dried, weighed and immersed in diphenylamine in a thick-walled tube 12 by 3½ centimetres. The tube is exhausted, heated two hours in oil bath at 170 degs. Centigrade, air pressure is restored, and heating continued for four to five hours at 150 degs. Centigrade, after which the test pieces are removed, the diphenylamine wiped off with ether and the increase in weight taken.

For determining porosity as produced by changes of temperature the slate is heated in a wrought-iron tube for half an hour to 300 degs. Centigrade, and the tube is then suddenly cooled by a stream of water for half an hour. This process is repeated twenty-four times, and the slate is then impregnated with diphenylamine and the procedure is as in previous test.

Fresenius is accredited with a method of testing the effect of heat and cold on slate by saturating it with water and putting it for twenty-four hours in a freezing mixture and heating another from 250 degs. to 350 degs. for five or six hours and then immersing it in water. The porosity, strength and elasticity of the pieces so treated should then be tested. Böttinger points out that the greater the porosity of a slate the more damaging is the action of frost likely to be.

**Corrodibility.**—An important quality in roofing slates is their resistance to the acids of the atmosphere, particularly in cities, where gases increase its destructive power. Fresenius in 1868 suggested testing the weathering qualities of a slate by immersing it for three days in dilute sulphurous acid in a closed vessel. At the end of that time poor slates are softened or broken up into thin laminæ or easily fractured, while good ones preserve both their density and hardness.



Merriman, for the same purpose, prepared a solution consisting of 98 parts of water, 1 part of hydrochloric acid and 1 part of sulphuric acid. Pieces of slate 3 by 4 inches were carefully weighed, then immersed in the solution for sixty-three hours, then dried for two hours in the air of the laboratory and weighed again. The loss in weight ranged from 0.374 to 0.619 per cent.

**Microscopic Analysis.**—One of the most satisfactory tests of slate is the examination of a thin section of it under the microscope. A cubic inch thus tested will suffice to show the character of the cleavage, the presence of false cleavage, if any, the probable durability or indurability of the colour, as well as the presence of any mineral constituents likely to affect its general durability. The specimen should be carefully selected so as to fairly represent the general quality of the bed. It should be fresh, unfrozen and about an inch thick across the cleavage. At least two sections should be prepared—although the more the better—one parallel to the cleavage and another at right angles to it, never diagonal to it. The sections should be exceedingly thin, much more so than ordinary sections of eruptive rocks, and the slide-cover should be of the very thinnest kind to admit the use of the highest objectives. Both slides should be examined first in ordinary light, then in polarised light with powers ranging from 140 to 700 diameters. The transverse section will show the quality of cleavage, the false cleavage if any, and, under polarised light, will, as pointed out by Sorby and others, show whether the specimen is a slate or a shale or something between the two by the entire matrix becoming in a true slate four times dark and four times light in complete rotation. Sections parallel to the cleavage reveal the amount of carbonate and indicate the probable amount of discoloration by exposure. Both sections under incident light will show pyrite if any exists.

**Chemical Analysis.**—This, in order to give a correct idea of the composition of the slate, should not be partial but complete. Such an analysis should then be compared with complete analyses of the best slates of like colour, and before a final conclusion is reached as to the value of the slate its microscopic analysis and the results of the tests of its strength, elasticity, porosity and corrodibility should be considered in connection with its chemical analysis. Merriman concludes from six different kinds of tests applied to each of twenty-four specimens of old Bangor and Albion (Pennsylvania) slates, as well as from the results of several general chemical analyses, that:—

"The strongest slate stands highest in weathering qualities, so that a flexural test affords an excellent index of all its properties, particularly if the ultimate deflection and the manner of rupture be noted. The strongest and best slate has the highest percentage of silicates of iron and alumina, but is not necessarily the lowest in carbonates of lime and magnesia. Chemical analyses give only imperfect conclusions regarding the weathering qualities of slates, and do not satisfactorily explain their physical properties."

Reverdin and De la Harpe also call attention to the fact that good slate may have a high percentage of calcium carbonate, and that others free from it may be poor, and that the presence of pyrite is not necessarily a bad indication, for it may not decompose. This statement needs modification, however, by adding that marcasite even in small quantities is very deleterious, for it decomposes very readily.

Besides these tests, there are a few others which are of scientific rather than economic importance. Umlauf suggests heating small splinters of slate under the blowpipe to determine the presence of pyrite and carbon and to ascertain the relative fusibility of different slates; also the test with bead of borax or phosphate of soda and ammonia to determine the presence of iron. He recommends putting a splinter of slate in pure hydrochloric acid in a watch glass, and after evaporation examining the precipitate microscopically; also the application of the same treatment to a splinter after fusion with the blowpipe. He recommends also the application of the ordinary mineralogical tests for hardness, e.g. scratching the slate with calcite and fluorite.

Hutchins finds that the presence of chlorite minerals can be detected by heating the slate to dull redness, thus dehydrating and discolouring those minerals, then preparing a thin section of the slate so treated and comparing it with sections of the normal rock.

**The Third International Congress** for the development of drawing and art teaching is to be held in London during August 1908. The two preceding congresses have been held at Paris and Berne.

## THE NATIONAL GALLERY.

THE following pictures have lately been added to the National Gallery:—

"Une Parade," by Gabriel de Saint-Aubin, No. 2,129, hung in Room XVII., bought from the Lewis Fund.

"The Water Lane," by Jan Siberechts, No. 2,130, presented by Mr. J. P. Heseltine, hung in Room XIII.

"Roses," No. 2,133, and "Apples," No. 2,134, by Henri Fantin Latour, and a sketch of "The Marsh of Arleux," by J. B. Corot, No. 2,135, all bequeathed by the late Mr. Edwin Edwards and hung in Room XVII.

A small engraved portrait of Lully, the musician, by Auguste de Saint-Aubin, No. 2,136, illustrating the picture by Rigaud, No. 2,081, presented by the Comtesse de Coullanges, hung in Room XVI.

Besides the above permanent additions to the Gallery at Trafalgar Square, Sir Hickman Bacon has lent his "Tavern Scene," by Adrian Brouwer, placed in Room XIII. and Sir George Donaldson has lent his portrait of "Bona Savoy," by Ambrogio de Predis, which has been placed in Room IV.

The following two pictures have been added to the collection of British pictures at the Tate Gallery:—

"The Picnic," by Sir David Wilkie, No. 2,131, presented by Sir Charles Robinson through the National Art Collections Fund, hung in Room I.; and a portrait of Mr. Morris Moore by Alfred Stevens, No. 2,132, presented through the National Art Collections Fund by Mr. J. Duveen, Mr. Sargent R.A., Mr. Herbert Cooke, Mr. A. MacNicol, Mr. A. A. Pass and other donors, hung in Room III.

## PERCENTAGE IN AMERICA.

THE following letters from architects relating to the schedule of charges of the American Institute have appeared in *The Inland Architect*:—

Boston: July 3, 1907.

I personally feel on the whole satisfied with the present schedule of the A.I.A. The system of basing the charges of architects for professional service upon the cost of the building is not an ideal one, and in many cases the architect under it is much overpaid and in many more he is not paid enough, but a person with fairly even practice need not have any cause to complain very seriously if the details of his business are properly attended to. We would all favour of course a system by which the architect would be paid an amount based upon the time he gives to the work, upon his own experience and the magnitude of the work itself, quite irrespective of what the builder may charge for carrying out the work, but I am afraid any such scheme as this would be too much to hope for under existing business conditions.—Yours very truly,

C. H. BLACKALL.

Boston: July 1, 1907.

The commission basis I consider radically wrong. The cost of the architect's services bears no relation to the cost of the building except on buildings of the same kind and character. Compare the draughting and the personal service of the architect on a house worth 200,000 dols. with the draughting and personal service necessary for a school costing 200,000 dols., having twenty-five or thirty large rooms identical in every respect. It is undesirable that the architect should have a financial interest in the cost of the work. If he is extravagant his compensation is greater. If he is careful and economical he will spend more time and money in effecting savings for his client, merely to be paid less himself. Various remedies have been suggested.

1. That the client be charged on the basis of cost of draughting, this being multiplied by three or four to cover cost of office expenses and the proper profit.

2. That the client pay a fixed sum for the architect's fee and in addition the actual cost of doing the work. The first leaves the client at sea as to what he must eventually pay and might make the architect careless as to his salary list. The second is open in part to the same objection, but either case the architect might be willing to fix a limit to his cost. His fee might be based on the old commission basis as e.g. 2½ per cent. of the estimated cost, and not to be altered by actual cost. Cost of draughting being rendered monthly could be checked by the client, and if it were costing too much, less expensive men could be put on it. A fair way to arrive at the office expense chargeable to each job appears to be to divide total office expense *pro rata* according to the



me spent on the draughting irrespective of the salary of the man, as the low salary man takes as much office room and uses as much material as the high man. These various suggestions have come to me from different men; they are not my own ideas. They seem to me practicable and on the right line, and in practice work well.—Yours very truly,  
R. CLIPSTON STURGIS.

Baltimore: July 2, 1907.

We, as a firm, do consider that the present rate of commission to architects, according to the A.I.A., is too low to adequately pay for the work required, and particularly so for all contracts under 10,000 dols. We also think there may be a more appropriate and just method of payment to architects for services rendered than a percentage on amount of contract, as, in a very large number of instances, the architects' services cannot be justly rated, in the various lines on which their work must be done, by a simple rate of percentage on the cost of the work to the owner. While we think that very possibly some other method might be established for the just payment of architects' fees than by schedule arranged by the A.I.A., we are not at present willing to state that this is our positive opinion, nor to suggest what such changed methods might be without giving the subject deeper consideration than we have yet been able to do.—Very truly yours,

WYATT & NOLTING.

Richmond, Va.: June 28, 1907.

The schedule of charges as fixed by the A.I.A. has been in vogue for years, and is generally used, certainly by all architects in good standing in their practice. This schedule is generally known and understood by the public, and they are satisfied with its requirements as to charges, &c., recognising as they do the standing and influence in the arts of the A.I.A. It has required some years for this to be understood and appreciated, and now to abolish or change it would, in my opinion, be a mistake. This schedule is headed, "The Proper Minimum Charges, &c.," and the architect, where he thinks he would not be properly paid for his services, can increase such charges by a special agreement with his client before the work is done; and he is authorised by the schedule to make a special rate in excess of the 5 per cent. where the building costs less than 100 dols. To abolish or change the schedule by increasing fees would reopen a matter which is now fixed and recognised, and would lead to complications and allow a decrease in the regular rates by some and an increase by others. I have adhered to the A.I.A. schedule in my practice of many years.—Very truly yours,

M. J. DIMMOCK.

Philadelphia: July 1, 1907.

We have just written a letter to a special committee of Philadelphia Chapter, American Institute of Architects, on the subject of professional fees, which covers our views, so we quote from it as follows:—

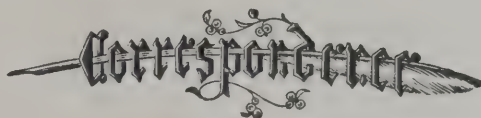
In our judgment the present minimum rate of 5 per cent. on the cost of general construction with an additional 10 per cent. on the cost of mechanical work where the services of mechanical experts are required, and 10 per cent. on the cost of furniture and fixtures designed or selected, is efficient and satisfactory compensation for all work of considerable size. Residence work, alterations, monumental work and work of special character generally cannot be done profitably except by charging a considerably higher fee, which should be a matter for each office to determine for itself as may suit its policy or the circumstances of each individual case.

Certain classes of factory work, storehouses and work of a nature that can be done profitably on a 3½ per cent. commission to be computed on the total cost of the work and the owner to pay for the services of mechanical experts. In the latter work we make a distinction between the mechanical work which forms part of the building, such as heating, lighting and elevators, and the work in case the building is a factory. The latter is generally included in the architect's work.

A 10 per cent. charge for furniture and fixtures in a building of any considerable size is an equitable one if fully understood and arranged between the client and architects. Although the cost of designing elaborate buildings may perhaps exceed the commission received, the difference is made up by the greater profits on the materials and the various fixtures, which are largely matters of selection and call for discriminating taste rather than for saving in labour and time.

"Our feeling is that the minimum rates should be confined to the work first described above. While small houses, country residences, alterations and work of that nature cannot be done by the ordinary office at the minimum rate, it is reasonably profitable to the young architect who does most, if not all, of the work himself, and it would be an injustice to deprive him of the opportunity to do such work in a self-respecting manner by establishing a greater minimum charge for it and telling him he must not do it for less. This does not mean that the larger offices should not charge larger fees for such work; on the contrary, they should, so that the client who desires to build a small house or do any of the work coming within the above classification can decide for himself whether he will employ the young man at 5 per cent. or whether he will avail himself of the larger organisation and perhaps greater experience of the better known offices by paying the difference."—Very truly yours,

RANKIN, KELLOGG & CRANE.



#### School Hygiene.

SIR,—As a slightly incorrect statement was published, it would be as well to explain in some detail the important new move in the matter of school hygiene which was taken at the closing meeting of the recent International Congress.

The permanent international committee, consisting of about sixty members selected from almost every country, has hitherto only met during congresses. Arising out of the question of whether it would not be a proper thing to establish a bureau, with a permanent staff, library and museum, and so on, in some central but neutral spot, such as a Swiss or Dutch town, it was decided, as explained by Drs. Mathieu, Burgerstein and Kerr, that it would probably lead to greater progress if such bureau was not localised, but if each country had its own centre for the diffusion of knowledge, and to act as a clearing-house in the matter of school hygiene statistics, laws and regulations. Finally, to supervise in scientific matters and generally to do all that is possible at all times or places to forward the human interests which are bound up in the special lines of knowledge included in school hygiene, the international committee has formed a small council.

This council has all the powers of an ordinary committee. It can form sub-committees of experts on special inquiries. The usual committee procedure is to sit round a table and discuss matters, but this council will deal with the various subjects that arise, submitting the different topics by correspondence, collating the answers, and finally making pronouncements in urgent matters after a meeting of the council.

It is obvious that for efficiency such council should be small and yet have in it elements to secure permanence, and at the same time possibilities of slow but constant change. This has been done by deciding that it shall consist of the president of the past congress, the president of the congress which has just been held and the president of the next congress. Nine other members are to be elected, of whom three are to be from the country where the congress was last held, and three from the country where it will be held next, three being selected from other lands.

Certain matters, for instance, will almost at once come under the consideration of this council. Such might be quoted as:—

The question of how medical inspection of schools can best be carried out with the maximum of efficiency and minimum of cost.

The question of how far the laws of health can best be imparted to the coming generation, so that later they will know how to care for themselves and those dependent on them.

The best systems or methods of physical training for both sexes at various ages.

The feeding of children requiring proper nutrition, so that it shall be done without developing pauperism and with regard to those upon whom the cost falls.

These four matters are being dealt with practically in a great variety of ways, and this council should be able to



collect and analyse known facts to show which methods are best for any town or state.

It is obvious that information thus digested will have a very great value politically as well as educationally, and this council may in time come to be officially regarded as quite analogous in matters of school hygiene to that other Congress of Peace now in session at The Hague.

LAUDER BRUNTON, President.

JAMES KERR,

E. WHITE WALLIS,

Hon. General Secretaries.

Royal Sanitary Institute, London.

### GENERAL.

**His Highness Prince Henry zu Schönaich-Carolath** has graciously consented to act as president of the fourteenth International Congress for Hygiene and Demography. Dr. Rubner, privy councillor of medicine, professor of hygiene at the Royal University of Berlin, and Professor Dr. von Mayr, Under-Secretary of State, Munich, will be vice-presidents.

**Messrs. W. E. Sproat & Eldon Warwick**, architects, Liverpool and Birkenhead, have been awarded first place in the competition for a Carnegie library to be erected in Birkenhead, at a cost of 13,000*l.* Mr. C. Heathcote, the assessor, examined twenty-two sets of drawings, and awarded second and third places to Mr. T. T. Rees and Mr. C. E. Deacon respectively. Messrs. Sproat & Warwick's plans were adopted on Wednesday by the Birkenhead Town Council.

**Mr. Francis Ford**, late curator of the Royal Architectural Museum, Westminster, and secretary of the Society of Art Masters, died at his residence in Fulham on the 19th inst. at the age of seventy-six.

**Cracks** having appeared in the walls of the north and south transepts of Southwell Minster, the Ecclesiastical Commissioners are taking steps to prevent further slipping of the foundations. The process of underpinning and broadening the base upon which the masonry rests is in progress. The parts affected form, with the nave, the oldest portion of the cathedral, having been built early in the eleventh century by Archbishop Thomas. The cathedral is in no immediate danger.

**The Parks Committee** of Glasgow Corporation, having accepted from the Glasgow and West of Scotland Technical College the statue of James Watt, from the top of their old college buildings in Bath Street, have appointed a sub-committee to arrange for it being placed in a suitable position in a public park.

**At the Meeting** on Monday of the Stirling Town Council it was reported that seventy architects had received copies of the conditions of competition in connection with the competitive plans for the proposed new municipal buildings.

**The Scarborough District Council** have agreed to pay 670*l.*, the amount claimed by the officials of the Duchy of Lancaster for damage to the Duchy plantation at Cloughton, alleged to have been caused by the hot cinders from the Council's steam roller having been thrown on the roadside.

**Sir W. Robertson Copland, M.I.C.E.**, died at his Glasgow residence on Monday, at the age of sixty-nine. He was born at Stirling in 1838, and was educated at the High School, and subsequently at the High School and University of Glasgow. At the University he was first prizeman in mathematics and in civil engineering. Civil engineering he chose as his profession, and his practical knowledge of it was gained chiefly in the office of the late David Smith, C.E. Later he joined the engineering staff of the old Edinburgh and Glasgow Railway. From 1862 till 1866 he held the position of burgh engineer in the town of Paisley, which post he forsook to enter business in Glasgow as a civil engineer on his own behalf. He acted as consulting or constructing engineer in connection with many great water undertakings in the United Kingdom and abroad. As witness, arbiter, or oversman his services were constantly requisitioned in connection with water schemes or disputes related thereto. His chief public work was in his association with the Glasgow and West of Scotland Technical College. Two-thirds of the new institution have been erected in George Street, Glasgow. As chairman of the governors he was indefatigable in his efforts to raise funds and it is mainly due to him that the sum of 250,000*l.* has been collected.

**The Historic Parish Church** of Carisbrooke, Isle of Wight, has recently undergone considerable repair, and the decayed stone treated with a preservative fluid, but it has now been discovered that the roof needs more attention than was

anticipated. The Vicar of Carisbrooke, in appealing for financial support, says:—"We are anxious to repair the ancient roof instead of building a new deal one. The old roof can be restored at considerable outlay of time and material, and it seems very desirable not to injure the venerable character of the building. We are very short of money, and we seem to have dried up all the ordinary springs of benevolence. This is a building in which the whole island takes an interest, and we are constantly being entreated not to alter and modernise it. We are as anxious as anybody to pursue this course, but what are we to do when we are left without funds? The work ought to be thoroughly done."

**The Government** of Jamaica invite applications for the post of surveyor and architectural officer at a commencing salary of 600*l.* before September 10. Candidates must be thoroughly qualified as building surveyors and, if possible, designing architects, and must have worked under some important municipal body.

**Two Months** ago the governors of Castleford and district secondary school held a competition for plans for new premises. Mr. W. S. Brierley, York, the arbitrator, considered those of Messrs. Robinson & Jones, architects, Leeds, the best of the 38 sets submitted. The governors, however, after consultation with the authorities at Wakefield, set them aside in favour of those of Mr. W. S. Braithwaite, another Leeds architect. Efforts to secure the work to the premier winner have failed. The urban council concerned—Castleford, Whitwood, Allerton Bywater and Glass Houghton—all object to baths, which the adopted plans include, as causing unnecessary initial outlay and upkeep, and as likely to injure the baths about to be erected in Castleford. Castleford Council, a member of which is chairman of the governors, failing to get satisfactory reasons for their action from their representatives have called upon them to resign.

**The Committee** formed to carry out the erection of statue to the Greek Emperor Constantin Paléologue, killed in 1453 in defending Constantinople, at the time the town was taken by Mohamet II., invite entries for an international competition, which will be judged by an international jury in Rome from June 18 to October 28, 1908. Artists must submit their models of the statue, the pedestal, and the bas-reliefs which will ornament the pedestal. The statue and the pedestal will be finally made in marble and the bas-reliefs in bronze. Particulars can be obtained from the Greek Legation in London.

**The Report** of the director of the National Gallery of Ireland for 1906 shows that among the pictures purchased for the collection was a Holy Family ascribed to Jacob Palma, for 500*l.* The most interesting gift received by the gallery was a portrait of the Irish antiquary, Dr. John O'Donovan, by Charles Grey, R.H.A., presented by his son Mr. R. O'Donovan.

**The Five Urban District Councils** of Farnworth, Worsley, Little Hulton, Kearsley and Little Lever, in south-east Lancashire, which have a joint population of over 60,000, are combining to build a Secondary school for their united needs. It will be situated in Farnworth, and will accommodate 350 scholars. The scheme is now well advanced.

**The Manchester Education Committee** are about to make application to the Local Government Board for their sanction to the borrowing of 5,000*l.* to cover the cost of the alterations and additions to the Ducie Avenue Municipal school, Greenheys; 9,500*l.* to cover the cost of the additions to the Southall Street Municipal school, Cheetham; and 9,700*l.* to provide for the cost of the enlargement and improvement of the Ardwick Municipal school.

**Owing to the Great Increase** in the number of students at Ruskin College, Oxford, the staff is being increased. There are at present fifty-two students in residence, consisting of twenty miners, seven engineers, four weavers, four railway servants, two boilermakers and one each of the following occupations:—Cotton-drawer, joiner, harness maker, shipwright, steel smelter, compositor, carter, stone carver, coachmaker, tailor, patternmaker, gasworker and iron-moulder. The plans for the new building are now under the consideration of the college. It will be erected on the site of the temporary buildings adjoining Worcester College. The present buildings are to be pulled down and a new college, with accommodation for 100 students, erected. For this purpose the college will require about 20,000*l.*

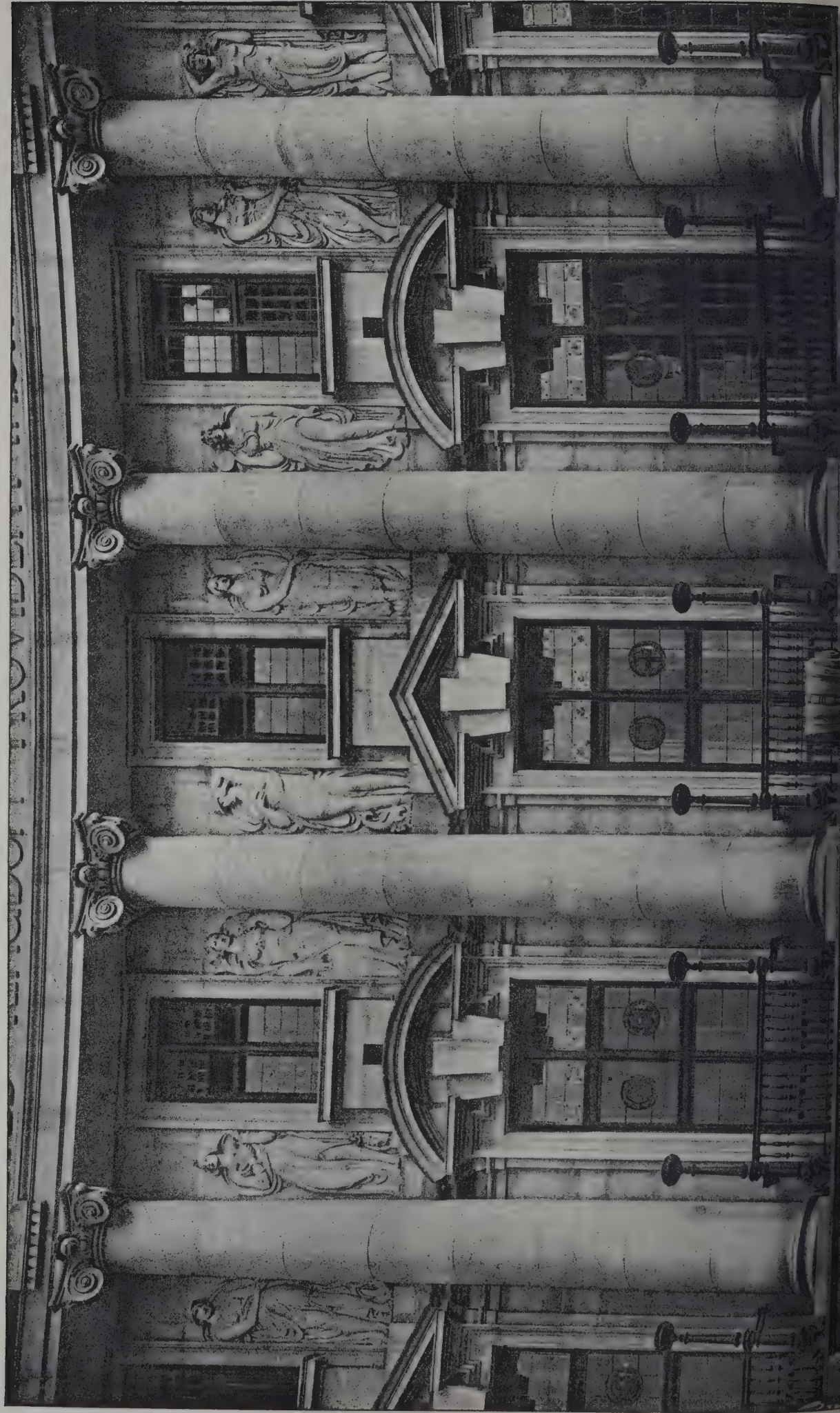
**The Manchester and Salford Trades Council** has passed a resolution expressing the Council's approval of the holding of an industrial exhibition in Manchester in the year 1910.



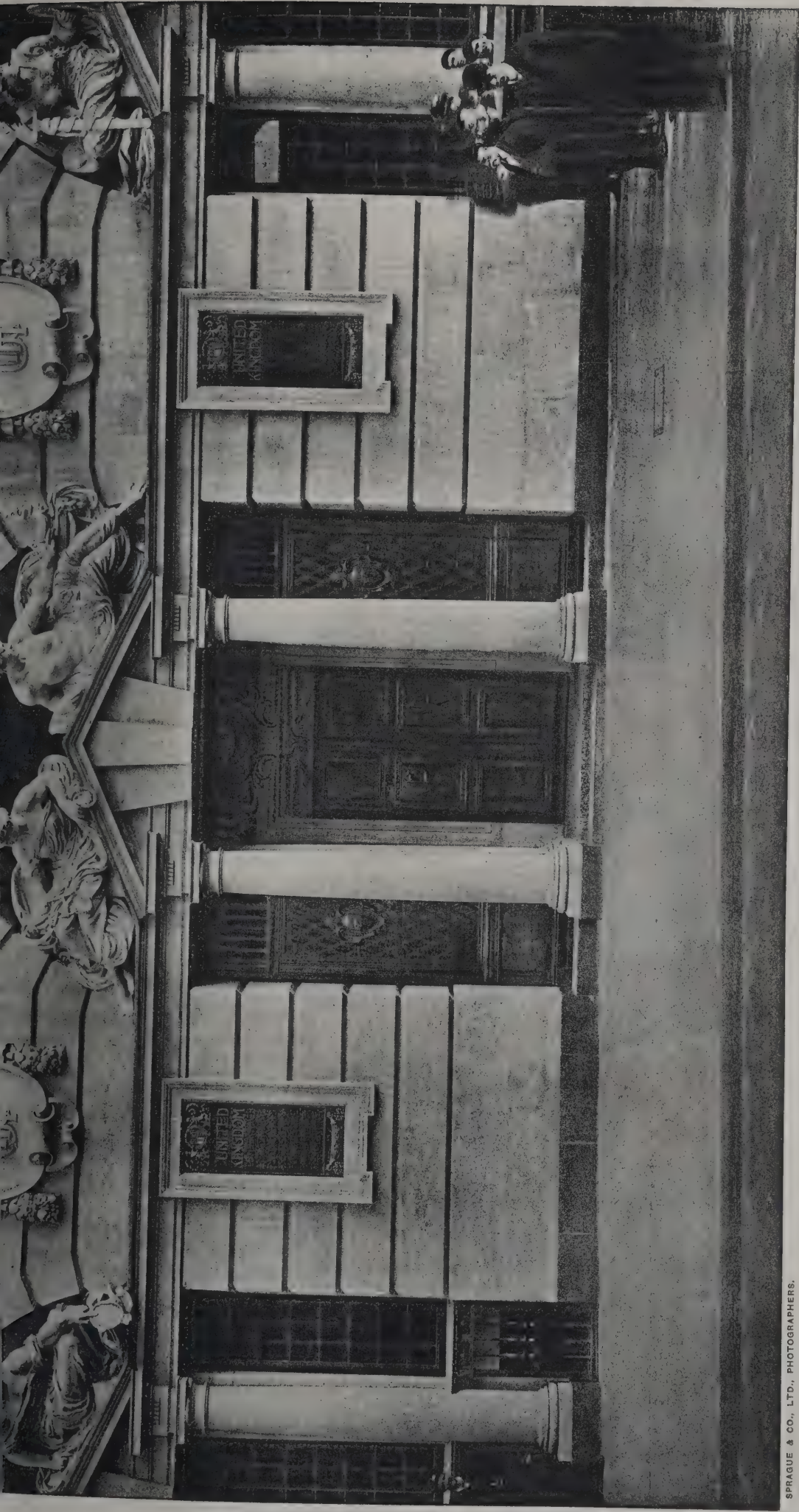
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The Architect, Aug. 23<sup>rd</sup> 1907.







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UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.: DETAIL OF ENTRANCE.

H. T. HARE, F.R.I.B.A., Architect.







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Chr Architect, Aug: 23<sup>rd</sup> 1907.







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# WESTMINSTER CATHEDRAL: CHAPEL S. S. AUGUSTINE & GREGORY.

The Late J. F. BENTLEY, Architect.

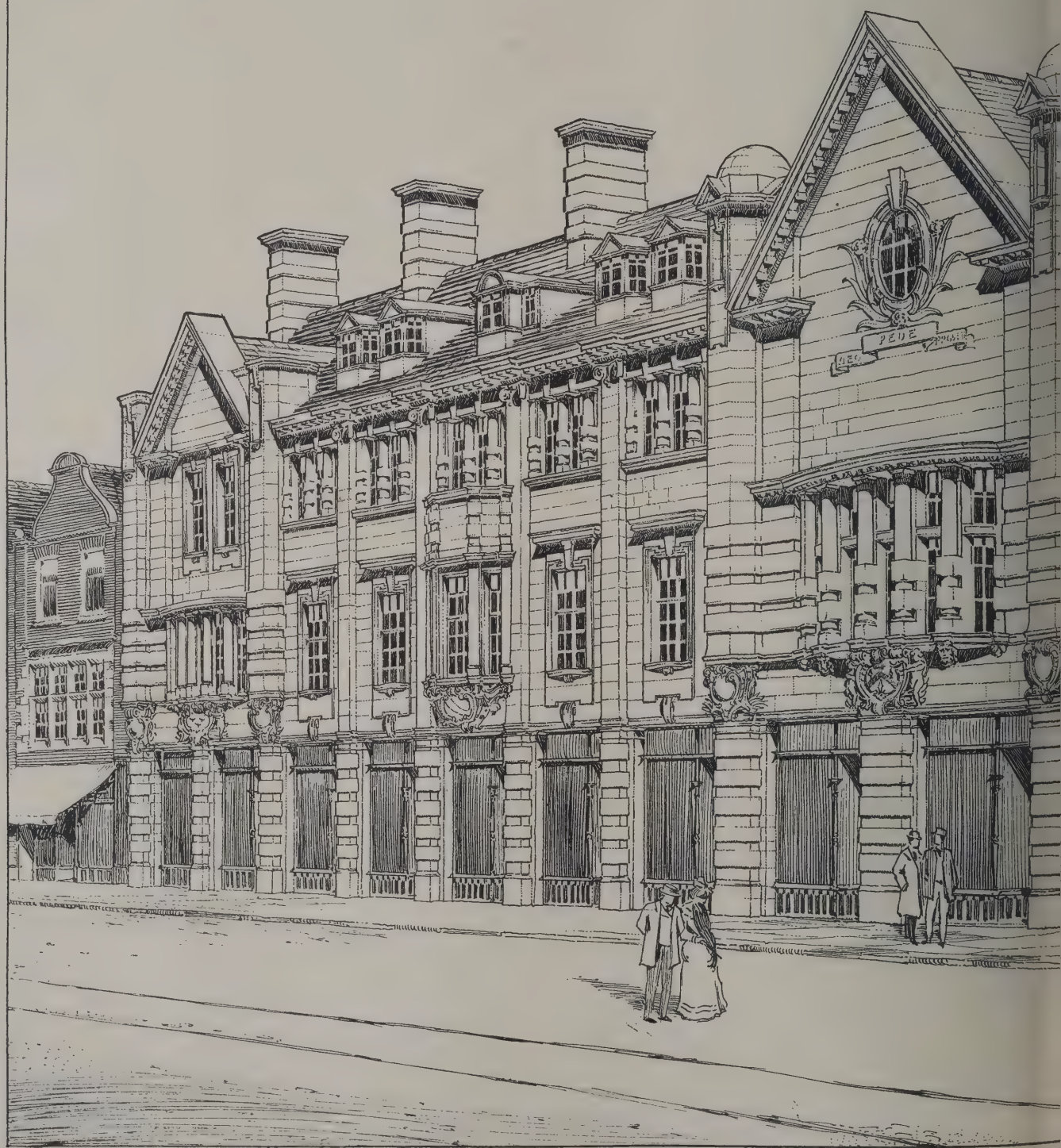


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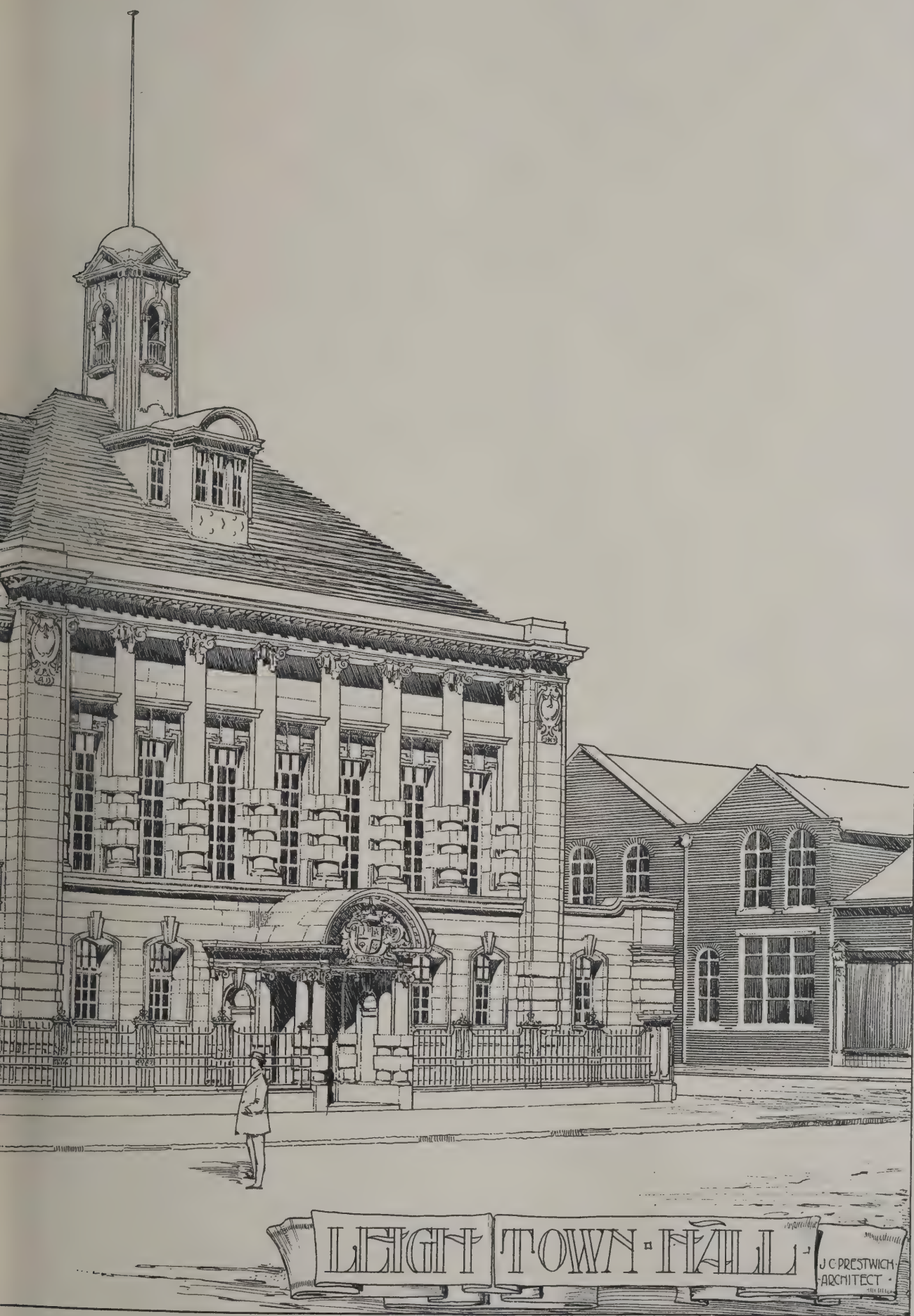


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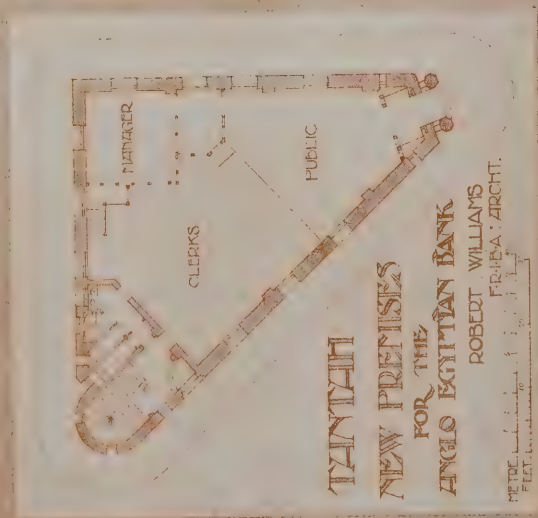
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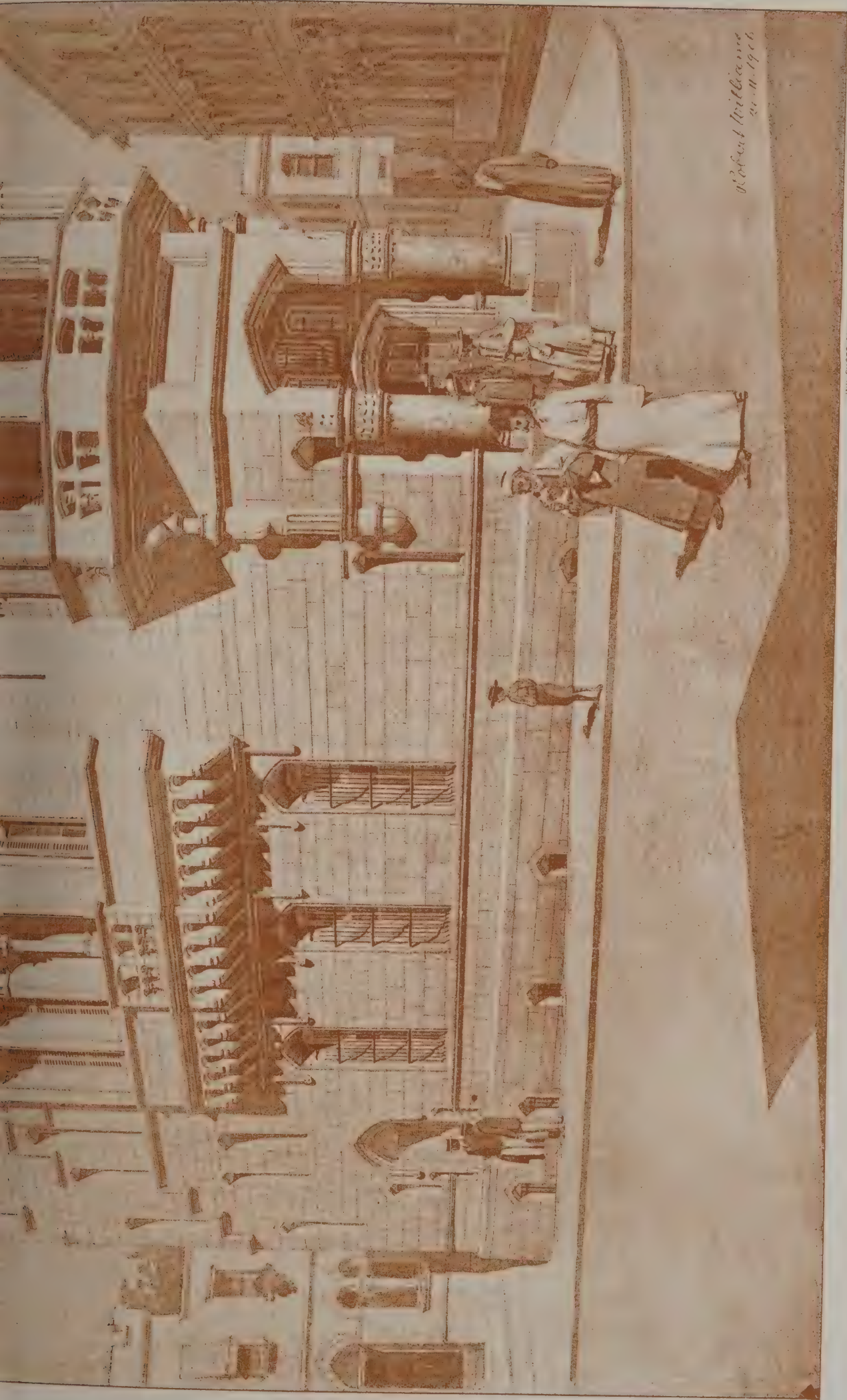




The Architect, Aug. 23<sup>rd</sup> 1907.







Robert Milburn  
21. 11. 1906

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# The Architect.

## THE WEEK.

EVER may be the demerits of the Small Holders' Bill, the present state of the rural districts makes it very likely that an experiment of the kind should at once be tried. As the Bill left the Commons it was expected that in cases where compensation had to be made the amount was to be determined by a valuer. There are a great many surveyors all over England who are competent to deal with such questions, and there is no necessity to create a new body of men. The Lords, however, proposed the substitution of "arbitrator" for "valuer." The difference in the two would mean a much larger expense than was anticipated. From motives of economy the Commons did not accept the amendment, and the Lords did not assent to it. The following sub-section was, however, inserted by Lord ST. ALDWYN:—"The matters to be referred to a valuer before the commencement of the compensation created by the compulsory hiring shall, at the application of either party, be ordered to be referred to the Board of Agriculture to be determined by arbitration instead of by a valuer. Provided that the costs of the arbitration which the Board may have incurred by reason of such matters referred to arbitration instead of to a valuer shall be borne by the party applying for arbitration." Every one who has had to deal with landowners and tenants must know that the procedure which is to follow is not only costly, but embarrassing. The fact that the Board of Agriculture can have a voice in the matter may be considered as a saving clause. But it does not follow that in a Government office all the details of petty cases can be considered. From his own knowledge it would not be difficult to acquaint a surveyor with the particulars of the dispute, and his coolness and temper would be saved by his adjudication. As Lord ST. ALDWYN pressed his proposal, it was accepted.

A prospectus of the Glasgow School of Art for the year 1907-8 has appeared. It will commence on September 5. The Director of Architectural Studies is Professor of Design is M. EUGÈNE BOURDON, an architect. Mr. A. M. GIBBON is also professor, and the instructor is Mr. W. R. WATSON. It is stated that the School of Architecture is under the superintendence of a joint-committee representative of the Technical College and the School of Art. The instruction is given in both institutions. The Glasgow Institute of Architectural Studies recommends to architects' pupils and students attendance at the classes in the School of Art as a necessary part of their architectural education. The diploma course, taken as much as possible in the day classes, is particularly recommended. The Royal Institute of British Architects has granted that:—"The diploma or senior certificate of the school (the latter with the full preliminary examination) exempts from the preliminary and intermediate examinations of the R.I.B.A." The diploma course of study leads to a diploma, and is a full diploma course. A restricted portion of the course, called the certificate course, qualifies for a certificate, the junior division of this course for a diploma. The diploma course, which is preliminary examination, may be taken in the day or in the evening classes. The certificate course is required. Special courses of study have been provided:—(1) For architectural students who, under exceptional circumstances, take some of the day classes; (2) for students of the painting, modelling and drawing classes of the School of Art and for students in the Technical College who require some

architectural instruction. The new school building, designed by Messrs. HONEYMAN, KEMP & MACKINTOSH, is expected to be ready for occupation in September 1908. Towards the cost the Scottish Education Department have subscribed 15,000*l.*, and the Corporation of Glasgow 3,000*l.*

THE number of advertisements which offer accommodation to visitors to the Isle of Arran during the season is generally surprising. For a place which is in such general request the accommodation is limited, and in consequence is expensive. However, the island offers so much that is novel to a townsman that the inconvenience of small rooms and high prices is ignored. There is always grumbling against the enactments of the estate office, which are obstacles to building. Many people who are connected with building finance look with amazement on the splendid opportunities for profit which are neglected. Visitors are usually informed of the dislike to their appearance which is entertained by the owners of the island. They also learn that, except in one or two places in a limited area, all the occupants are tenants-at-will. If an innkeeper were to change his premises into an hotel without permission he would be liable to eviction. It is now said that a change is contemplated, and that feus or leases will be granted. That intimation ought to be sufficient to attract speculators not only from Scotland, but from England. Indeed, nobody would be surprised if some Americans seized the opportunity for building lodging-houses, hotels and residences on a great scale. Owing to the peculiar character of the circular from the estate office, there is at first an unusual hesitation to take advantage of what ought to be a most fertile source of profit. No doubt something will be done to allay misapprehension. But, considering what Arran is and what it could easily become, the delay is tantalising at least.

THE casts of fragments of sculpture from the frieze of the Parthenon presented by the Greek Government to the British Museum may cause some visitors to ask why the originals were not removed by Lord ELGIN with the other examples from the temple. Only one specimen is found in the collection; it represents two horsemen, one of whom appears to be urging his comrade to take his place by his side. It was considered by VISCONTI that the cavalry shown on the western frieze represented the last comers, some of whom were endeavouring to join the main body, while others are shown as mounting their horses. The western frieze is remarkable because it suggests that the figures were not equally crowded throughout. One of the horsemen suggests the richness of the armour which was sometimes worn by the Greeks. Another figure is interesting because the youth is shown wearing the Thessalonian hat. The western frieze extended over the pronaos, and over the antæ or door-posts of the opisthodomos, or back entrance. Dr. MURRAY considered that some of the men shown on the western frieze were intended to suggest a class of assistants. He has found that there are no horses for six of the figures, and that one man who is evidently intended to be an equestrian awaits his horse. He also remarks:—"Looking behind the necessities of artistic composition we see that this west frieze represents a number of characteristic groups such as would be observed scattered over the open space of preparation, and looking at it as a composition we admire the extraordinary skill with which a predominant movement in one direction, absolutely required by the form and dimensions of the frieze, is combined with an almost infinite variety of action and attitude, which indicates the incompleteness of the preparations and the scattered position of the groups in the reality." Although only casts, the addition of the western frieze will give a new interest to the parts already possessed by the British Museum.



## THE BRITISH MUSEUM.

THERE are two statements in the "return" of the British Museum which cannot be considered as satisfactory. One relates to the appearance of serious defects in the facing stones of the buildings. Iron plugs were used instead of copper plugs for bonding, and by the oxidation of the iron a very large portion of the surface has been cracked and burst. The other statement is the record of the continuance of the decline in the number of people visiting the collections. In the preceding year there was a falling-off of over 140,000. According to the latest return there was a further reduction of nearly 122,000. Fewer people enter the Museum on Sundays, and the number of students in the Reading-room was also less than in the year before. The masonry can be repaired, but it is difficult to see what measures can be adopted which will have the power of attracting visitors.

The scheme of extension which is now being carried out from the plans of Mr. J. J. BURNET is described. Further precautions against fire have been adopted by the introduction of sectional walls in the roofing. All the wooden floors in the galleries have been planed and polished. There is not only increased cleanliness in the galleries, but in the interior of the show-cases. For, in spite of all precautions, the floating dust raised by the traffic of the visitors could not be prevented from penetrating them. Electric fans and additional skylights have been introduced in some of the galleries. An improved drainage system has been completed at the Natural History Museum at South Kensington, an electric-lighting scheme is under consideration, as well as proposals for better ventilation.

Egypt appears to be inexhaustible, and the acquisitions comprise much which is interesting. Although they are supposed to date from so late a period as the eighth century of our era—which is modern for anything Egyptian—the artist's palette in ornamented leather, with a support for the wrist, water-vessel and cavities for the reed brushes, is likely to be more attractive to some of our readers than larger works. Another curious addition is the limestone base of a pillar which was hollowed out and made to serve as the apse of a small shrine in a Coptic church. However, for architects the most important addition of the year is a hard dark granite statue of SEN-MUT, the famous architect and builder of the temple Tcheser Tcheseru, *i.e.* the "Holiest of the Holy," of Queen HĀTSHEPSET, who reigned over Egypt about B.C. 1550. SEN-MUT was the "chief of works" in all Egypt, the "chief craftsman of every trade," and he was the overseer of the house wherein the tribute in gold paid by the Soudan was stored. The queen adopted male attributes and attire, and she appears in this statue as the "Young Horus," whom the architect holds on his knees.

Of late years Assyria appears to render nothing but records of baked clay. One in the form of a cone bears the name of SAMSU-ILUNA, king of Babylon, about B.C. 2145. It commemorates the rebuilding of the great wall which surrounded the city of Sippar in Babylonia. The king states that he undertook the work at the direct command of SHAMASH the sun-god, the patron deity of Sippar, and of MARDUK, the god of the city of Babylon, his capital; and he declares that, by their help, he brought the work to a successful issue. It is needless to say the opportunity is taken to record the king's titles and his achievements, and how well he stood with the sun-god. It is the largest example of a cone memorial known to exist. Among other tablets is one inscribed with the lists of the labourers or slaves employed on some of the great temple estates. Three limestone slabs with figures in relief have been obtained.

It is difficult to acquire worthy objects for the collections of Greek and Roman antiquities. Several examples of jewellery have been secured. A statuette of a woman in a long Ionic chiton, holding her skirt with her left hand, was purchased in Bergen, in Norway, and was said to have been found near that town with

three Italian fibulæ. It suggests part of the derived in some raid by the Northmen. A few g marble sarcophagus with a representation of a carved on its front, and several terra-cotta objects also purchased. Among the donations are a of thirty-three plaster casts of fragments from frieze of the Parthenon, taken from the origin Athens. These are intended to complete the M series of the Parthenon frieze, and were presented by the Greek Government. Another series of found on the site of an ancient sanctuary near De perros, in the Sierra Morena, Spain, and probably belong to the pre-Roman period about sixth century B.C., consist of 103 votive offerings chiefly bronze statuettes of a rude type representing men and women. Besides these there are models of parts of the human body and implements three bronze fibulæ and one statuette in iron. ARTHUR EVANS has given several examples of fragments of wall-painting, models of stone vases and other antiquities found at Knossos.

Early British antiquities cannot be said to be as much interest as those from Eastern Europe and Asia. Among the additions are eight gold bracelets found in a gravel-pit at Bexley, Kent; two emerald gold bands from Ravencliff Cave, Derbyshire; stumps of stakes used for defending the ford at Bexley, where CÆSAR probably crossed the Thames; bronze brooches, gilt pendants, pin, stylus and fragments from two graves at Leagrave, Beds.

The Department of Coins and Medals has been enriched by several valuable examples. Three of from Volo are supposed to be unique. A penny at Romney, in Kent, is evidence that the mint was in operation in the time of HENRY I. It is not often that are amusing. But one ordered by NAPOLEON I. when he was preparing for the invasion of England in 1803, can hardly be considered as more than a piece of a trap. On the obverse is the head of NAPOLEON, and the reverse HERCULES overthrowing a marine with the legend, "Descente en Angleterre—France Londres en 1804." This medal was struck from finished dies made by JEUFFROY and DENON, and is probably unique.

The most important addition of the year consists of 5,551 pieces selected from the extensive collection of Dr. FREDERICK PARKES WEBER. He gave the Museum the right to choose any specimens they might like. There were coins of all periods, primitive foreign currency, British and Colonial coins and numerous medals. Specimens representing methods of coinage and adulteration were also included in Dr. WEBER's collection.

The King has presented to the Department of Manuscripts two charred papyrus rolls from Herculanum which originally formed part of the gift of the Neapolitan Government in 1803-6. Five rolls from the collection were presented to the British Museum by H.M. Queen VICTORIA in 1865; the rest were destroyed in unsuccessful attempts to open them. Of the rolls now presented, one has been opened, and portions of the work of EPICURUS, "De Natura Deorum," other is unopened. The Egyptian Exploration Fund has presented twenty-two papyri from Oxyrhynchus. A large collection of Greek papyri was also purchased. The principal bequest received during the year was from Mr. ROBERT PEARSON BRERETON, of Oundle, who consists of his collections in twenty-three volumes relating to the churches of North Northamptonshire, Rutland, and to the church towers of Somersetshire. It includes, besides notes and an incomplete architectural history of the buildings, nearly eight hundred permanent photographs taken by himself.

Many drawings of details of English castles, old houses, &c., were bequeathed by Mr. C. A. BUCKLER, by whom, as well as by other members of his family, several series of examples already in the Department. Three volumes of drawings of



o. Northampton, with notes by GILBERT FLETCHER, Towcester, 1807-12, were presented. Another set consists of seven volumes of collections by the Sir H. DRYDEN, Bart (d. 1899), relating to broughs, houses, stone circles, &c., in Scotland and the Land Isles, with drawings, plans, &c. The Department of Prints and Drawings has been enriched by no less than 4,176 examples. One hundred and two portraits, chiefly executed in pencil, of eminent persons of the nineteenth century are by HENRI and RUDOLF MANN. The Trustees have acquired from Mr. ARTHUR RYSON a collection of 1,851 Japanese colour-printed cuts (on 2,101 sheets). It was formed with the aid of the best Japanese experts, all but first-rate examples in fine early states being excluded; so that, although there exist much larger collections, there are few of more uniformly high and select quality, or so well fitted to form the nucleus of a standard series for historical and technical study of this very important branch of Japanese popular art.

It will be evident from the foregoing examples of additions to the collections that if the British public do not visit the Museum, it is not from the absence of interest in the different departments. Much else could be mentioned which is deserving of attention. But there can be no question that for instruction there is no museum in Europe which offers a more varied assemblage of objects than can be found in Bloomsbury.

## ARCHITECTURAL SCULPTURE.

THE numerous buildings erected of late years in London in which sculpture is employed must strike the most indifferent spectator. It is the more remarkable when we consider the neglect of sculpture as an architectural accessory which has prevailed in this country for so many years. We could understand architects who had to expend money considering that it was preferable to pay for a piece of sculpture which might be observed in a gallery or a drawing-room than to expend the money on a statue or a relief to be placed on the exterior of a mansion exposed to all the vicissitudes of the climate. But what is remarkable is that men who posed to be legislators in art seemed unconscious of the advantage which sculpture, when judiciously and architecturally employed, could impart to a building. A few examples may be cited.

Mr. CHARLES EASTLAKE was consulted concerning the most efficient way of decorating the new Houses of Parliament. He wrote several reports which will be found in the Blue-books. Among other subjects treated of was sculpture. But although his long essay was reasoned, sober and safe, it would be impossible to extract from it any desire to have sculpture employed in the new building.

Some years earlier FLAXMAN lectured on sculpture to the students of the Royal Academy, and the reports of his lectures are to be found in the Blue-books. He said that he could not well teach the architectural sculpture of Egypt. But he pre-treating of the statues. With later works he proceeded in a similar manner. FLAXMAN was not employed in the decoration of buildings, nor were any of the artists addressed likely to be more fortunate. Their commissions would probably be confined to statues, and small reliefs. The teacher acted honestly towards them by offering suggestions concerning the work by which they would be enabled to live. At FLAXMAN's time it might be supposed there was a fashion of decorating some kinds of structure which had been set up as memorials of the war with France. At REYNOLDS's time such a possibility was not to be considered. The President was therefore to be excused when he lectured on sculpture if he confined himself to the *Apollo Belvedere*, the *Venus of Medicis*, the *Moses*, the *Rape of the Sabines* and a few other works. If he had given consideration to all the possibilities of the sculptor's art he would not have been so

certain about sculpture having only one style, to express which the utmost degree of formality was required.

Whether sculpture arose out of the necessity to decorate buildings has been disputed. There seems little doubt that meteorites and unwrought stones received remarkable reverence from the Greeks. But there can be no question that as men advanced they became more favourable to the representation of figures on the walls of their structures. By that addition they found that buildings became more expressive of purpose and other meanings, so they continued the practice. The sculptor's art can to-day be as serviceable as it was with the Egyptians, Assyrians and Greeks. It would perhaps be more correct to say that the necessity with us is stronger. We have greater varieties of buildings than the ancients possessed, and it is not always easy to make each of them suggest its purpose. But any deficiency of that kind can be more or less compensated by sculpture or painting. In the days of REYNOLDS it was considered that sculpture had an onerous task in self-explanation. "Take from APOLLO his lyre," he said, "from BACCHUS his thyrsus and vine leaves, and from MELEAGER the boar's head, and there will remain little or no difference in their characters." But by somewhat greater freedom of treatment modern sculpture can be made to serve as explanatory of the building it adorns, owing to the judgment exercised in the selection of the figures.

It would be advantageous if, for a time at least, all figures which are introduced as adornment of architecture should have a relation to the building which can be easily perceived. In churches it is possible to have saints who are typical representatives of the virtues. It would also be allowable to employ figures representative of the old and new Dispensation, like those to be seen in some Mediæval churches. A scene like that employed by BIRD in the western pediment of St. Paul's would also be evident to all Christians. There is a danger, however, when certain figures are inevitable that they will become stereotyped in character. If we take the evidence of VIOLLET-LE-DUC, French architectural sculpture long suffered from that evil. On demand any sculptor who went in for such work would be able, he said, to supply sketch models of Industry, Agriculture, Music, Poetry, Glory, War, Faith, Charity, Peace, the Sciences, the Arts, the Muses, &c. As generally little time was given to consider what was desirable or apposite, in the end the commissions were divided, and the sculptors were indifferent to what kind of figures fell to their lot. VIOLLET-LE-DUC's remedy was the employment of a single sculptor for the whole of the building, or, if that was too large, then for a definite part of it. As that course was rarely possible, owing to the number of privileged claimants, he said that all wise architects in France disclaimed responsibility for the sculpture of their buildings. It may be a long time before such a state of affairs is possible in this country. But it can to some extent be remedied if the architect will think out the scheme of sculpture, leaving details to the interpretation of the sculptor or sculptors employed.

FALCONET, the French sculptor, considered the most dignified aim of his art should be to perpetuate the memory of illustrious men. We have only to look at the array of portrait statues outside the Louvre and the Hôtel de Ville, in Paris, in order to realise how persistently his countrymen have kept that aim in view. But sculpture may also serve, he says, although less usefully, as simple decoration. To many the latter is the more important field of the two. It is not easy to exercise imagination in portraiture, and the beauty which should be esteemed by the sculptor has often to be sacrificed. A fine example of decorative sculpture can always be appreciated, while there must be differences of opinion about the merits of illustrious men. It takes time to make out the connection between a purely ornamental figure in relief and the building of which it becomes a part. We may expect that the clerks in Mr.



HARE's Insurance Office in the Strand will often be troubled by strangers who will be desirous of knowing the meaning of the numerous figures. Occasional instances have occurred where sculpture which was imaginative was interpreted as presenting a series of portraits. Allegories are foreign to the English understanding, and it is with difficulty an ordinary spectator becomes convinced that occasions arise when figures more or less allegorical are the most fitting for the purpose of ornamentation.

Purely decorative sculpture is, however, preferable to sculpture which is constructively useful. It is impossible to discover the reasons which so sensitive a people as the Greeks could give for substituting caryatides for columns at the Erechtheum. The legend about the figures serving as memorials of a victory over the Carians suggests that long ago judges, or citizens who retained their good sense, condemned the substitution of copies of living models for adequate supports. The Atlantes or Telamones are more massive but are also objectionable, and for them also the excuse of a legend is offered. Whether designed by a Greek, a MICHEL ANGELO, or a modern sculptor, there is no excuse for the economy which would make the human form sustain a weight which no bones or muscles could withstand. With as much reason the acanthus could be represented as bearing the weight of a building on the tips of its leaves. If figures are introduced in connection with construction, care should be taken that they are not in positions which are degrading. The Roman poet recommended his contemporaries to avoid bringing in a god unless for a purpose worthy of one, although in those days the Olympians were as numerous as supernumeraries in a stage pageant. In a similar way, if we are to employ sculpture, let the men and women be treated with the respect due to humanity.

#### EGYPTIAN TEMPLES AND WELSH CIRCLES.

ADDRESSING the Gorsedd of the Bards at Swansea, where he had conferred upon him the degree of ovate by the Archdruid with the title "Gwyddon Prydain," Sir Norman Lockyer said that he could not tell them how impressed he was with what he saw. Perhaps he was the more impressed because for the last three or four years, although before then he had known nothing whatever, he was ashamed to say, about this wonderful Gorsedd, he had in his mind such a picture as he had seen to-day. He went to Egypt to study the ancient monuments there, and in many of the temples he found evidences of past worship of the sun and stars. The temples were pointed first to the sun in May, next to the sun in June and next to the Northern Star. Three years ago he went down to Cornwall in order to study the circles there, to see if by chance he could find out any similarity between the old Cornish remains and those of Egypt. He found when the circles were carefully examined that generally they contained about a dozen stones. There were outstanding stones in certain directions. He made a map of these, and to his great astonishment he found that the direction of these stones was identical with the direction of the Egyptian temples. He said so, and people laughed. He showed a copy of this map to a Welsh gentleman, who told him, after he had examined it in conjunction with the plans of the Gorsedd which he had discovered among some old writings, that he had found the greatest similarity between the two. He then found there was not only similarity, but that the things were identical. He could not, of course, take that opportunity of saying more about the astronomical aspect of the inquiry, but, if he might be allowed to express an opinion, he was convinced that this Welsh Gorsedd, this circle with its outstanding stones, was the distinct descendant, almost without a break, of those circles which he examined with such care in Cornwall. "If that be so," continued Sir Norman, "to-day you are doing what has been done in Cornwall, and no doubt in Wales, for the last 4,400 years. The Cornish circle to which I have drawn attention is the Cornish Gorsedd Boscawen, and I have no doubt about 4,000 years ago there was a meeting very much like this meeting which I have to-day been privileged to attend."

#### WHITBY ABBEY.

By J. G. HOLDSWORTH.

*Historical.*

THE earliest knowledge we have of Whitby Abbey is not very definite. The first mention of the which may be considered authentic was made by Bede and one may infer from his writing not only that it was in 656 Streanæshalch, but also that about that time an Anglo-Saxon monastery was founded there.<sup>1</sup>

Streanæshalch was a "place-name," with no definite meaning, but, unfortunately, that meaning is uncertain. The most probable conjecture is that made by the Rev. J. C. Atkinson, who has found that the name *Streone* was known in the eleventh century, "in the form of an agnomen or nickname—Mr. Freeman calls it a name."<sup>2</sup> The suffix in its true forms was probably *halch*, or *halc*; by usage the *c* was sometimes dropped and it would become *halh*, *healh*, or *heale*. The name *Dunscinghalef*, or *Dunscinghalc*, is mentioned in connection with a gift of Robert de Liverton to St. Hilda of Whitby and about the meaning of the suffix Mr. Atkinson remarks a little further on in the same part of his Introduction "the ascertained site of Streanæshalch was a level space in for many hundred yards with precipitous cliffs—in other terms, a 'heugh'—and the philological probability, or (is) that *halch*, *halc*, *halef*, *heuch*, *heugh*, are only different forms of the same word."

Streanæshalch, or Streneshalc (there are varying forms of spelling in use), became known under the name of Prestebi; and when the abbey had become important in the twelfth century, we find that Prestebi had become known by the name of Witebi,<sup>3</sup> the name of Prestebi eventually dropping out about the end of Henry I's and beginning of Stephen's reigns. The date of the foundation of the monastery is probably about 656; for Bede states it to be about 10 years after the battle of Winwidfield, commonly supposed to have been fought November 654; but Florence of Worcester, who is also perhaps one of the most accurate of the ancient English chroniclers, assigns the date at 658, assigning of the battle as having been fought in 655. Oswu, Oswy, king of Northumbria, fought this battle with Penda, king of Mercia, a pagan. Oswy vowed before the battle that should he be victorious he would dedicate his day to God, and with her give twelve "possessions" for the building of monasteries. He gave six in Bernicia and six in Deira; Cleveland, in which Streoneshalc (ancient name), Prestebi (Danish name) or Witebi is situated, was a constituent part of Deira. King Oswy's little daughter, the young Princess Ælfleda, entered the monastery of Heoruteu. One authority suggests she could have been scarcely two years old when she became a candidate for admission to "monastic" life. She was certainly young. Of this monastery Hilda was then abbess. Hilda, or Hilda, was great-niece of King Ædwin; she had been converted and instructed by Paulinus, or by the missionary who accompanied him, and was professed as a nun by Aidan.<sup>4</sup> Before she came to the new foundation of Streoneshalc she appears to have originated this religious house of Heoruteu. Some think that she purchased or procured hides of land for the site of the Streoneshalc monastery. She may have procured some of the land before, but it seems likely that the ten hides<sup>5</sup> at Streoneshalc were a portion of King Oswy's grant; for these "possessions" were given together with his daughter, who at that time came into Hilda's care.

The institution, though begun on a quite small scale, very speedily grew in importance, and was soon the chief religious house of Northumbria. There is an absence of tradition as to the form of the original structure, and we have no certain data relating to dimensions or the exact site; but we have some reason to believe that it must have been a very humble edifice, the church made probably of the split trunks of trees, smooth inside, and roofed with reeds or thatch. Probably the rudeness of these convent buildings matched the rudeness of the church, all being furnished in the simplest style of the time, the fame of Hild's rank, piety, intelligence and pru-

<sup>1</sup> Bede's *Hist. of the Church*.

<sup>2</sup> Introd. to *Cartularium Abbatissæ de Whiteby*, vol. i.

<sup>3</sup> See *Cart. Abb. de Whiteby*, vol. i. Documents cccxvii.

<sup>4</sup> See Note 2.

<sup>5</sup> See Note 15.

<sup>6</sup> Hutton's *Short Hist. of the Church*.

<sup>7</sup> A hide, according to one view, is land sufficient for the support of a family, possibly about 120 acres.



ether with the presence of the young princess who was educated there, attracted numbers to their monastery. was dedicated to God in honour of St. Peter. Also, according to the prevailing custom, it was for the religious of both sexes.

There was probably a reason for the selection of Streonshalc as the site for Hild's monastery, for it probably was already a noteworthy place before this time. The abbey continued its fame and helped its progress, in the course of time absorbing all interest and importance. Bede tells that Edwin and Ealfleda, also her father and mother, and Eadwulf and Eanfled, and many others of noble rank, were buried "in St. Peter's Church in the Monastery." King Edwin lost his life in the battle of Haethfelt in 633, and his head was taken to York first and after to St. Peter's, his body being buried at Streoneshale; and, as the foundation of the monastery was probably 656 or 657,<sup>8</sup> evidently this interment was many years earlier than the foundation. William of Malmesbury stated that it was the largest of the monasteries founded by Oswy's bounty. In the year 663 or 664 the famous Synod of Streonshalc was held, to decide what date should be kept for the observance of Easter, that of the Romish Church or of the British, also touching the priestly tonsure and some other minor matters. Oswy himself presided, and Alchfrid, who was both a reigning prince and Oswy's son—St. Alchfrid, Bishops Colman and Agilbert, Romanus, queen's chaplain, the venerable James, long associated with Paulinus, and, naturally, the Lady Hilda herself, were present. They decided for the tenets of Rome; and the Church was organised by Theodore of Tarsus, sent from Rome for that purpose.

There must doubtless have been very real intellectual life in this institution, as well as spiritual and religious life. Generally, for, even discounting the numerous and tenaciously held legends of the period and since, there were yet many noteworthy men educated by and sent forth from it. There were, for instance, Bosa and "Wilfrid the Younger," both of whom went forth as bishops to York; Aethelstan and Eadwulf, who passed from there to the southern bishoprics of Winchester and Worcester; St. John of Beverley, who went to Hexham and then to the Bishopric of York.<sup>9</sup> And up to this period belonged Caedmon, the Saxon poet. His dream to the Creator (which a foolish legend states that he dreamed in a sleep or trance), having been preserved in King Alfred's Saxon version of Bede's history, is doubtless the oldest specimen of Saxon poetry extant. He afterwards composed a poetical paraphrase of a very considerable portion of the Scriptures. He was probably one of the first in England to appeal to the imaginative faculties of the people in aid of religious belief. He is supposed to have died the same year as his Abbess Hilda.

Hilda died in 680 and was succeeded as abbess by her pupil Eilfleda, who doubtless benefited at first very much by the help and counsel of her mother and Bishop Eadwulf. This good and wise old bishop retired to her monastery for refuge when the Picts invaded his district. Eilfleda died in 713, being then in her fifty-ninth year. There is then no record of the work and progress of the Whitby House, but it is thought to have been governed by Eilfwine; if there were any records kept they were either lost or destroyed, and we next hear of the ruin of the monastery by the Danes. It had, however, evidently continued in growth.<sup>10</sup>

It has been alleged that after the arrival of the Danes and the consequent destruction of the monastery, 867-70, the accompanying ravages and pillage in the adjoining district, "Streonshalc lay desolate for 207 years;" and then, "When after the lapse of 200 years the monastery was restored, the town revived also;"<sup>11</sup> and a later writer writes more than once that when the town revived it was "arose, like its predecessor Streonshalc, as a tendency on the abbey."<sup>12</sup> This has since been proved to be incorrect—the Streonshalc which "lay desolate" was the monastery only, for in the "Memorial of Benefactions" in the Whitby Chartulary (called also "The Priory Book" or "The Whitby Register," the writing of about 1160) we find a list of twenty-one Whitby places—nineteen of which are Danish—and the fourth on the list is Thingwala. "Streonshalc and its environ-

ing district had, long before the Norman Conquest, become the seat of a number of separate and independent Danish settlements." Of this name of Thingwala, Worsaae writes that it "affords a very remarkable memorial of the Court—or Thing—which the Northmen settlers were accustomed to hold in close connection with their sacred offerings to their gods." At the beginning of the thirteenth century or later the site of the Thingwala was still known, but all trace of it has subsequently been lost. It shows very definitely that the Danes made Whitby their most important town in Cleveland, and held their chief civil and religious proceedings in it. This is hardly compatible with the idea that the town and monastery lay desolate and ruined until the rebuilding and refounding of the religious house in Norman times. The Domesday returns, too, prove that the town had both continued and flourished, but "for two hundred years and more the holy service of the monks and pious nuns was in that place discontinued."<sup>13</sup> One may form a theory, though, that some of the oratories on "Pretebi heights" may have had holy tenants during that time, very likely all that time—hence probably the name of Pretebi. An old writer observes<sup>14</sup> of the period before the great ruin:—"There were at that time, in the said vill, as ancient countrymen have delivered to us, about forty cells or oratories, only the walls of which, however, together with the disused and shelterless altars, remained." The early monastery had evidently very greatly grown; and strong, well put together, and indeed massive buildings must have replaced the quite early wood and thatch, if parts of it were still standing after (1) the Danes' destruction and (2) of two hundred years of neglect in so exposed a position. The house was revived, however, when the Normans became masters of that part—Reinfrid, the first prior after its restoration, had been one of the Conqueror's most active soldiers. He became a monk at Evesham, being there well trained in monastic discipline. Having visited Whitby when in the army, he had viewed its ruin with some compunction. He therefore returned to Northumbria, after his training at Evesham, with the definite intention of recovering from its neglect and depression the monastic religion. He obtained a grant from Lord William de Percy of the ancient monastery of St. Peter the Apostle, together with two carucates of land in Pretebi, in frankalmoin (free alms).<sup>15</sup> Other monks joined him, and he began a monastic settlement there. The precise date of the foundation of the new abbey is not known, but is thought to be a little before and not later than 1078, the year when Reinfrid was joined by Stephen of Whitby, who afterwards became Abbot of York. In any case, by the year 1080 formal concession of the site had been given and the monastic settlement fully effected. Freeman<sup>16</sup> gives an account stating the revival of religion in the North to be due to Ealdwine (Aldwin), one time prior of Winchcombe, who took with him from the neighbouring house of Evesham "Eilfwine (Elfwey), a deacon, and Regenfrith (Reinfrid), seemingly a lay brother." They settled first at Jarrow, and there "patched up the dismantled church and built a poor dwelling-place for themselves under its walls." Eilfwine remained as prior; Reinfrid went to revive Whitby. "From Whitby sprang another famous house; under the care of Earl Alan, and under the government of its first Abbot Stephen, the church of Earl Siward at Galmanho grew into the great abbey of St. Mary without the walls of York."

William Rufus, although noted for regular and continual despotic use of his power over the Church, and his spoliation of almost every branch of it, yet continued help to both Whitby and York. In giving them the church of All Saints in Fishergate, at York, he appears to have imposed the condition that a cell should be established and

<sup>13</sup> *Hist. of Cleveland*, i. 134-9.

<sup>14</sup> *Memorial of Benefactions*.

<sup>15</sup> See *Memorial of Foundations and Earlier Benefactions*, "Notum sit omnibus Deo et Sanctæ Hildæ Abbatissæ servientibus in loco qui olim Streoneshale vocabatur, deinde Pretebi appellabatur, nunc vero Witebi vocatur, quod Willielmus de Percy, cognomento Asgerunus, tempore Willielmi Bastard (nothi), Regis Anglorum, ibi fundaverit monasterium in honore Sancti Petri Apostoli et Sanctæ Hildæ Abbatissæ, atque Reinfrido, monacho de Evesham, cum sociis suis quos sibi adquisiverat, ipsum locum commendaverit; et, primo, duas caruchatas terræ in Pretebi illi tradidit. . . . Dedit autem illi strenuissimus prædictus Willielmus de Percy antiquum monasterium Sancti Petri Apostoli, cum duabus caruchatis terræ in Pretebi, in elemosinam perpetuam."

<sup>16</sup> *Norm. Conq.* iv. 665.

See above.

See *The Monasteries of Yorkshire*, by Rev. Edw. Churton,

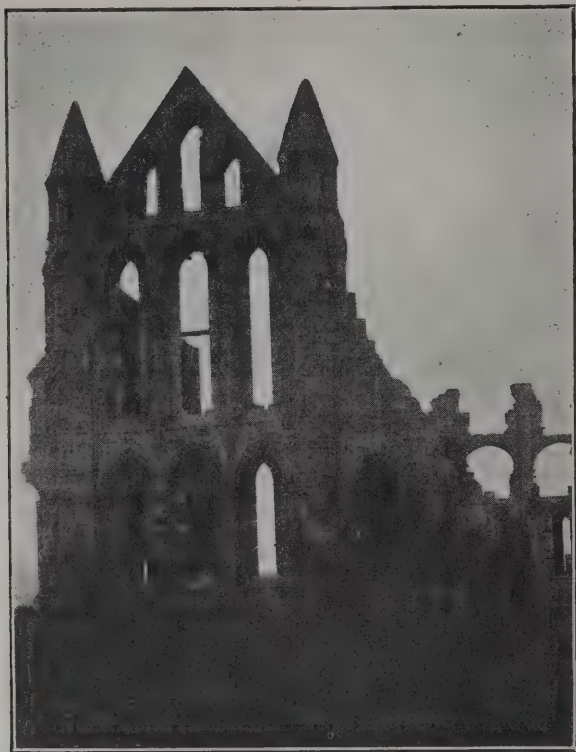
See note 14.

Dr. Young.

See *Whitby and its Vicinity*.



prayers be made in it for himself and heirs.<sup>17</sup> In the same charter he also gives various lesser rights and privileges.<sup>18</sup> It is said by some critics that some of the gifts and charters supposed to have been given by him were, however, in all probability, gifts of William the Conqueror; again, Mr. Freeman remarks, "The few churches towards which Rufus appears, not as a spoiler, but as a benefactor, are those which owed their foundation to his father."<sup>19</sup>



WHITBY ABBEY—EAST FRONT.

During Rufus's reign the priory was raised to the status of an abbacy. Under Prior Reinfrid's rule, Serlo de Perci, brother of the founder, William de Perci, had entered as a monk, his brother giving an important grant to the priory on this occasion,<sup>20</sup> and at Reinfrid's death had become prior;<sup>21</sup> now, when the foundation was by the founder enriched and raised to the dignity of an abbacy, Serlo was forced by his brother to resign the headship, and was permitted to retire to the priorate of the cell at the church of All Saints at York. The founder's (and Serlo's) nephew was created abbot in his place. The reason of this supersession is not certainly to be deduced from the existing documents, some of which are a little contradictory. It is known, however, that the nephew, William de Perci, had been created abbot before the year 1100; it is also known that a crusade was organised and started in 1096, and that his uncle William died on the march to Jerusalem at "Mons Gaudium." Probably a sudden accession of fervent religious feeling which made him, who was not a young man, decide to go forth to his fate in the Holy Land, also made him wish to first formally constitute Whitby an abbey. The charter in which he made the necessary gift was, as was customary at that time, not only signed by himself, but witnessed by nearly all his family, certainly by all who would be likely afterwards to have the power to dispute it.

The abbey buildings were being pushed on with all possible speed during the time of Prior Serlo, and in all probability on the same site as the original Saxon church belonging to the monastery before the Conquest. No traces even of that church seem to be left now, certainly no remains;<sup>22</sup> and the buildings of Early Norman date which replaced it after the refoundation of the Priory were also completely obliterated.<sup>23</sup> The greater part of the present remains belong to that period of ecclesiastical architecture dating from 1250 to 1316. It is quite evident, however, that it has been built up at varying periods; but the main

portion shows none of the elaborate ornament which characteristic of later styles of architecture—styles more beautiful, perhaps, but without the grand simplicity of earlier period. We may notice "at the east end and on north side the admirable manner in which the buttresses of the angles of the former, the octagonal buttresses of north transept, and the clusters of cylinders between windows unite together the several stages of the building into one whole, and carry the eye upwards to rest on graceful termination by octagonal pinnacles."<sup>24</sup> This is the earliest part of what is left standing, and was probably built in the earlier half of Roger's abbacy (1233-1235) when a great building effort began and continued probably nearly thirty years, at which period very likely lack of funds may have prevented completion. During time the choir, large portion of the tower, the transepts three bays west of the tower were being built. Two more bays were being built in October 1333.<sup>25</sup> The tower still standing in 1830. It fell that year on June 25.

#### Descriptive.

The portion of the abbey which still remains is of cruciform shape, its present measurements, taken roughly, being rather over 300 feet from east to west, and, as well as can be guessed, about 150 feet from north to south. There is a large amount of dog-tooth ornament both on the exteriors of the east end, north side and north transept, on the triforium, the effect being to considerably lighten and enrich the otherwise severe appearance of the whole. The interior consisted of lady chapel at east end and choir adjoining, with north and south aisles; in the case of the tower, with north and south transepts, and nave to the westward. The south aisle of the choir has suffered terribly, but the north aisle is in far the best preservation, being in its larger part still in possession of its roof. The nave is mainly ruins, the south side having completely disappeared. On the north side the outline of the wall is left; at the west end nearly all has fallen. The western portion of the north front of the nave is of a later period than the remainder of the whole front, being of about the fourteenth century probably; and though very beautiful in parts has yet an element of incongruity when compared with the older portion, which, though not all of one



WHITBY ABBEY—NORTH AISLE.

The only portion with some of the vaulting still remaining

yet all belongs to the same period of architecture. Only a very small piece of the western elevation is still standing, and it is said to have been the most finished part of the whole structure; it fell at the end of the

<sup>17</sup> *Cart. Abb. de Whiteby*, i. and ccclxxxiv.

<sup>18</sup> *Ibid.* dlxxxix.

<sup>19</sup> *Norm. Cong.* v. 73.

<sup>20</sup> *Cart. Abb. de Whiteby*, i.

<sup>21</sup> *Ibid.*

<sup>22</sup> See above.

<sup>23</sup> See p. 135, as to chapter-house.

<sup>24</sup> *The Monasteries of Yorkshire*.

<sup>25</sup> See Letter of Request from the Archbishop of York to the clergy of the diocese asking for contributions to the rebuilding of the abbey. Printed in *Cart. Abb. de Whiteby*, dcvi.



teenth century, about a year later than the fall of the "south wing." Mr. Churton gives a very lucid description of the interior architecture:—"The triforium, of very beautiful design, deep circular arch formed of a profuse succession of mouldings, relieved and enriched by the dog-tooth ornament, embraces a graceful subdivision of pointed arches and quatre-feuille spandrels supported on clustered columns; as also are the north transept windows, which are deeply embayed within the walls, their arches supported by clusters of cylinders with foliated capitals relieved by hollows filled with delicately carved bosses, which must have formed magnificent frames to stained glass."<sup>26</sup>

There is a legendary belief that very early in the Norman period there was already a chapter-house there; nothing can be traced of it, or of any building of so early a style. Unlike so many of the other fragmentary remains of old buildings in our island, there are not left to us here even separate stones with tell-tale impressions upon them. Perhaps some day a really careful work of inquiry may be undertaken, and more definite knowledge be gained from the often grass-covered ruins and debris remaining; we may indulge the hope that such a day may not be far distant. It will mean much labour and expense, but the work will no doubt be exceedingly interesting, and something is due to the old abbey after so many centuries of neglect. The south portion of the abbey house close by is thought to have been built partly from the ruins of the monastery about 1580, when Sir Francis Cholmley began to build a mansion on the supposed site of the abbot's house. It also has had large additions, and was in the eighteenth century fortified and garrisoned.

There are, of course, the usual beliefs extant about the existence of subterranean passages; and it is said that Mulgrave, Saltwick and other places along the coast<sup>27</sup> are connected with the abbey in this way. Whitby's abbot was one of the "abbots" who were recognised as "spiritual lords," but did not have a seat in Parliament. The last of the series of Whitby's thirty abbots was Henry (Deval), who surrendered the abbey to the Crown in 1540. The "cells"

Charlton, speaking of the destruction of the monasteries, says:—"Among others, Whitby Abbey, after being plundered of the wood, the timber, and lead on its roof, as also of its bells, and everything else belonging thereto that could be sold, was left standing with its stone walls, a mere skeleton of what it had formerly been, to crumble away by degrees into dust or to form a heap of rubbish which might barely show passengers in future ages that there Whitby formerly stood. It is true some part of this lead was laid upon the church of St. Mary, which was still permitted to be the parish church of Whitby, and which seems till then to have had only a thatched roof; but that lead was only a small part of the whole, and all the remainder was carried away and converted into money."



WHITBY ABBEY.

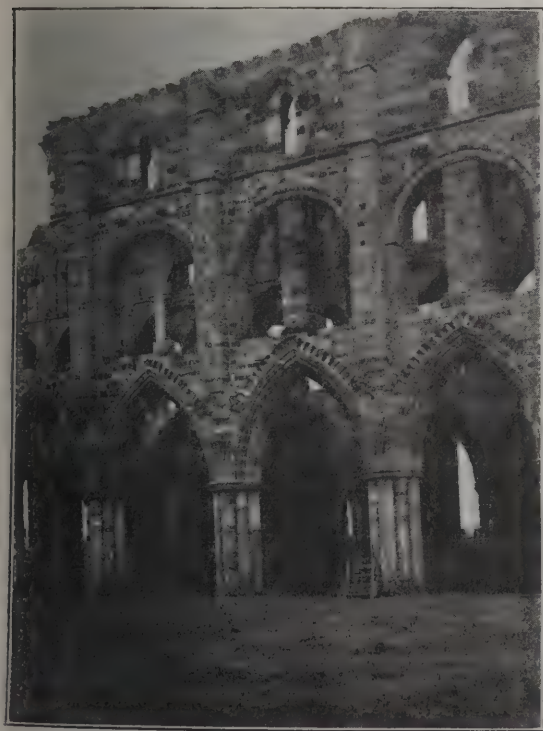
Part of North Wall of Nave, and all that now remains of the West Front.

The ruins of the abbey church—now all that is left of *Whitby Abbey*—still hold their place on the steep-sided and lofty cliff to the east of the old town. They are still a landmark to all travellers, whether by sea or moor or river. Those travellers who know something of the history of their country will see in ruined walls such as these a view-point from which they can look down the vista of the centuries. They will think of the monks who lived there, and of their services in early days to the liberal arts—to history, literature, architecture and art. They will remember them sometimes as earnest priests, sometimes as keen lawyers, and occasionally as great statesmen. These very ruins saw the day when Whitby Abbey was the lord and landlord of Whitby Strand—from Green Dike to Eastrow and several miles inland—and when Whitby town was but a small village of fisher dwellings: they now look down upon a changed land and a busy town. The Dissolution, which left them and others to crumble into ruin, was the sign of a new and larger civilisation. The monasteries had done their work—

The old order changeth, yielding place to new,  
And God fulfils Himself in many ways,  
Lest one good custom should corrupt the world.

## EASEL PAINTINGS.

AN easel picture displays a scene which must be looked at through a frame, as if through an open window. It must be carried out with the intention of being viewed from some one point; it must have unity in the direction of light and unity of general effect. The one point from which such a picture can be well seen is always to be found upon a perpendicular line drawn through that point upon the horizon which is called the point of sight. Easel painting has arrived at a most remarkable perfection of technical skill. Great artists are able to reproduce the most delicate effects of light, and to concentrate the attention of the spectator upon the point that is the chief object of their efforts, and which they isolate from all its surroundings with the utmost care. Easel painting always seeks more or less to deceive the eye. It must of necessity do so, as its aim is to produce the effect of relief upon a flat surface. If a palace has to be represented its different planes must be shown; and we must be able to see at a glance that the columns of a peristyle, for instance, are not at the same distance from our eyes as the rest of the building.



WHITBY ABBEY—SOUTH AISLE WALL.

Remaining portion showing dog-tooth ornament.

the subordinate houses to the priory or abbey. Those possessed by Whitby were Middlesburgh, Hackness Whitby Strand, Godeland or Gotheland, and the one mentioned before as the gift of Rufus and the place of retirement for Prior Serlo, namely, All Saints in Fishergate York; there were also several hermitages which it is perhaps unnecessary to recapitulate. Those interested may easily find them in the Chartulary of the abbey.

<sup>26</sup> *The Monasteries of Yorkshire.*

<sup>27</sup> *Horne's Guide to Whitby*, p. 21.



## NOTES AND COMMENTS.

VISITORS from English ports commonly express disappointment when they see Dundee for the first time. The harbour lacks the impressiveness which is to be expected in a place with so large a trade. A long array of timber sheds of a single storey has an almost prehistoric appearance. There is to be a transformation, for on Monday the Harbour Trustees resolved to carry out the recommendations of their engineer by reconstructing the eastern and western wharves and by the erection of new transit sheds. The engineer is to be instructed to prepare plans and specifications, with estimates for the reconstruction of the western wharves in ferro-concrete and for the construction of transit sheds there also of ferro-concrete, the latter to be four storeys high and provided with all the necessary electric or hydraulic equipment in the shape of travelling cranes, &c. The proposal is that the work should be carried on in two sections so as to interfere as little as possible with the traffic. The trustees are already acquainted with the qualities of ferro-concrete, for they have had a wall constructed with the material, and it shows no signs of decay. It is expected that a sum of at least 100,000*l.* will have to be expended.

OBJECTS which appear strange to modern understandings are described in archæological dictionaries and inventories. But a font or stoup which is always filled with water is a novelty. It was the strangest object seen by the members of the Cambrian Archæological Association this week. On Monday they visited the old church of Llanidan and, according to custom, the first object investigated was a stoup in the wall at the entrance to the church. This has the peculiarity of being always full of water without overflowing, and several explanations of the phenomenon are adduced. One is that the water trickles from the roof. Another, and the most generally accepted, is that the stoup is porous, and that the water reaches it by suction from a spring below. It has been testified by a servant man engaged for fifty-six years at Llanidan Hall that he only saw the stoup dry once, and that was for three days during a very dry summer. So much attention appears to have been given to the supply there was no question about the withdrawal of the water. Several able archæologists were present, but they could give no explanation of the phenomenon. Apparently it is a miniature water supply prepared by nature, and the wonder is that it was not utilised for other than ecclesiastical purposes.

It appears from the official report on the progress of the Ordnance Survey that the revision of the large-scale maps is being carried out, with the sanction of the Treasury, at a rate to insure that no part of Great Britain will have been unrevised for more than twenty years. With the recent completion of the fieldwork of the revision of the counties of Cornwall and Pembroke there is now no area which has not been brought within this category. The resurvey of Ireland on the 1:2500 scale is proceeding rapidly, the out-turn of the surveyors in 1906-7 having been about 1,231,360 acres, including 126,720 acres of the county of Dublin previously surveyed on that scale in 1863-7, which is now being revised in connection with the survey of adjoining counties. Maps on scales larger than the 25-inch are no longer made or revised in the ordinary course by the Ordnance Survey, except at the expense of the local authorities. The Survey does not owe much to civilians, for since its commencement it has been organised upon a military basis and carried out under military superintendence. The chief supervision, from the Director-General downwards, has been vested in officers selected from the corps of Royal Engineers. The 13th, 14th and 16th Companies of Royal Engineers were raised for the Ordnance Survey in 1824 and 1825, and the 19th Com-

pany was added in 1848. These companies were continuously employed on the Survey to March 31, 1906, when the establishment of survey companies was reduced from four to three, and the 16th Company ceased to exist as a survey company. The experience gained by the organisation can be turned to account in other ways, for three complete survey sections, composed of officers, non-commissioned officers and men of the Royal Engineers are held in readiness for service with an arm in the field, to carry out such surveys as may be considered necessary during the progress of a campaign.

THE King of the BELGIANS is a client who is enough to make many architects envious of M. CHARLES GIRAULT. As in many other cases, it is not necessary to inquire how the money has been obtained which His Majesty wishes to spend on architectural work. Various improvements are to be carried out both in Brussels and Ostend under the control of the French architect. A great Congo museum has been erected in Brussels, and two other buildings, no less imposing will be erected near it. One will be a college for the education of Belgians who will seek careers in the colonies. The other will be a building in which international congresses are to be held. One part of Brussels will therefore be transformed, to some extent solely at the expense of the King. The engagement of a French architect may not be satisfactory for the excellent artists of Belgium. But the King can point to the numerous countries throughout the world in which preference is given to French designs.

## ILLUSTRATIONS.

NEW GOVERNMENT OFFICES: FRONTS TO GREAT GEORGE STREET AND PARLIAMENT STREET.

WE publish this week another view of the Government offices which will soon be available for use by the Board of Education and the Local Government Board. The building was designed by the late Mr. J. M. BRYDON, and if he could have had opportunity for consideration he would no doubt have imparted greater effectiveness to the exterior. If regarded as an establishment where a large amount of clerical work has to be gone through daily, the building will no doubt serve its purpose. But when we remember the importance which education and local government have attained, something more imposing was expected. The realisation of the design was undertaken by the Office of Works, and the building has in consequence, it is said, become more efficient for business purposes. The contractors were MESSRS. SPENCER, SANTO & CO. and the large quantity of Portland stone used in the masonry was supplied by the Bath Stone Firms, Ltd.

EAST MASCALLS, SUSSEX.

RESIDENCE, BLACKROCK, BRIGHTON.

DESIGN FOR A PROVINCIAL CHURCH: EXTERIOR VIEW—VIEW OF CHANCEL.

THIS design was submitted for a church to serve about 750 people, and the main building was to be kept as cheap as consistent with proper dignity. The transepts were added as a means of obtaining a large area of seats. The end wall of the church was utilised for the side of the parish hall, classrooms and vestries, the corridor to which passes behind the reredos within the jambs of the east window, which is carried over the outer wall of the corridor. The parish hall would accommodate 350 persons. Red Bracknell bricks and Monk's Park stone were intended for the outside, with hand-made tiles for the main roofs and asphalt roofs over the aisles. The interior would be plastered, with the arcade and other internal stonework in Ancaster stone. The design is by Messrs. J. H. TYAS & ERNEST T. JAGO, A.R.I.B.A., 10 John Street, Adelphi.



## GERMAN ROMANESQUE.\*

THE revival of learning by Charlemagne brought Irish, Anglo-Saxon and Carolingian scribes in contact, and generally acknowledged that the term Franco-Saxon is only descriptive of the MSS. executed in the north of France and the Low Countries in the ninth century, of which the Bibles of Charles the Bald are the best known examples, so that a similar influence from the English is likely to be expected in the next century. Now if we examine the MSS. executed at New Minster and isolate details, we shall find several which are familiar to us at a later period. The New Minster at Winchester was founded by Alfred and put under the rule of the learned Grimbold for the purpose of educating the sons of the nobles. Grimbold had been in the monastery of St. Bertin, in Flanders, and entertained Alfred there when on a journey home in his youth. In 884 or 885 the king sent an embassy to Fulke, Archbishop of Reims, and the Abbot of St. Bertin, entreating their sanction to his coming. They sent a gift of wolfhounds. Fulke said he sent in a spiritual watch-dog to guard the Christian flock. He assigned an eighth of the revenues of his kingdom to support, and told his nobles either to study or resign their offices. He said his desire was "to provide houses of study, workshops for the writing and adornment of MSS., peaceful patterns of civic life, well-ordered communities resonant of labour and praise." A great school of illuminators was developed in the abbey, which produced some of the finest MSS. of the period in existence, among which may be mentioned the Benedictional of Ethelwold, written by Godemann, who became abbot of Exeter about 970, and the MS. in the library at Rouen, which is so much like it, and was probably written for the Benedictine abbot of Glastonbury, Ethelgar (965), who made Bishop of Selsey in 978 by Dunstan, and succeeded him as Archbishop of Canterbury in 988. Robert Norman was made Archbishop of Canterbury by Edward the Confessor, but was obliged to fly before the Danish indignation, and carried this Benedictional with him. In the register of Hyde Abbey (as New Minster was called when it was removed outside the walls) is a fragment of "exultet" with the musical scale in use before Guido of Arezzo invented the present gamut in 1020. It contains the name of several illuminators—Elsinus, Æthericus, and others, all Saxons. It was written for Ælfwine, who was then monk and deacon. He became abbot in 1035. In later Saxon times intercourse between England and the Continent was close and frequent. As early as the end of the eighth century an Englishman named Lul was established at Mainz to whom St. Cuthbert, abbot of Jarrow, was asking him to send experts in glassmaking. Carolingian culture had two principal centres, Tours and Alcuin of York planted in the school of Tours, and Northumbrian learning, and had pupils from nearly all the centres whence the first feeble struggles of Mediæval civilisation proceeded. Dr. Smith says in his dictionary of Christian Biography:—"Among the scholars in the palatine school of Charles himself with his sons Charles, Pipin and Louis, his sister Gisela and his daughter of the same name; Angilbert, afterwards Abbot of St. Riquier; Adalbert of Corvey; Rigbod, Archbishop of Trèves; Adis, a noble nun of Chelles; and Gundrada, sister to Adalbert. His most famous pupils during his later years were Rabanus Maurus, afterwards Archbishop of Mainz; Hatto, Abbot of Fulda; Haimo, Bishop of Halberstadt; Samuel, Abbot of Lorsch, and afterwards Bishop of Speyer; Adalbert, Abbot of Ferrières; Aldric, Bishop of Metz; and Amalanus, deacon of Metz." From the sixth to the eighth century missionaries went from Britain to Frisia, Germany, Switzerland, and even to Italy. The same decorative motifs are found in Ireland and in Switzerland, where Latin culture was preserved. The treasury of the principal church of Maeseyck, where the Gospels is preserved which dates from the eighth century, and has illuminations quite Anglo-Saxon in character, together with fragments of embroideries similar to those which were found in a shrine. They are the work of two nuns, sisters, named Erlinde and Relinde, and embroiderers, according to tradition, who brought their craft from Anglo-Saxon missionaries. As late as the Anglo-Saxon design exercised a certain amount of influence. The church of Petit Quévilly, near Rouen, has

been the subject of lectures by Mr. F. Hamilton Jackson, vice-president of the Society of Decorative Designers, and is the subject of the *Journal of the Society of Arts*.

painted decoration, said by M. Gonse to be of a rich, severe and delicate style of a curiously Anglo-Saxon character. St. Columba founded monasteries at Fontaine, Anagratum and Luxeuil at the end of the sixth century, and then Bobbio in Italy in 613. He also lived near Bregenz. St. Gall, the apostle of Switzerland, whose Irish name was Cellach, went thither at the beginning of the seventh century and founded his monastery in 614. St. Cataldo (Cathal), patron saint of Taranto, was a pilgrim Scot from Lismore in the seventh century. St. Donnat (Donncadh), his brother, was Bishop of Lupice, in Naples. St. Kilian, apostle and martyr of Franconia (689), is commemorated at Würzburg, where the MS. of the Gospels found in his tomb is annually exposed on the altar. At the monastery of Honangia, founded on an island in the Rhine near Strasburg by Tuban, an Irish bishop, a charter of 810 is preserved which recites grants to the monastery, the poor and pilgrim Scots. Nine Scots are named in it, eight of them bishops. There was a convent of Scots at Mount St. Victor, near Feldkirch, in the ninth century, and Dungal the Scot, author of the letter to Charlemagne on the eclipses of 810, became preceptor of the cathedral school at Pavia. Willibrord and Boniface, who came from Crediton, sought the conversion of Frisia and of central Germany in the first half of the eighth century, and they were accompanied and followed by a large number of Anglo-Saxon fellow-workers, SS. Lievin, Wilfred, Wigbert, Suitbert, Ewald, Willibald, nephew of Boniface, Wynnebald, &c. Willibrord founded Echternach before 739, and Suitbert founded Kaiserswerth. Fergal or Virgilius, an Irishman, was Bishop of Salzburg in the eighth century. The relics of British saints are revered in other continental places which commemorate their names, as St. Gobain near Laon, where the relics of St. Gobhan are enshrined above the high altar. In 856 Ethelwulf married Judith, daughter of Charles the Bald; Ogive, daughter of Edward the Elder, married Charles the Simple; Hedwig, Hugues the great Count of Paris; Edgiva, Louis the blind Count of Provence; Adela, Ebles Count of Poitiers. Another granddaughter of Alfred wedded Otho the Great of Saxony. At a later period the emperor was married to Chunelinde, daughter of Cnut; the Athelings, Edmund and Edward, had married nieces of the emperor, and German clerks were at the head of the Wessex church—so the channels for reciprocal artistic influence were open between the countries, and continued so, for in 1114 Henry V. of Germany married Matilda, daughter of Henry I. of England, who after his death in 1125 married Geoffrey Plantagenet, Count of Anjou, in 1129.

In every pattern there are two portions, the underlying curves or geometrical planning, and the details which disguise or emphasise the basis according to the fancy of the designer. Now the schemes of curvature of most of the Romanesque scrolls are simple and common to both later classical and Byzantine ornament. In this ivory vase from the British Museum, for instance, which is probably of Syrian manufacture, the curves might be of any period from the sixth century to the tenth, while the birds in the borders suggest Coptic influence, and the antique frets have developed into the riband pattern which we have seen at Moissac and Avalon. The heads in circles seem to be an earlier form of a detail frequent in Byzantine work of the tenth or eleventh century. Take next this strip of ornament from the cathedral, Verona, and compare it with this gold bracelet in the Franks Collection at the British Museum, said to be Egypto-Byzantine work, and the virtual identity of line and subject is apparent. But the plan lines are nearly the same as those from a vase in the Esquiline treasure, which we have seen repeated upon the Anglian crosses at Nunnykirk, Lancaster and Kendal, and similar curves form the bases of many of the late Roman mosaics of ornament both on vault and floor. In these panels from Torcello we have a modification of the same kind of curves, with foliage flowers in the centre and with animal forms introduced (as they are also in the Esquiline treasure); and animal forms playing through the scrolls are one of the characteristic details of Romanesque ornament. The heart-form as basis for ornament, so frequently used in German Romanesque especially, as in this late example from Gelnhausen, is Oriental, and the strap-like processes which enclose it are seen in early Saxon MS., while the flower in the centre is based upon Byzantine details. The elaborate interlacings of curves in the splendid initials of the German MSS. of the twelfth century are only developments of the same features used at Winchester and elsewhere long before.

In the Victoria and Albert Museum is a curious little carved oval box which is said to be Byzantine work of the



ninth century. If this ascription is correct, about which I have my doubts, though I cannot speak as an expert upon the matter, it is a very curious example of the early evolution of an ornamental form which is of frequent occurrence in the twelfth century. I mean the scroll flowers on the lid, which only require a slight scalloping at the edges to become quite like ornaments which are common in the MSS. of that period illuminated in Flanders and North-West Germany.

We have seen that the Comacines or Lombards had a great deal to do with spreading certain patterns round the basin of the Mediterranean, and that Lombards at a later date were the prime movers in the development of the architectural style termed Romanesque. Most of these masters were ecclesiastics of one kind or another, or at least worked under the shelter of the Church in which they had taken some kind of vows. The cloister was the only secure refuge for those who were not prepared to make fighting their principal business, and men of refinement who were peaceably disposed naturally gravitated to it. Here men of various nationalities met and could discuss problems which had arisen in following their various pursuits, for all those instructed at all spoke Latin, and learning progressed. Here was the great scriptorium where valuable books were written and illuminated; here were the workshops in which work in all kinds of materials was carried on; here were the masons, the designers, the carvers, enamellers, goldsmiths, mosaic-workers, painters, writers, joiners, and so forth—a busy hive of constant employment. The country was made to blossom and bear fruit, architectural and engineering works were carried out, and protection was afforded to all the vassals. The great Benedictine monastery, in fact, was the centre of all kinds of mental activity.

Take the history of St. Bernward as an instance of the life of such a master. He was born about 960, of a noble Saxon family, and brought by his maternal uncle, Deacon Folkmar, later Bishop of Utrecht, to the Hildesheim cathedral school, which was under the direction of Thangmar, schoolman, notary, librarian and dean at a later period. At that time the bishop's court of Hildesheim was the centre of culture of Eastphalia, embracing great variety of pursuits and also the practical use of mechanical arts. His biographer mentions that Bernward practised artistic writing, painting, working of metals, setting precious stones and architecture. Cloister workshops, schools and warehouses lay upon and around the cathedral hill. He was ordained exorcist and afterwards priest. He then went to his maternal grandfather, the Pfalzgraf Athalbero, and managed his affairs till he died in 987. He was then summoned to Court, and made tutor to the youthful Otho III. by the Empress Theophano. After her death he was made Bishop of Hildesheim, and consecrated in 993.

Thangmar gives us details of his daily occupations. Not only in Hildesheim, but in other places in the diocese he founded scriptoria for the production of liturgical, philosophical and theological literature. In the workshops painting and sculpture, goldsmith's work, mosaic and the laying of tiles by a process of his own were carried on. Talented youths accompanied him on his journeys to make drawings of notable things which he had not time to record himself and to study. He planned the church of St. Michael, Hildesheim, and most of it was carried out under his superintendence, though the fire of 1186 destroyed a good deal of his work. He made several crosses ornamented with filigree and pearls and with large crystals on the arms, a silver crucifix with the body arranged to hold relics, two gospel book-bindings and a paten with engraved panels of the cardinal virtues. Several MSS. in the treasury were written for him. In the Magdalen Church are two candlesticks of an alloy of silver and copper, formerly gilded. His celebrated doors were made for St. Michael's in 1015. He also made a column of bronze, 14 feet high, with reliefs from the Life of Christ in the manner of the Trajan column, and his grave-slab and sarcophagus, both of which Thangmar notes as being his own work.

Another example is Bishop Benno, of Osnabruck, who practised nearly as many different arts as St. Bernward. He first appears as a pupil, but soon acts as master builder at Hildesheim, then goes to Hungary with a host on account of a famine, finishes the building of castles left incomplete by Henry IV., then acts as viceroy for Archbishop Anno in the principality of Cologne. After he became Bishop of Osnabruck he drained the marshes, and became so celebrated as an hydraulic engineer that the emperor called him to Speyer to make the cathedral secure

from floods of the Rhine. At a later period he accompanied him on his journeys (carrying on his business operations by correspondence), and had artists with him to make drawings. Norbert, abbot of Iburg (1118) biographer, says that when he was building the monastery of Limburg, the cathedral of Speyer, which was finished in 1060, and the collegiate church of St. Guido in the same city, he established a school of architecture under the protection of the emperors, and that pupils came from all parts of the empire to give themselves with a will to the study of architecture.

The activity of these great men is astounding. They combined the practice of the architect, the founder, sculptor, painter, scribe, goldsmith, and even the organ builder. They were also teachers, theologians and sometimes physicists, statesmen and jurists. In England also ecclesiastics were often capable craftsmen. Leaving out St. Dunstan as a well-known, "who understood masonry, carpentry, smith's work; could draw, paint and design; was a musician, composer and maker of musical instruments as well as a distinguished ecclesiastic, let us take Ankerbute St. Albans, who was brought up as a goldsmith, and passed seven years in Denmark making things for the emperor and superintending the royal mint. Returning to England he became a professed brother of St. Albans, and made great feretrum, shrines for the relics of SS Bartholomew, Ignatius, Laurence and Nigasius, elaborate candlesticks, censers and incense boats.

The shrine of St. Thomas of Canterbury was made by the "that incomparable official," Walter of Colchester, who was assisted by Elias of Derby, a goldsmith of St. Albans, who was assisted by Elias of Derby, Canon of Salisbury. Three smiths "expert at shafts and at the making of iron" were mentioned by name among the monastic brethren. St. Patrick, and three skilful artificers. A bishop's shrine at Coula was St. Bridget's principal artist in gold, silver and other metals. When the same man worked in metal, he illuminated MSS. it was natural for the patterns sometimes counterchanged, and this may perhaps explain the genesis of the involved patterns known as Celtic. Mr. Romilly Allen says must have been copied by Celtic artists from the designs invented by pagan enamellers of late Celtic bronze bowls. Since all the bowls of this kind have been found in England, it is there that the spiral patterns of the MSS. must have originated, and not in Ireland. This theory is correct it will explain the perfection of the work and the certainty of hand in the earliest certainly dated with zoomorphic patterns, the Lindisfarne Gospels, which the elaborate interlacing patterns appear to have been derived from metalwork. St. Dageus, who lived in the sixth century and made many shrines, was an illuminator. St. Eloi made shrines of gold and silver to many saints, which his biographer enumerates, and was master of the mint to three French kings. The annalists of the ninth and tenth centuries mention a number of works of art, including metalwork, altars, made by monks.

Folcuin, in his *Life of Notger*, Bishop of Liège (971) describes a wonderful gospel ambo which he had made. "It was composed of a hollow formed of four half-cylinders set crosswise. The four faces of bronze, worked with hammer, were, according to the fancy of the artist, covered with chisellings and with gilding and held together by silvered uprights. On the north side the ambo had a reading-desk in the form of a cast eagle magnificently gilded, which raised its wings or extended them to support the gospel book. The neck moved by means of an ingenious mechanism—the bird appeared in some way to lift up the deacon's chant, breathing forth at the same time a cloud of perfumes produced by incense thrown upon braziers hidden inside the body." Villars de Honcourt describes such an eagle, and at Mainz there were two cranes which behaved in a similar manner. These mechanical pieces of furniture were probably suggested by the report of the splendour of the throne called "Solomon's" in the imperial palace at Constantinople, which was of gold encrusted with precious gems with mechanical birds which sang upon it: "above shone an immense cross encrusted with precious stones; around were golden seats for the imperial family. On the steps were two lions of gold, which roared to their feet, roaring. Thereby were golden trees, the branches of which birds of different kinds imitated the songs of those in the wild wood."

With craftsmen of such capacity within the monastery—with men of such varied powers directing affairs—the contact and friendly competition of the qualities of many nationalities, Eastern and Occidental, meeting



cosmopolitan cloister, and with varied and suggestive material brought to the door by commerce, either the spoils of ancient civilisations or the traditional products of the far ranging East, was formed a cradle in which the young Renaissance art was fostered, and from which it soon went forth in strength and splendour to pleasure the West with its beauty.

### SALISBURY CATHEDRAL.

THE members of the Hampshire Field Club and Archaeological Society last week visited Salisbury, and under the guidance of Mr. W. Dale, the hon. secretary, inspected the cathedral, the Bishop's palace, the museum and St. Thomas's Church.

At the north side of the cathedral Mr. Dale read a short paper. In the course of it he said he had brought them to Salisbury because, by common consent, it was there they had the best view of one of the most singularly beautiful cathedrals in the world. "The finest point of view is from the west," says Rickman, which was the best general view of a cathedral to be had in England, displaying the various beauties of this interesting building to the greatest advantage. "Externally," says Ferguson, "the effect of this cathedral is even better than that of the interior. The breaking of the outline by the two transepts, instead of cutting it up by buttresses and pinnacles, is a masterpiece of art, and its noble central tower, which, though erected at a later age, was evidently intended from the first, gives the whole composition with singular beauty." Welby, in, visiting Salisbury for the first time, arrived in the darkness of the night, and the next morning, as he opened a window overlooking the Close, he said, "I have travelled all over Europe, but have seen nothing like this." It was reserved, however, for no less an authority than Mr. Gladstone to indicate and express wherein the beauty of the exterior of Salisbury Cathedral lies. Speaking at a distribution of prizes at the Working Men's College, in Great Windmill Street, in 1893, Mr. Gladstone said:—"There is a circumstance in architecture which terrifies me, and that is a tendency which appears to prevail in modern domestic architecture—I refer to its redundant ornamentation. There are a great number of new buildings in London—I am not treading on anyone's toes—with regard to which, if you look at them, you will find that the architect has either a horror or a dread of leaving bare a single square foot of wall. Why do we not wage a war against the excess of ornamentation? Excess of ornamentation is, in all things, the most hostile to a due appreciation of proportion, because it is in proportion to the perception of breadth and beauty and line, and in the adjustment of lines to one another, that the essence of the art lies, and in that we will find the hope of attaining high excellence in great works. I will mention to you the case of the exterior of Salisbury Cathedral. The man who wants to know what beauty in stone, beauty not produced by ornamentation, should visit Salisbury, for there he will see less ornamentation on the exterior of the building than in any cathedral, I believe, in a great many domestic houses in London. If you want to see what can be done by simple beauty of outline, which is the foundation of all beauty, take a look at the exterior of Salisbury Cathedral. It is a model for all ages and all countries." The exceptional circumstance of the removal of the See from Old Sarum early in the thirteenth century was the cause of the comparative simplicity of the architecture. The cathedral was begun in 1220 and finished in all its essentials in 1258. Even in this early period a trained eye could notice an advance in style. When the central tower was added, the Early English style had blossomed into the Decorated, and in the western tower appeared the ball-flower ornament of the early part of the fourteenth century, which also was seen in the vault in Simnel Street, Southampton. It was on the west end they must look for the finest specimens of the Early English style. "It is at the east end," says Mr. Rickman, "that the refinement of the Early English style is carried to its culminating point, there being no moulding of any purpose and no enrichment without a cause. All the parts are so beautifully proportioned and so admirably used, that the critical eye seeks in vain for a suggestion to improve this most exquisite façade, which is certainly not equal in this country." The height of the spire is 404 feet. Amiens, the only cathedral which could compare with Salisbury, was 422 feet, but the great height of the nave at Amiens, 208 feet, did not make it appear so tall as Salisbury. Strasburg was 468 feet. Concerning

the workmanship, Professor Willis says:—"The regularity of the stones is astonishing; as soon as they had finished one part they copied it exactly in the next. The masonry runs in even bands, and you may follow it from the south transept eastward round to the north." They in Hampshire called to mind that Elias de Derham was the personal friend of Bishop Poore, and was also the architect of the great hall at Winchester, while Stephen Langton, whose figure was seen on the north side of the west front, assisted at the consecration of Salisbury Cathedral, and preached to the people on the following day. He must have touched the consecration crosses which were such a marked feature of the cathedral.

The visitors were met by Dr. Bourne, the treasurer of the cathedral, who conducted them round the building, pointing out the many objects of interest which escape the notice of the casual visitor. In the course of his remarks on the history of the cathedral, says the *Winchester Journal*, Dr. Bourne explained how it was that the building came to be erected on that spot. As they knew, for a long time the cathedral church of that diocese—the united diocese of Sherborne and Ramsbury—was at Old Sarum, which was a great and very important fortress, and the reason it was so unfit a place for a cathedral was that it was so very important for military purposes. There were constantly sieges of Old Sarum and blockades of the place, which was awkward, and meant that the place was always more or less in a state of disturbance. When the bishop wanted to hold a Confirmation or Ordination he found Old Sarum in a state of siege, and he could not get into his cathedral, or if he were in Old Sarum sometimes he could not get out, which was inconvenient for the purposes of the clergy and the carrying out of their work. Richard Poore, the founder of the cathedral, wanted very much to go to Wilton, but the Abbess of Wilton did not look at the matter from his point of view. She thought she and her ladies would be overshadowed by having a cathedral planted close to them, and she did all she could to prevent any land being transferred to the Church for the purpose of building there. The bishop had a small piece of property in his personal right, and in a sort of despair he said if he could not build the cathedral anywhere else he would build it on his own land. He called in the services of a Norfolk man, Elias de Derham, a member of the Chapter, and that he had a considerable knowledge of the work which he was asked to superintend might be gathered from the fact that he was responsible for the whole of the building with the exception of the spire. Elias de Derham drew the design of the building, and the bishop said it was very good, but a building of such size and importance could not stand on the ground on which they proposed to build the cathedral. The bishop knew to his cost that the land was a swamp, and he pointed out that if a building such as Elias de Derham had designed were erected without any foundations it could not stand. However, Elias de Derham explained that he was going to have his foundations above ground, and so he placed the bench on which the arches stood round the church. Dr. Bourne explained in detail the interesting monuments in the nave of the cathedral, and then conducted the party to the choir. He pointed out that one of the pillars was out of the perpendicular, and that even many years ago authorities were afraid the spire was going to fall to the north-east. As long ago as 200 years they took the exact measurement, and found that a plummet fell 23 inches to the north-east away from the south-west. But for 200 years the spire had not given way at all, and lately measures were taken which they hoped would make the church safe for some time to come. He had measured in the middle of a dry summer, and found that the water-line was only 33 inches below the surface, so they could imagine the difficulties which had to be contended with. This would probably account for the absence of any great number of vaults. He mentioned that tablets were to be seen in front of the communion rails recording the burial of a good many members of the Herbert family, and reminded his hearers of the lines:—

Underneath this sable hearse  
Lies the subject of all verse;  
Sidney's sister, Pembroke's mother.

He added that they knew the exact spot where she lay, and there was a tablet recording that below the stone lay Sidney's sister, Pembroke's mother. An object of great interest, the existence of which is unknown to many residents of Salisbury, is the remains of an old windlass on the north side of the choir, with a pulley, which was used formerly for rendering the veil which hung there during Holy Week hiding



the figure of Christ on the Cross. That was one of the ways in which the Mediæval Church, rightly or wrongly, tried to bring this before the eyes of the people, and that being a pre-Reformation rite, it was strange that it was allowed to remain. The only reason which he could suppose accounted for its remaining was that it was thought to be an apparatus for hauling up buckets of whitewash. After inspecting the nave the party visited the north chapel, and then, passing round behind the altar and down the south choir aisle, made their way to the chapter-house, the main features of which, with the representations of Biblical stories carved in stone on the walls, were also explained by Dr. Bourne.

On the conclusion of the tour of inspection, Mr. Hardy proposed a vote of thanks to Dr. Bourne for his interesting address and for the trouble he had taken to show them the principal features of that beautiful cathedral. The Society used to confine their excursions to Hampshire, but he thought it was wise that they should occasionally step over the border and visit a neighbouring county.

Dr. Bourne expressed the pleasure which it gave him to show the members of the Society over the cathedral.

Mr. A. R. Malden conducted the visitors over the palace, and much interest was shown in the fine collection of portraits of Bishops of Salisbury from the time of Bishop Jewel down to the present time.

At St. Thomas's Church the Rev. C. Ll. Sanctuary, the vicar, explained that the present church was not the original one. A church was built on that site in the thirteenth century, possibly as a chapel of ease to the cathedral. It might have been built to accommodate the workmen who were brought there to build the cathedral, and others who were attracted by the fact that a cathedral was to be built. It was also possible that there might have been an earlier church still on that spot, and if they looked in the north choir aisle they would see the bowl of an ancient font, as to the date of which they would probably be able to express an opinion. It was said that perhaps this font belonged to an earlier church in a small village by the river, while the cathedral and city of Old Sarum were up on the hill at Stratford. The present church was, of course, a fifteenth-century building. There were one or two things in the present church which undoubtedly existed before the main part of the building. For example, there was the tower, the exact date of which was not known, but which appeared to have been added to the thirteenth-century church some time after its original erection as a separate campanile, similar to the one at the cathedral, which was destroyed by Wyatt at the end of the eighteenth century. Other relics of the earlier church were the chancel arch and the spring of an arch now built into the wall between the choir and the south aisle. The whole of the church was practically rebuilt in the fifteenth century, and it was not known what brought about the rebuilding. Probably the old church was allowed to fall into decay, and its rebuilding was due to the munificence of the great merchants of Salisbury, which at that time was, as they knew, the centre of the wool trade. The vicar pointed out the many interesting features of the church, drawing particular attention to the merchants' marks in the south chapel, the carving of Humphrey Beckham, and to the fact that up to the fifteenth century there were chapels in the nave aisle as well as the choir aisles, which were served by chantry priests who were called chaplains and had dwellings in the churchyard.

#### ARCHITECTURE AND DRESS.

THE following apologue by Mr. Glenn Brown, architect and secretary of the American Institute of Architects, appears in the *Inland Architect*:—A striking commentary on modern architecture occurred at a recent fashionable evening reception. A craning of necks drew my attention to a man in faultless evening dress, startlingly transformed into an object of ridicule by a reflection in a mirror showing his back clothed in loose-fitting red flannel. He was hustled from the room by the floor committee. Following the curious crowd, I obtained the following novel idea on dress reform. I am infatuated with the modern system of design in our great commercial buildings, and see clearly its ready adaptability to modern dress. You have no doubt noticed how thoroughly our great architects have developed a style of great beauty for the front and economy for the rear. This innovation consists in building a front of precious stones and Classic design and erecting the side walls without form or order of cheap and ugly material. While the offensive sides are always visible, no one is foolish enough

to look at them. While the effect often destroys the beauty of a neighbourhood sensible people see only the beautiful front. This wonderful system saves the architect money and trouble, as he has only one façade to design. It saves the owner's purse, as he has only one front to build. The great architects of official Washington, cultured Boston, commercial New York and progressive Chicago zealously follow the system.

After mature consideration I have determined to adopt the same system with my clothes. I have rich material and elegant cut for my front and cheap material without form for my back. It saves fitting, study and goods. The elegant front will be enjoyed and the offensive rear will never shock an intelligent being. The system has so many advantages, I know all wise people will adopt the reform and follow the lead of the architects, the one profession which makes a study of beauty, fitness and harmony.

#### GREENWICH OBSERVATORY.

IN the course of his report to the Board of Visitors of the Royal Observatory, Greenwich, just issued, the Astronomer Royal (Sir W. H. M. Christie) says:—

"In view of the danger threatening the astronomical efficiency of the Observatory from the working of the generating station of the London County Council in the immediate future, to which attention was called in the report, a small committee, consisting of Lord Rosse, late Sir Benjamin Baker and Dr. Ewing, representing the Board of Visitors, the London County Council and the Admiralty respectively, was appointed in July to inquire into the question. In their report presented to Parliament they make definite recommendations as to the working of the generating station, and if these are all strictly carried out it may be hoped that the work of the Observatory will not be seriously interfered with, though further experiments when the generating station is completed and in full operation may modify this view. The recommendation of the committee that the question as to the effects of vibration on the discharge from chimneys should be further reviewed, say, two years is of great importance for the protection of the Observatory in the future. As regards vibration experiments made last summer showed that the vibrations from the engines of the completed portion of the generating station can be effectually damped out when the film of mercury in the amalgamated trough is as thin as paper. This condition of a very fine film had been previously secured for the Reflex-Zenith tube where the trough is a fixture, but special arrangements for leveling the trough have to be made in the case of an instrument which has to be reversed, and thus practical difficulties in longitude determinations are introduced through vibrations from the generating station. But though tremors which are undoubtedly caused by the generating station may be masked by the use of a very thin film of mercury, it is a question whether they do not cause the telescopes to oscillate to such an extent as to interfere with the delicate work of which they are capable, such as the observation of close double stars with the large telescopes. Further experience is required to decide this. The danger to be feared from the chimneys and the heated gases discharged in the immediate neighbourhood of the Greenwich meridian is more insidious, as the effect on the accuracy of observations of stars near the north horizon may become apparent in course of years when it is found that the results are untrustworthy from this cause. The recommendations of the committee in this respect represent a minimum which is absolutely necessary, and a further reduction in the height of the chimneys may be required to safeguard the Greenwich meridian work."

#### YORK MINSTER.

YORK MINSTER is at present undergoing a "spring cleaning." All the interior walls are being brushed down, and the dust, which will accumulate on every ledge and projection, is being removed. This task, says the *Yorkshire Herald*, will take a considerable time, probably some weeks, and then, if the Dean and Chapter so decide, the numerous precious monuments will undergo a cleaning process—a work which has to be carried out with the very greatest care lest permanent injury instead of benefit, should result.

Spring cleaning has the merit sometimes of bringing to light bits of carving hitherto unsuspected. Queer figures



and lovely floral designs exist in obscure and almost inaccessible places, where some Mediæval craftsman wrought the best for the sake of the religion that was in him and the art that he loved, without expecting or receiving any applause for his labours. These are revealed only to the eyes of the men who do the cleaning, and to the officials of the Minster whose business it is to explore every nook and cranny.

An American architect who has travelled over the Old World for the purpose of inspecting all the famous buildings arrived in York only a few weeks ago to visit the Minster. With the thoroughness of a professional he went all over the place, paying strict attention to just those secluded corners and places already mentioned, where unimpeded work, if there be any, is certain to be found. His verdict, given to a friend of the writer of these lines, was terse but pregnant. "Well, this place was finished." Asked for an explanation, he remarked that of all the cathedrals and famous buildings he had examined during his tour he had not seen one that exhibited such conscientious work even in places never intended to come under the public eye. York Minster was perfectly built and finished to its remotest corner. By the way, the visitor added that picture postcards of York Minster could be purchased in almost any city in America.

Work on the central tower is progressing satisfactorily. The parapet has been removed from three sides, and will be entirely replaced by new stone. On the fourth a bodily removal is not necessary, but restoration will be carried out.

On the famous "Five Sisters Window" work has been in progress for some weeks. As the Dean has pointed out, the strong iron stanchions, contracting and expanding under the changes of temperature in the atmosphere, have broken the thick plates of glass put up years ago for its protection, and materially cracked and injured the stonework. These are being carefully repaired, and an outer covering of plain white glass in quarries with lead glazing is being substituted for the present thick green plates. This desirable improvement, which the donation of 200*l.* from the Duke of Westminster made possible, has to be made very carefully, as if the ancient painted glass were exposed to a strong wind it might be wrecked beyond repair.

The question now arises, Will the work of restoration be stopped owing to lack of money? Funds are very low, and already it is hinted that a few weeks may see a cessation of labour. The rebuilding of Selby Abbey has, for a time at least, diverted subscriptions from York Minster. No one grudges the help being given to Selby, least of all the Minster authorities. The Dean, with the sublime confidence of one who has grown old in the faith, is assured that the money will come in God's good time; others, not so patient and calm, feel that another appeal should be issued—an appeal not merely to Church-people, but to all who treasure these grand old possessions of the Church and people. Money certainly must be secured soon if the work is not to stop.

### A CELTIC VISION OF BUILDING.

THE following remarkable epistle has been sent by Professor Patrick Geddes, of Edinburgh University, Mr. D. Llewellyn Thomas, the honorary secretary of the Llandudno Section Meetings of the Swansea Eisteddfod.

I am sincerely sorry that my engagements make it impossible for me to accept your invitation, for I should wish to be present on many grounds, and two specially.

First, of course, as a loyal well-wisher to Garden City and to support its excellent working chief, Mr. Williams, his insistence upon it as an example—one soon to be followed throughout the length and breadth of the land, and led throughout the industrial world.

But there is a second and more intimate reason. At our approaching Pan-Celtic Congress in Edinburgh we hope to receive your bardic Gorsedd around the "Lia Fáil." And in the section of Celtic art, for which I am open to be personally responsible, we shall welcome your Celtic music and idealistic poetry as its most highly developed and also most diffused and completely national expression—one developed beyond our Highland pipe and dance and nationalised beyond the Irish saga and drama. And now, in Welsh Eisteddfod, or Irish Feis, or Highland Games assembled, and still more in common conference and gathering, may we not do something for that great art problem which is again rising before the world, the supreme

material art of architecture? What do housing congresses and garden cities mean? What use can they be? What hope is for them? Unless we are again truly at the opening of one of those great constructive movements, which the world has too rarely seen, but by whose monuments it dates the eras of its civilisation? In the great temples, the cathedrals, the builders toiled for the gods alone, and from the Pyramids to the palaces of every age they have laboured for their kings, their lords, their masters. Little wonder, then, that they have degenerated till the very word "builder," once so honourable, reeks of the slum he builds, and this profitably only to its landlords or their legal and usurer parasites.

But now we are beginning to take heart anew. Let us say then, now and henceforth, we shall build cities for ourselves, homes fit for sweethearts and wives, for mothers, and, above all, for children, where they shall no longer grow up rough, yet pale, hooligans and streetkins, but into men and women once more, with the rustic health and colour, simplicity and strength, yet with all that is best in urban culture also: homes with the country life cleared of its limitations, with the city life cleansed of its evils.

The student of history, that most Celtic of the sciences, constantly discloses to us how the historic foundations which were the glory of our cities, their ancient centres of defence, their sacred hermitages and shrines, even their later churches and cathedrals, are most frequently of Celtic origin. But, alas! to the social observer of to-day, the Celt as sociologist, throughout the towns and cities of the Anglo-Celtic world, on both sides of the Atlantic, it is plainly the Celtic quarters in which the miseries and the evils of town life most abound; also disease, vice, folly and crime together. From the slum of ruined and expatriated peoples to the den of Tammany and its boss our city evils are profoundly the waste products of the ruined, debased and demoralised Celtic order, chieftains and clans decayed together. Yet, happily, the heroes who are now attacking all these evils, the temperance advocate or the missionary, the teacher and the reformer, the better journalist and the statesman, are again conspicuously also of Celtic name or blood. So, too, are the painter and the sculptor, the singer, the musician and the poet, the idealist and dreamer above all.

And let us avoid that dull satisfaction with small betterments, with mere comfort, with which the utilitarian and Saxon part in us is too readily content, and not merely to improve city conditions a little, as a sort of smoke-abatement society or window-box association may do (though all these are well), but set before us the transformation of our towns, their transfiguration rather, until we see, in literal and material everyday reality, beauty for ashes.

We call this the age of industry, and we realise its wonders as the most deep and thorough transformation of human powers and possibilities, both for good and evil, and for evil so far as not for good, since man first grasped the flint—a tool henceforward—and struck from it also the first sparks of fire. In this old Stone Age the archæologist has taught us to distinguish two distinct periods—the rude Stone Age and the fine, the palæolithic and the neolithic. The first was that of a rude and individualistic people, hunting, predatory, warlike; the second that of a gentler because also higher brained folk, with polished implements, better dwellings, and with a better use for land also, that of agriculture—indeed, horticulture rather—not mere hunt and sport and war. With agriculture, with better housing, there was a far higher status of women, there were no mean beginnings of art, and, it would seem, even of a religion beyond mere fears.

May we not now apply this anew to our own times in their turn, and see in our modern industrial or technical age periods also, rude and fine—the palæotechnic and the neotechnic let us frankly call them. In the first stage men get up coal to run machinery to produce cheap products, to maintain more people, to get up more coal, to run more machinery, to produce more cheap products still, with yet more people, too, cheap in every sense as well. And their fetish-men—the palæotechnic economists—called this "Progress." But we are also passing into a higher stage—the neotechnic one—characterised by the increasingly economic utilisation of the energies of nature, and this towards more human and more social ends, not only for the maintenance and the multiplication of the community at a low standard, but for its evolution also, for the extension of the individual life and powers. It is a social process characterised no longer mainly by steam but rather by electricity, no longer by vulgarity for the rich and squalor for the poor but by



art, by hygiene for all—hygiene, too, just beginning to be understood, not merely or mainly as a mere riddance of the lowest forms of life, which was against the higher, but as an association with the higher and more beautiful forms of life, whose care has so largely evolved all that is highest in us. Such hygiene, again, personifies health, but no longer merely as a plumber, an engineer, a doctor at best, but as a returning goddess—a realisable ideal as goodness and beauty incarnate in women once more.

This outlook, then, is no "merely sentimental" or "æsthetic" one, as the outworn jeering has it—jeering, for the most part, of those interested in obtaining the present individual chaos, but a definite and a demonstrable theory of the present progress of our civilisation, a transition and a conflict in which we may take an increasing part, and one soon consciously to regroup all men anew into two main parties, those of the dying palæotechnic past, the opening neotechnic future.

Is not this, then, a legitimate and an urgent appeal to Celtic idealism? With Amphion's harp and song the Hellenic cities arose of old. Why not now in our day the Cymric ones? Of this harp and song we Celts—you Welsh, of course, especially—claim the direct inheritance; we Gaels perhaps rather that of his constructive art, his architectural dream. You know how the Saxon folk-tale begins with "Once upon a time," but the Gaelic, "It was when Beauty, the daughter of the King of Greece, came to Erin," to "Alban." Yet, as we know, though she brought to us alike the harp, it was to you especially she taught her song.

So once more to this song let Cymric, Gaelic cities rise and throw off their present disguise of foul enchantments. Have done, then, with Welsh towns as they are and on to what they may be.

#### AN ILLICIT COMMISSION.

A CORRESPONDENT of the *Chicago Tribune* relates the following story of the late Mr. W. L. B. Jenney:—

One day Jenney was in his private office when a man who wanted to provide certain materials for a building then under construction came in and approached John Ewen, then a "cub" in Jenney's office, with a flagrant bribe offer. He offered Mr. Ewen 50 dols. if his material was used.

Mr. Ewen was seized with an inspiration. Instead of throwing the man out of the office, he said, "Mr. Jenney always handles that end of the business. Go in and see him." Then he awaited the explosion.

The man innocently approached Mr. Jenney and made the proposition.

"Sit down a moment," said Jenney quietly. A moment later he looked up and said, "Young man, are you new in the business?"

"Yes, sir. I'm just starting. I want to get in right. My stuff is good and I want a chance."

"Well," said Mr. Jenney, "there are two ways to do business. If you want to do the best kind of business with the best firms, don't do as you have done to-day. I have no doubt that is the way to do business with some firms. If you are after that class of business that is the proper way to get it. But if you want the best business don't approach any one as you have me. I'll give you the contract at your figures. If you can afford to give me 50 dols., you can afford to knock 50 dols. off the price to the owner. Let's reduce your figures 50 dols. and give the builder the benefit."

The man agreed. He learned his lesson well, and he did business with Mr. Jenney for years. When Mr. Jenney died this man testified that it was that one business lesson that made him realise that the only way to do business is to do it straight.

When Mr. Jenney dismissed the man that day after signing agreements he stepped out smiling to Ewen and remarked, "Thought you'd have some fun with me, eh?"

Another and severer lesson he administered to a big contractor down town. This man was prominent socially, financially and in religious circles, and through Jenney he got the contract for a skyscraper down town. One day, while the business was in course of construction, he entered Mr. Jenney's office and handed him a cheque.

"What's this for?" asked Mr. Jenney.

"It's the usual 10 per cent. of the first payment—your share," he added significantly.

Mr. Jenney took the cheque, chatted for a time with the man, and finally went out into the workroom.

"What is the amount of that contract?" he asked Mundie, his partner.

Mundie told him.

Jenney figured for a moment, muttered, "Yes, amount is correct," and then returned to his private office and endorsed the cheque over to the owner of the building.

Nothing more was heard of the matter until the end of the month, when the crooked contractor received from bank a cheque endorsed both by Mr. Jenney and the owner of the building.

There was nothing for him to do but to take his medicine. He appeared in Jenney's office, probably expecting to be flayed for his tactics, but nothing of that sort happened. Mr. Jenney remarked:—

"I am extremely glad to know that you can afford to make the lowest bid on a building and give the owner 10 per cent. back and still make money on it; but don't think it would be more businesslike just to subtract 10 per cent. from the total contract price and save all this red tape of sending the cheque to me and having me endorse it to the owner?"

The contractor humbly admitted that it was.

There was not a word of condemnation or reproof, only a few who learned of it from the owner ever knew of the occurrence.

Mr. Jenney did not cast out that contractor, but continued to do business with him. And when Mr. Jenney built his own home he gave a contract for part of the material to that man—and the man skinned him.

#### CHILLINGHAM CASTLE.

THE most popular outdoor meeting during this year was the Architectural and Archaeological Society of Chillingham and Northumberland was held last week, when upwards of 100 ladies and gentlemen took part in a visit to Chillingham and Old Bewick. The Society had the great advantage resulting from the presence amongst them during the day of Sir Henry Howorth, president of the British Archaeological Society.

At Chillingham the castle was inspected through the kindness of Mr. Saxton Noble. In a few explanatory remarks, says the *Durham Advertiser*, Mr. Knowles stated that a castle was built in the fourteenth century. In the thirteenth century a number of palatial mansions were built by feudal lords of the same character as that. The same character of building was met with at Ford, and in Yorkshire at Bolton and Middleham. The castle was said to have been built from designs by Inigo Jones. The historical pictures were pointed out to the visitors.

Sir Henry Howorth, on being invited to speak, said he had always been to him a wish that he should see Chillingham in a wonderful place. He doubted whether there was any other castle so widely known all over the country—by name as well as in all events—as Chillingham, partly because of its own beauty and also because it contained the last of the great herds of these ancient wild cattle, the history of which was so romantic. He should like to say a word about the singular facts connected with these castellated houses. The notion that when the Normans landed in this country that the built stone houses was now completely exploded. The castles built by them in Normandy were made of wood. After landing in this country the only stone castles built by them were three or four royal castles, specially built by William the Conqueror to protect special places. All the rest of the castles were staked forts made of wood. So it went on for some time. The reason why they became more or less impossible was because they were liable to be burnt. Early chroniclers always spoke of castles being burnt. After castles came to be built of stone, they formed large courtyards, and in the Middle Ages there were, he believed, a hundred and twenty houses stabled in that at Chillingham. In the county of Northumberland it seemed a matter of amazement that, situated so near Scotland, there should have grown up a great number of manor-houses with no defence at all. They were called mansions in the early records. In Stephen's reign and Henry I. and his son's time, the nobles were prevented from building any more castles. It was shown after the tremendous battle of Neville's Cross that Edward knew that the North country was subject to the attacks from Scotland, and that he could not protect them, he gave permission for the aristocracy to embattle their houses. In the next forty years almost every large house became an embattled house. Chillingham Castle was a grand one.



ttled mansion. It was connected with the extraordinary family, the Greys. The Greys and an Oxford family were probably more mixed up with the history of England from the end of the fourteenth century than any other great feudal family. The portraits in Chillingham Castle were of extraordinary interest. There was a magnificent portrait by Sir G. Kneller of Judge Jeffries in Lord Chancellor's robes. It was the portrait of a Lord Chancellor, but he was exceedingly doubtful that it was Lord Jeffries. It seemed impossible to associate with a face such as they saw the deeds of Judge Jeffries.

Subsequently Chillingham Church was visited. It is principally thirteenth-century work, and has a Norman doorway. The feature of the building is, however, an elaborate monument of Sir Ralph Grey and Elizabeth Fitz-Hugh, his wife. This is stated to be the finest altar tomb in Northumberland.

## TEACHING OF DRAWING.

A PAPER issued by the Scotch Education Department on the teaching of various school subjects deals with drawing. It points out that the careful study of more or less complete representation of actual objects, natural and fashioned, large and small, singly and in well-arranged groups, may be looked upon as the foundation of all primary school drawing instruction. The intelligent arrangement and carrying on of this work and of the various correlations and developments which naturally arise from it at all points are problems which have to be faced by the majority of primary school teachers. A well-conceived scheme of drawing instruction intelligently carried out in correlation with a course of true nature study, with which it is naturally allied, should gradually awaken the pupils' interest and delight in the world which surrounds them, instilling an appreciation and love of beauty in form, colour, material and arrangement, as well as a regard for utility. It should cultivate in them habits of accurate observation, and the power to represent faithfully and truly in different mediums the results of their observations, so that through practice they may gradually gain facility in graphic and plastic representation—the language of hand and eye. Along with these it should develop their inventive and imaginative faculties, and create a taste for graceful form, fine colour, sound decoration and harmonious arrangement in their own homes and surroundings.

From the very beginning the child should be encouraged to observe on his own account, and to record the results of his observations with as much accuracy as he is capable of. Nothing should ever be interposed between him and what he is representing. He should always feel that he is recording his own impressions of something real and not those of anyone else, however accomplished. The memorandum goes fully into the means of developing the artistic talents of the young, advocating modelling in clay, memory and imaginative drawing with coloured crayons, pencil and washwork, colour renderings, nature study, &c. Public parks and gardens are recommended as capable of supplying a large amount of material very suitable for school purposes, and visits to art galleries or museums are advocated.

## BOMBAY ARCHITECTS.

AT the first general meeting of the Bombay Architects' Association, held on July 29, it was resolved to appeal to the president of the corporation not to pass the building by-laws proposed by the municipal executive until the Association has been given an opportunity of examining and advising in reference to them. How the by-laws will affect the professional duties of the engineers was graphically set forth by the President in his opening speech. From the number of buildings that now and then collapse in Bombay, he might imagine that building operations were subject to very little control. The rules providing for the municipal control may be defective, and the way in which those rules are enforced is perhaps still more open to criticism. But the duties of the engineers are even now onerous. As Mr. W. A. Chambers remarked in his speech at the general meeting of the Architects' Association:—"There probably is no city where building operations are so watched as here. Before the smallest house can be erected plans must be prepared by an engineer, licensed by the local municipality; these plans have to be sanctioned or criticised by the municipal executive engineer, the health officer, the drainage engineer, the house improvement

branch (under the Epidemic Diseases Act), and sometimes by the municipal commissioner. During its construction, officials representing each of these authorities watch its erection, and finally the architect has to certify that all materials used are good, and that no municipal regulation or requisition has been broken. If the building should stand on ground belonging to the Bombay Improvement Trust, not only have the authorities just mentioned to be consulted, but, in addition, the chairman of the Trust, the engineer of the Trust, the trustees themselves, and occasionally the Government architect, have a control in its design and erection. The unfortunate architect has thus no easy task, and when, as is often the case, he has a client who does not see the advantage of all these authorities, his position is not exactly a pleasant one."

## INTERNATIONAL DRAWING CONGRESS.

FURTHER progress was made at a recent committee meeting with the arrangements for the international drawing congress, to be held in London next year. The congress is to be held from August 3 to August 8, 1908. The congress exhibition will probably be opened about a week earlier. It will certainly remain open after August 8. Official invitations are to be sent to all foreign Governments through the Foreign Office. All exhibits intended for the exhibition must be sent in by June 1, 1908. All papers for the congress must be sent in by May 1, 1908; they may be written in English, French or German. The congress will sit as a whole, except on one day, which will be devoted to sectional meetings. Arrangements will be made whereby such subjects as may be desired by a sufficient number of members of the congress shall be discussed on the sectional day. So far as possible, the exhibits of the various nations will be in charge of representatives who can explain their scope and purport in the three official languages of the congress—English, French and German. Local treasurers and secretaries are to be appointed in all foreign countries, the former to collect and transmit membership subscriptions, and the latter to disseminate information and answer inquiries. Such officers have already been appointed for France, Germany and the United States. The United States are making arrangements for sending 200 art teachers over to attend the congress. With regard to Great Britain, local exhibitions will be organised throughout the country, from which exhibits for the congress exhibition can be chosen. Any further information can be obtained from the organising secretary of the congress, Mr. C. M. Mathews, 151 Cannon Street, E.C.

## VICTORIA AND ALBERT MUSEUM.

THE Board of Education have decided that from January 1, 1908, the South Kensington Museum shall be open free till 10 P.M. on Thursdays, instead of on Tuesdays as at present.

From that date the regulations for admission to the museum will be as follows:—

On Mondays, Thursdays and Saturdays the museum is open free from 10 A.M. till 10 P.M., except that on these days admission to the libraries is by ticket only (for rates see below).

On Tuesdays, Wednesdays and Fridays the museum is open from 10 A.M. till 4 P.M. in January, November and December, till 5 P.M. in February and October, and until 6 P.M. from March to September inclusive. On these days, being students' days, a charge of 6d. for admission to the main building is made for each person other than ticket-holders, but the museum buildings, except the science library, to the west of Exhibition Road are open free every day.

On Sundays the museum (except the libraries) is open free from 2 P.M. till 4 P.M. in January, November and December, till 5 P.M. in February and October, till 6 P.M. in March, April and September, and until 7 P.M. in May to August inclusive.

The libraries are not open on Sundays, but are open on week-days during the same hours as the rest of the museum.

On Good Friday and Christmas Day the museum is not open.

Tickets of admission to the museum (including the libraries) can be obtained at the main entrance of the museum at the following rates:—Weekly, 6d.; monthly, 1s. 6d.; quarterly, 3s.; yearly, 10s. All visitors who have paid on entrance and all ticket-holders are entitled to admission to the libraries.





### The "Noise Fiend" of the Metropolis.

SIR,—One cannot but wonder whether it is the dense ignorance, the utter indifference, or the crass and absolute inefficiency of the authorities responsible for the government of London that allows the noise fiend to sway his sceptre over it so unmercifully as at present and that causes the "Metropolis of the World" to lag so far behind other cities in the matter of reasonable law and order. Professor Flinders Petrie, F.R.S., has observed that "the first use of a city is to live and transact business in," that "the beauty of a city lies in its order and liveableness," and that "the sacrifice of this peaceable liberty of the many to the tyranny of the noisy is what all serious workers should join in resisting."

A statement recently appeared in the Press to the effect that the depreciation in the value of house property in London during the past two years amounted to no less than 6,000,000*l.* How long is this depreciation to be allowed to continue? There are, however, various other aspects of the question besides the financial one. For instance, not only are the peace and "liveableness" of the Metropolis departing from it by rapid strides, but the health of London is being seriously impaired and the enjoyment of life marred by the altogether unreasonable din and clatter allowed to prevail in most of our leading thoroughfares. Are we—with our hands to our ears—tamely to submit to this pandemonium as an inevitable result of the "march of progress," and one which must be endured for the remainder of our lives? Are we to rest content with being informed (I hear it almost hourly) that "nothing can be expected from the present Government"?

It seems to me that the Home Office, Board of Trade, L.C.C., and other officials should be somewhat forcibly informed that the time has arrived when they must either do something themselves to remedy the present deplorable state of things, or make way for others who will not treat with indifference the wishes of millions of people. Suggestions are plentiful—a Royal Commission, a Minister for London, a traffic board, an up-to-date Act of Parliament, common sense by-laws, noise "inspectors," a more efficient police system. Surely some of these would lead to the utter discomfiture, if not the prompt annihilation, of the noise fiend, so that London's work and art and thought might be carried on under more satisfactory conditions than at present prevail, including a reasonable freedom from harmful nerve shocks, and from the pitiless din, clamour, babel and uproar that now disgrace the streets of London and are rapidly driving its residents elsewhere.—Yours obediently,

THOMAS BOWDEN GREEN.

2 Harrington Gardens, South Kensington, S.W.

### GENERAL.

**MM. Jean Girette and Eugène Bertrand** have been placed first in the competition for the Government buildings to be erected in Sofia, the capital of Bulgaria.

**The International Society of Sculptors, Painters and Gravers** are opening a series of important exhibitions of the British section of its members in Berlin in October, from which city the exhibition goes on to Düsseldorf, proceeding thence to the Royal Academy of Dresden. Among those who will exhibit are Messrs. John Lavery, E. A. Walton, Joseph Pennell, H. Wilson, C. H. Shannon, Francis Howard, William Strong, Charles Ricketts, Walter Crane, J. J. Shannon, Sir Charles Holroyd, Grosvenor Thomas, R. Anning Bell, A. Roche and A. D. Peppercorn. It is hoped that the German Emperor will open the exhibition in Berlin.

**The Tower of St. Gennys Church**, situated between Bude and Boscastle on the North Cornish coast, being in a dilapidated condition, a fete was organised in the vicarage garden last week to raise funds for its restoration. The tower is Norman, and is supposed to be the oldest in Cornwall. Mr. E. Sedding, F.R.I.B.A., estimates the cost of restoration to be about 350*l.*, of which about 100*l.* has been raised. The vicar and parishioners appeal to all lovers of Norman architecture to help them in carrying out a really good restoration.

**Mr. A. Wylie**, electrical engineer to the Walsall Corporation, has tendered his resignation on obtaining a similar appointment at Auckland, in New Zealand. Mr. Wylie whose salary in Walsall was 500*l.* per annum, has been in charge of the Walsall electricity undertaking since its inception about twelve years ago.

**The Scheme** for the restoration of Bowden Kirk, one of the oldest and most interesting historically in Scotland, will cost about 2,000*l.* The church was built in 1128, and is older than Melrose or Dryburgh abbeys, and it has been continuously used for religious service ever since. The work of restoration has been put into the hands of Mr. M'Gregor Chalmers, Glasgow. The old lines of the original building are to be followed closely. The south wall, which was rebuilt in 1798, is to be restored as nearly as possible to its original state, the windows being rounded at the top. The high east end, a distinct feature of the church and almost unique in Scotland, is to be retained. Internally the church is to be entirely remodelled and renewed. The Duke of Roxburghe has consented to the inclusion of the space above his family burial vault within the area of the restored church. A chancel is also to be formed and a large chancel arch erected. The ceiling will be vaulted and the furnishings will be of oak.

**During the Excavations** in the bed of the river in connection with the Newport (Isle of Wight) Quay extension works, a bronze coin was discovered some distance from the shore of the reign of the Emperor Constantius I., who flourished at the beginning of the fourth century, and who fought for the possession of Britain, and who died at Eboracum (York). The coin is in an excellent state of preservation, notwithstanding that it is some 1,500 years old. Many remains of trees of considerable size have been unearthed, and there are also remains of rough planks which had been driven in many years ago. One of the submerged trees measured 2½ feet thick.

**Major J. Stewart, R.E.**, sat at the town hall, Newport last week, to inquire into the proposals of the Newport Corporation to borrow a further sum of 4,500*l.* for purposes of their lunatic asylum at Caerleon. Mr. A. A. Newman, town clerk, explained that the total amount expended on the asylum was 159,500*l.* There had been no extravagance and they had a cheap institution. They had under-estimated some amounts and required another 4,500*l.* The question was would the amount be chargeable to capital? The formation of roads and drains had not been taken sufficient into account by the committee. The airing courts had cost 2,692*l.* more than was estimated in the first instance. Fees for architect, surveyor, clerk of works, &c., had cost 1,630*l.* more than estimated. They allocated 110,000*l.* to the buildings, but they cost 112,073*l.*—an increase of 2,073*l.* There was a saving on furniture and equipment of 2,575*l.*, and other items.

**Mr. Lloyd-George**, in answer to Sir J. Dickson-Poynder, M.P. for Chippenham, said the new Traffic Department of the Board of Trade would have no power to compel promoters of new schemes for London locomotion to submit them for preliminary examination before the deposit of Bills, unless this should be required hereafter by an alteration of Standing Orders. In the meantime he did not anticipate that the absence of compulsory powers, either in this matter or the taking of evidence, would seriously interfere with the work of preliminary examination.

**We Lately Commented** on the strange proceedings of the Acton Council respecting the design for offices. A new competition has been announced. Intending competitors should be aware that, upon representations made to them by the Board of Professional Defence, the competition committee of the Royal Institute of British Architects have decided that this competition is one in which members of the Institute must not take part.

**The Scheme** of evening class work in the department of architecture at University College, London, has been rearranged and revised in order to meet the needs of those who have already made some progress in their work in architects' offices. Next year the scheme of work will include a course of lectures on "English Mediæval Architecture," by Mr. Edward S. Prior, M.A., F.R.I.B.A., and a junior and senior design class, which will be carried out under the supervision of Professor Simpson and Mr. Cyril E. Power, with the assistance of Mr. Leonard Stokes, F.R.I.B.A., and Mr. Ernest Newton, F.R.I.B.A., as special visitors.





New Entrance Gates & Kitchen-Wing  
Walter Millard Archt.

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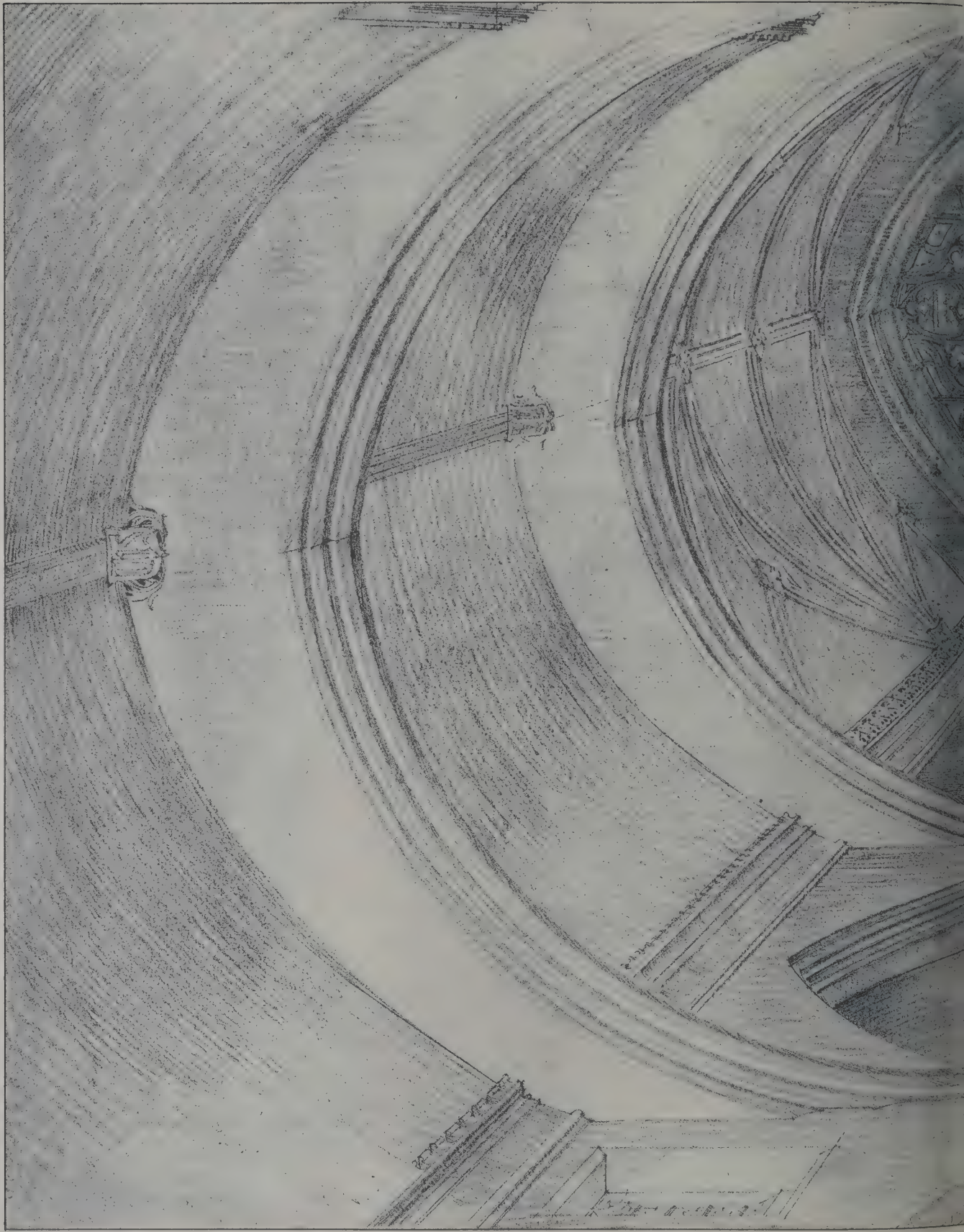
















DESIGN FOR A PROVINCIAL CHURCH: VIEW OF CHANCEL.

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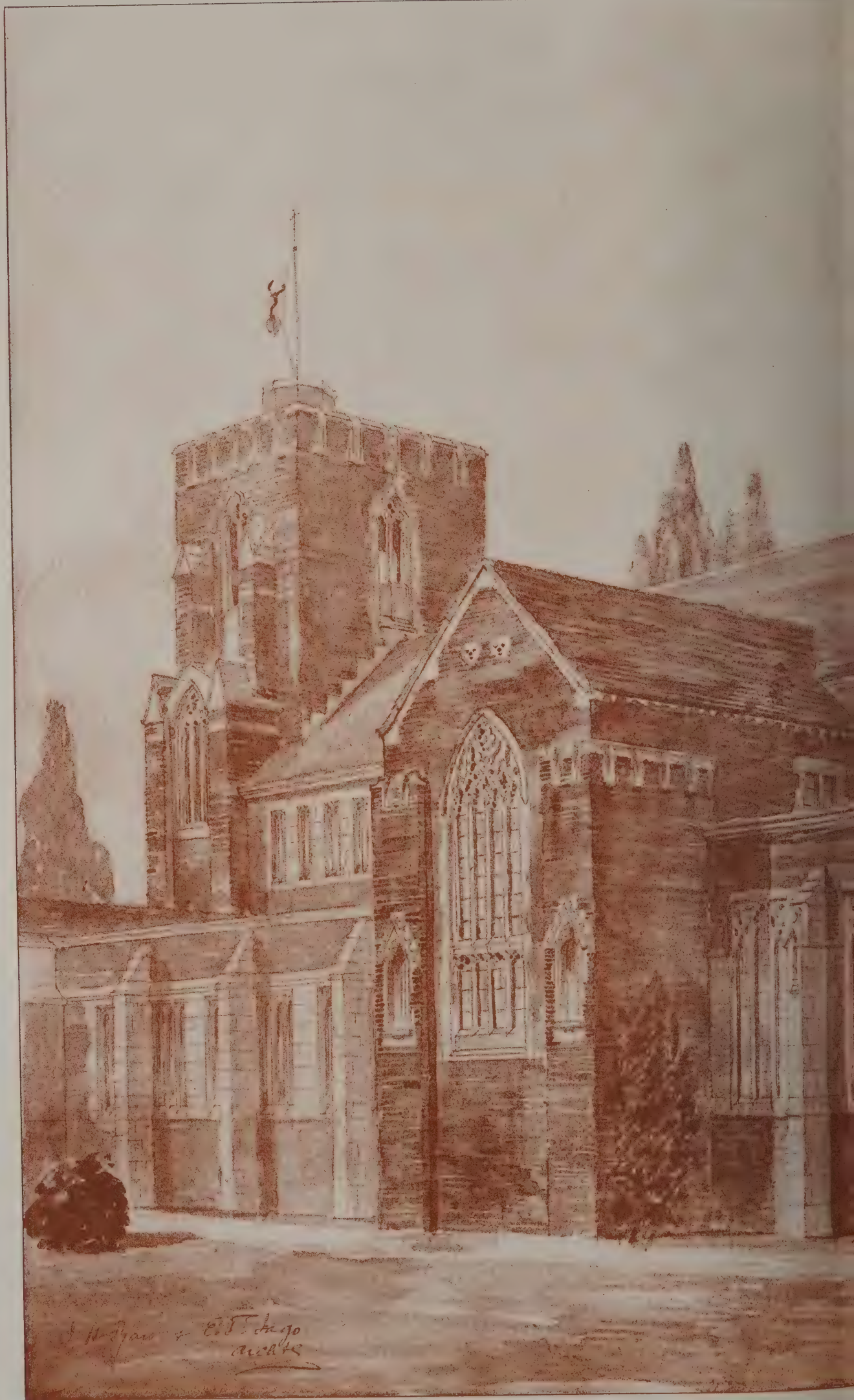


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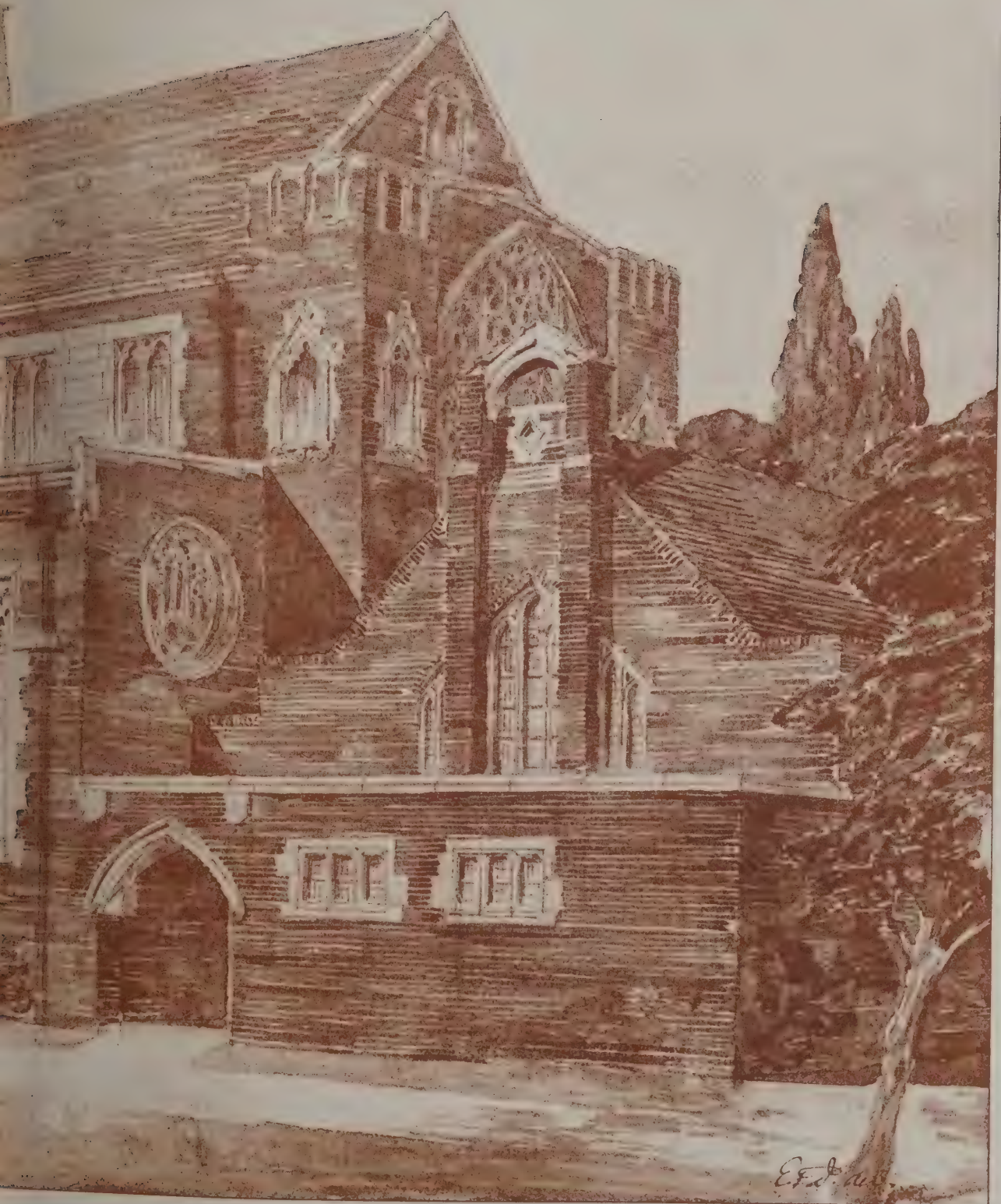












*E. F. D. M.*

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EXTERIOR VIEW.







# The Architect.

## THE WEEK.

Architects have sometimes to show their interest in a company by investing money in shares. That is generally of a professional kind, for the investment is supposed to facilitate the appointment to office or to give a claim for consultation, references or work. As in other matters, it is well that the object of the investment should be distinctly understood. Last week before the Court of Session in Edinburgh the liquidator of the National House Property Investment Company, of Bristol, sought to recover from Messrs. M'ARTHY & WATSON 87*l.* 10*s.*—the balance on 100 shares on which a deposit of 2*s.* 6*d.* had been paid. The company had been wound up irregularly. The defendants denied they were members of the company, for their applications were based on a distinct understanding of becoming surrogates to the company over an average radius of 100 miles from Edinburgh; secondly, that they were appointed advisory surveyors to the Advisory Board for Scotland at fees to be adjusted; and that they were at liberty to pay the balance of the shares owing the fees to be earned by them to accumulate for a particular purpose. They maintained that the conditions were not fulfilled and that the contract was not enforceable. Fortunately for Messrs. M'ARTHY & WATSON the conditions were expressed in writing, and Lord MacNair, who heard the case, decided in their favour. His Lordship considered that a condition precedent had been established; they acted rightly in declining to pay the money due on allotment. The company was engaged in a business that the architects would have any reasonable interest in it.

In a week two more acts of vandalism have been perpetrated in the Louvre. A landscape by Delacroix and a portrait by Ingres have been injured. It is believed that the culprits were youths, two boys and a girl. For weak minds there is a fascination in acts of violence which are not commonplace, and greater care will have to be taken in watching the galleries. But at the same time the expenditure on the army does not allow of employing guardians, although they may not be at a higher rate than policemen. Besides, pictures of the 19th century are not adapted to gain effect for large galleries; they have to be shown in ante-chambers, where visitors are few and do not remain long in study. At least, and until the insanity is diminished, it is a course to adopt would be to seek the aid of a few guardians, of whom it may be assumed a large number would be forthcoming in Paris.

Alexander Thomson Studentship is again open to the competition of architectural students of the ages of nineteen and twenty-eight. In a way it differs from most of those competitions in that it is for memorials of architects. THOMSON merits to be mentioned on the same plane as POELAERT, the Belgian, who made the bravest effort to adapt Greek architecture to modern needs. THOMSON was not allowed to build the colossal Palais de Justice, and his principal work was a church in Glasgow, but it is sufficient to his credit that it inspired him and his love for architecture. It should be considered as a privilege to have the memory of such an architect, and in the competition should be entered upon. The subject assigned is a city church, including vestries, a church-hall, a school, kitchen and caretaker's house, and also a house of ten apartments. The site is supposed to be 350 feet by 250 feet, with roads on

three sides 80 feet wide and an open space of 200 feet in front. The buildings are to be Classic in style. Besides the prescribed drawings each competitor is also to submit three studies of the Classic Orders, at least one having the shadows carefully projected, or a study of a Classic building showing the Orders. A drawing from the round, shaded from the antique, either figure or ornament, and two sheets of architectural sketches, preferably not executed specially for this competition. The drawings are to be sent in to Mr. C. J. MACLEAN, the secretary, in Glasgow, on December 28, 1908. The trustees who will decide are the Council of the Glasgow Institute of Architects and Mr. JOHN SHIELDS, measurer. The prizes, we hope, will be well contested, for the competition is of a kind to test a student's skill in design.

ONE paragraph which appeared in the draft report of the committee on the Houses of Parliament is omitted from the report as approved. It related to the Central Hall, and ran as follows:—"The darkness of this hall is largely due to the character of the indifferent stained glass with which the four large windows are filled. It is, however, no part of the committee's duty to recommend changes in decoration already completed in accordance with the intentions of the Fine Arts Commission. But they would like to call attention to the fact that sixty years ago the revived art of glass staining was in its infancy, and the productions of that date are inferior in every respect to those more lately executed. The best windows in the Palace are, in the opinion of the committee, those in the Royal Gallery, which, while of good design, do not obstruct the free admission of light, which is, after all, the primary object of a window." Many people will suppose the darkness was owing to the architect's incompetence. It should be remembered that stained glass was not controlled by him, but by the Fine Arts Commission. BARRY, in his report, recommended that in the stained glass a ground of a warm, yellowish tint should predominate, "in order that so much light only may be excluded as may be thought desirable to do away with either a garish or cold effect upon the painting and decoration generally." If his advice had been acted on the Central Hall would now present a different appearance.

THE curriculum of the day school and evening school of the Architectural Association has been issued. The organisation may now be considered complete, and the array of masters, lecturers and instructors suggests the capacity to deal with a large number of students. Several members of the Board of Architectural Education are also engaged in other institutions, but give the benefit of their experience to the Association. With the exception of law, which is to a great extent comprised in the classes on architectural practice, every subject which an architect is likely to require in the course of his business is comprised in the courses. The annual general meeting will be held on October 4, when Mr. WALTER CAVE will deliver an address and distribute the prizes. At the ordinary meetings papers will be read on:—"Sentiment in Architecture," by Mr. HALSEY RICARDO; "Travelling Studies," by Professor W. R. LETHBRIDGE; "The Relations between the Architect and the Builder," by Mr. JAMES S. GIBSON; "Laying out London," by Mr. PAUL WATERHOUSE; "Wren's City Churches," by Mr. ARTHUR KEEN; "The Kingston Earthquake and Building in Jamaica," by Sir CHAS. A. NICHOLSON, Bart.; "Stained Glass," by Mr. J. DUDLEY FORSYTH; "Garages and Motor Houses," by Mr. C. HARRISON TOWNSEND; "Oxford," by Mr. EDWARD WARREN; "Water-Colour Drawing for Architects," by Mr. P. L. FORBES; "Some Notes on Domestic Work of the Renaissance in England," by Mr. HENRY TANNER, junr.; "Originality and Tradition in Design," by Mr. LEWIS F. DAY. At the final meeting will be a "Comparison of the London County Hall Designs."



## THE REPORT ON ST. PAUL'S.

IF we may judge from the articles in the newspapers, the report by the committee of architects on the condition of St. Paul's Cathedral has been received by the public with satisfaction mingled with surprise. The cathedral is not only a great example of architecture of which any nation could be proud. It also presents many of the characteristics which are seen in national undertakings, whether of peace or war. In the same way as the English people have muddled through disasters to victory, the design of St. Paul's also exhibits what can be done by a series of errors. It was no brilliant inspiration. WREN had to make several attempts before he could arrive at the present structure, which, with all its alleged defects, is an improvement, especially as regards general effect, on all its predecessors. It is also not unlikely that WREN made other designs of which the drawings have not come down to us. It would therefore be strange if the English people were indifferent to any danger which might arise to so national a building.

Unfortunately the nervousness so generally prevailing in modern England found its way among the authorities of the cathedral. Towards the end of last year it was announced that danger was imminent, and it was no doubt in the expectation of confirming that statement the committee of architects was appointed. Naturally the belief in the danger caused some consternation, for it was taken to mean there was a sudden revelation of a peril which could not be remedied too promptly. As a first step an appeal was made to the London County Council to divert the course of the proposed sewer under St. Paul's Churchyard. In the early part of the year it was officially stated that the Dean and Chapter were satisfied with the contemplated arrangements of the Council's engineers, and that no further objection would be raised. The late Sir BENJAMIN BAKER, who knew as much about the subsoil of London as any man of his generation, reported that there would be no danger to the cathedral in constructing the sewer. The architects who were called in said it was with great diffidence they came to a different conclusion, for owing to the "present sensitive condition" of the structure a sewer might very possibly become a very serious risk to the cathedral. The County Council thereupon resolved that the sewer should be constructed at a greater distance from the cathedral.

After such manœuvres it is no wonder there was surprise when it was announced that after mature deliberation and a thorough examination of the cathedral and its foundations *there is no immediate necessity, according to the committee, for any extensive remedial measures to be undertaken.* In other words, the "imminent danger" was a mere neurasthenic creation. It is true that the conclusion of the committee is based on the assumption that the present conditions of the subsoil and the existing water level will be maintained. But without some such clause the committee would be stultified in their manner of action respecting the proposed sewer. Having once committed themselves to an assertion of the danger of the sewer they cannot now draw back, although by doing so they would save the ratepayers of London from the additional expense arising from the adoption of another line of direction.

WREN has been often described as an engineer rather than an architect. "If the position of Sir CHRISTOPHER WREN as an architect were to be estimated solely from what he has done at St. Paul's," says FERGUSON, "the result would probably be that his character would stand higher as a constructive than as an artistic architect." In proof of this the areas of the points of support which he adopted for the cathedral have been compared with those employed at St. Peter's, and WREN is supposed to have been much more economical. A modern engineer would approve of his arrangements. But the latter would have taken care to construct a stable platform by which any settlement would be generally distributed. The architects' committee in their first report state

"that the three portions of the building that have time to time shown the most significant points of weakness are the south-west tower and the south-west and south-east piers of the support to the dome. The circumstance is not creditable to WREN's foresight, skill, and various dodges had to be employed by him to keep up an appearance of horizontality. Whether the settlement continued to be regular or irregular cannot be determined. The committee say:—

"We have no information as to whether the settlements in the fabric continued uninterruptedly, but we have gathered from various documents, and the reports made by former cathedral surveyors, that the settlements of the fabric which occurred during the building of the church, and particularly in the supporting the dome, have continued in some degree to the present day. After the weight of the main dome had compressed the subsoil to its limit, we think it can be assumed that there was a period of quiescence during and subsequent to the erection of the dome, when movements began to show themselves as a result of additional weight."

It must be allowed that for a building which is 300 years old the cathedral can be considered as successful. The dome of St. Peter's at Rome is not so happy. It was constructed of better material. But it was necessary to hoop it with iron, although the piers supporting it, which are 60 feet square, might be thought to resist expansion or thrusts of all kinds. WREN was no geologist, and he erred through an excessive confidence. He concluded that material which was used to support the great Gothic building during centuries would suffice for another more scientific arrangement.

The condition of the site is a question of great interest for all owners and designers of buildings on a similar foundation. It cannot be said that the conclusions of the committee will satisfy students of logic, or of the less architects, engineers and contractors. The conclusions of the report rely on the fact that in 1831 and 1890, at the instance of the cathedral guardians and the City, the workings were diverted. This merely shows that the imagination was also at work and that the architects were willing to avoid the remotest possibility of a settlement of the building. If there was any settlement of the foundations the stone must have exhibited some crushing. WREN, as we have said, was very anxious to avoid over-massiveness and ran some risk in the supporting the dome. But there is nothing to show that the alarm of 1831, 1890 and 1906 was based on a justification of an excess of pressure on the stone. The general impression to be produced by the report is to palliate the recent display of panic among the authorities, but there are facts enough which show how unsubstantial are the circumstances upon which the committee have to own:—"The principal cause of the appearance to be of long standing, and we have no doubt of their origin, but at present they do not give rise to any special anxiety. We have seen no evidence of 'crushing' as a result of the various settlements."

After such an admission the samples derived from the borings in the crypt deposited in the Museum can only be considered as offering a weak testimony in favour of the stone employed, and of his skilful proportioning of the mass. At the present time the church is safe. Whether it will continue so is a question on which doubts are raised. WREN's masterpiece has become like one of the wonderful sufferers who is to testify to the efficacy of patent medicines and other aids to victory over illness. To many of the public it is as much an advertisement as any of the hoardings from which RICHARDSON EVANS would save town and country. In a business sense the pumping experiments of our time. But it is strange that while the engineers and architects are afraid of the removal of the dome, the proposal accepted by the cathedral authorities for the raising of the tower was intended to be a demonstration of



keeping water far away from the site. Many other es have been devised. The architects' committee—"We have carefully considered the various safe- and remedies brought forward at our meetings ublished by the Press and others interested in the ig, but we do not advise works of underpinning screening the foundations of the church. We er that such operations would only be attended sh dangers." In other words, the old saying, e well alone," should be accepted for guidance Dean and Chapter.

e committee, however, recommend that any struc- work required in repairing the fabric should be aken without delay. They further add:—"The ion of the external stonework also calls for atten- nd we have had the advantage of the opinion of sor CHURCH, who advises the removal of the tations of soot and gypsum by a wood tool, and perimental spraying of portions of the surface with ." We entertain the greatest respect for every- onnected with the cathedral, for St. Paul's is so to the local habitation of *The Architect*, it has claims upon us. But when we think of the nent danger" of November last, and find that it e overcome by the scraping with a stick and ng with baryta water, the venerable saying, rriunt montes, nascetur ridiculus mus," still appears e some point. The report is mainly an effort ise the weakness of vision by which St. Paul's ed to be doomed to suffer a catastrophe owing to sy-going methods of a long line of custodians. blic can, however, discern in the elaborate pages y facts which are explanatory of the true state of hedral, and which are enough to allay all fears urbanity. But the public are also likely to conclude ame time that the cry of "Wolf, wolf!" is no effectual as a call for financial assistance.

### IRISH COUNTY SURVEYORS.

IPETITIVE examinations have during several ears been made compulsory before obtaining a any appointments. And yet men are not ous about whether the testing has produced the fficient officials. There are certain qualities may be more desirable than any ability to questions, and which are not to be ascertained a few hours occupation with technical papers. other hand, the system of education which necessary in order to be successful at an tion may foster men who are not qualified ctual duties which will be imposed upon them. istence may also have an effect on other men nnot be considered satisfactory. An instance ted to us by the papers set before candidates fice of county surveyor in Ireland at the tion which was held in July.

years ago—for it is well to go back to a remote e Irish county surveyor held an almost unique e In essential conditions it differed from that an English county surveyor. In Ireland there manufactures, and the wealth of the country efly produced from the land. As a result was general. The main business of the Irish was to have charge of the roads. But the y of the county, who were his masters, objected diture, and with good reason, for money was d the surveyor had therefore to make a show y on the most economical terms. It was no f archæologists believed that ogham stones, ravestones and masonry from ruined churches l for road material, if not by the surveyor's with an indifference on his part which answered The few traders who objected to delays caused ect roads it was the surveyor's duty to satisfy, ct, diplomacy was more essential for such an an any ability to apply the calculus to engineer- ulties.

If a railway company undertook a new line in his district he could then become very rigorous about the dimensions of bridges. However, contractors used occasionally to modify his strictness by engaging him as their consulting engineer or arbitrator. If a stone or timber bridge had to be constructed over a culvert or a stream the designing was part of the surveyor's duties. If he were ambitious he would have little difficulty in obtaining a commission for a court-house or a prison, but those structures were rarely erected. Workhouses were carried out by a Government department. It was seldom a surveyor designed a church. But on special occasions he was willing to give his services in designing a country house. In the majority of counties his duties were limited. But if there was a large town within a county, then his field of operations was enlarged. For a man who was unmoved by ambition the surveyor's life was enjoyable, and in a land where everybody seeks enjoyment on as many occasions as arise no grand juror would object should he encounter the official at a meet or a shooting-party.

It must be owned, however, that the duties of the office were fulfilled satisfactorily. If the roadmen appeared unable to work it was recognised that energy was not to be procured for the pittance they received. In fact, all the shortcomings of Irish roads to which strangers objected were preferred to the increased taxation which would be necessary if a higher standard were adopted.

It was not difficult to find an abundance of men possessing the desirable qualifications for such an appointment. There was consequently a great variety between the surveyors, although, owing to the circumstances of the country, there could be little difference in the manner of carrying out operations. The office was coveted and the number of applicants increased. It was then decided to hold examinations. That scared away many candidates. But as the questions proposed were closely connected with practice it was soon found they were not too difficult. Finally the examinations were entrusted to the Civil Service Commission, and under their régime young fellows who studied in English, Scottish and German colleges possessed more chances of success than Irishmen, who might not only be acquainted with every yard of the main roads of a county but with the failings of road contractors, the devices of labourers and the defects of all the materials offered for sale.

The papers placed before the candidates in July were undoubtedly suited to test a theoretical knowledge of engineering, and in some instances more or less practical knowledge was required. But what is remarkable is the remoteness of their connection with the peculiar conditions of Ireland. County councils have superseded grand juries as controllers, and plebeians take the place of would-be aristocrats. Yet the finances are in a worse condition than they were fifty years ago, and if the newspaper reports are true, the county surveyor at the present time is less favoured than his predecessors. He may be strong in acoustics, but how will the science serve if the Council should decide he is to give all his instructions in the Irish language? The questions proposed are not adapted to the rough-and-tumble life which is before such a surveyor, and might have been originally prepared for an examination in engineering in Cambridge. For instance, in the first mathematical paper the candidate was required to—

Draw a diagram on a reduced scale showing the variations in position and size of the image of a small object formed by a thin lens of focal length 4 inches; and (a) convex; (b) concave. [Show three or four positions of the object and image on each side of the lens; and mark whether the image is real or virtual.]

Is a county surveyor ever likely to have an occasion to use the knowledge necessary to answer the question correctly? It may be supposed that such a



question is only in the mathematical class, and that more recognition of practice is exhibited when the candidate is asked:—"State what characters you would expect an ideal building stone to possess, and discuss in a general way the relative merits of granite, limestone and sandstone for building purposes." As the surveyor will have to use stone for paving rather than ordinary building stone a corresponding question would be desirable. But it may have been thought the subject of paving stones would have been specially got up. Perhaps it was the same reason inspired the question:—"What are the geological ages of the following formations—London clay, Portland stone, Tremadoc beds, millstone grit, Lenham beds, Keuper sandstone, Wenlock shale, Cambridge greensand?"—which are unknown in Ireland. As we said, roadmaking will require most attention from the Irish county surveyor. Only four questions were asked concerning so important a subject, and it may be said that among the four there was not one which relates to the principles of road construction:—

Describe a machine for rolling roads—state the advantages or otherwise of the single cylinder—give particulars of the weight and its distribution per inch in width on front and back rollers. What quantity of granite macadam is a 10-ton machine capable of consolidating per working day of ten hours? At what cost per square yard can granite macadam be consolidated on a first-class county road? What local circumstances affect the cost?

Describe a method or methods of keeping the surface of a macadamised road free from dust and preventing the surface becoming disintegrated by motor and other traffic. Give particulars of the cost.

Describe the machines employed for scarifying. Give particulars of their use and the cost of working, compare machinework with that performed by manual labour.

The cost of maintaining a road paved with grit setts having largely increased since the introduction of light motors which split the stones, what remedy would you suggest? Give your reasons and full particulars of any work recommended and its cost.

The most curious series of questions were those relating to architecture, which is supposed to be part and parcel of the county surveyor's duties. They are as follows:—

Name the Classic orders of architecture and sketch the base, column, capital and entablature of a typical Roman example. The sketch is to be about 15 inches high from the bottom of the base to the top of the entablature. State briefly the differences in the capitals of any well-known Greek and Roman examples of the Ionic order. Or,

Sketch (a) a Norman cushion capital, (b) a thirteenth-century crocket, (c) a twelfth-century piscina, (d) a twelfth-century buttress, (e) a capital of the Perpendicular period.

Draw the plan, elevation and section to the scale of 1 foot to the inch of a bay window with doors leading from a drawing-room to garden. The bay is to be about 9 feet wide by 3 feet deep, is to have side lights, and to be executed in stone with hardwood joinery.

Draw to the scale of 8 feet to the inch the plan, elevation and section of a cottage for a farm labourer. The accommodation is to consist of a living-room and small scullery, two bedrooms, earth closet, &c., all planned on the ground floor. The materials to be employed are bricks for the walling and slate roofs.

Write a brief specification of the work to be executed by the following trades in the erection of the cottage:—Bricklayer, slater, and carpenter and joiner.

Describe and sketch the following details in building works:—(a) Dragon tie, (b) sprocket piece, (c) tilting fillet, (d) stepped flashings, (e) closer in brickwork, (f) joggle in stonework, and (g) solder dot.

Draw to the scale of half an inch to the foot one-half of a Mansard roof for a 30-feet span, with timber dormer. The rain water is to discharge into an eaves gutter.

It will be evident from the questions we have given—and we could have printed several others no less remarkable—that the framers of them could have had no clear and definite idea of the duties of a county surveyor in Ireland. But as the questions must exercise an influence on the preparatory studies, aspirants for

the appointment can hardly fail to think they possess scientific knowledge of all kinds, and are capable of undertaking works in "railway and canal engineering, marine engineering, including harbour, dock, sea reclamation works; hydraulic engineering, including water supply, sewage and irrigation; county works including architecture, roads, drainage and river works. In everyday life and its struggle for existence it is allowable for men to profess that, like BACON, they have taken all knowledge for their province, and are not to any specialists in engineering and architecture. When an official stamp is put upon such pretensions the case is different. If a county surveyor confine his attention to road-making he could render valuable services to the State—much more, in fact, than he is to do if he seeks to monopolise all kinds of construction. There is already too much of that spirit in Ireland, and it is not wise to extend it. Ordinary county surveyors should be allowed fair play; for while they dare not interfere with the county surveyor's duties they can readily deprive them of the means of doing so, although by so doing he increases the expense which the public must meet. When the next examination for county surveyors is held we hope there will be more recognition of actualities than was displayed in July, and that foreign subjects, however interesting, will be introduced with caution.

## ARCHITECTURE IN AUSTRALIA.\*

GENTLEMEN,—On the completion of my second year of office as President of this Institute, I have to thank you for the honour you conferred on me, and I trust my efforts to worthily fill the chair have met with your approval.

I feel satisfied that, although the immediate results are hardly as distinct as I should like, the Council and I at all times kept in mind the interests of the profession, and I trust that as the colony of Victoria progresses the architectural profession will be raised in status, and the education of a practising member will be of necessity defined, and a high standard of ethics obtain in dealing with the various measures which come under his jurisdiction.

I have always considered that our profession requires special qualifications and training, which the mere artistic feeling only does not cover, and this more particularly applies here, where an architect can specialise in one branch. The modern architect must be strictly of business habits, and have the strongly constructive experience which is often lacking in the artistic, while his position should be one of absolute honesty of purpose by his employer, who must be able to judge from the appearance and detail of his work, be it in the conservation of his interests. The successful architect should also, I consider, have the confidence of the men who tender to carry out work from his plans, although in the earlier stages of his career one of the owners may gain advantages by sharp practice on the part of an architect, in getting more out of the details than the original contract evidenced, the rest of the client must suffer, as builders are extremely human.

This leads up to the question of registration of architects which is at present being debated by two schools in England—for and against possibly on the art or professional basis—but this registration already exists in operation here, which bears far less on the health of the community than the proper arrangement of their buildings. Of no amount of examinations or passing of regulations can make an architect, but it should prevent the speculator and land agent from taking in the unwary home purchaser, who is, if satisfied with the appearance and a statement of the house generally, disillusioned in a year with the construction. We know that, if properly planned, villas bear a relative cost with each other, but when we find the house with the land thrown in for the cost of the house alone, one sees that something is wrong. In any case, with most of the work done now the general character and finish of this class of residence warrant the expense of the small addition in architect's fees.

\* Retiring address delivered by C. A. D'Ebro, A.M., president of the Royal Victorian Institute of Architects, February 26, 1907.



This registration will, I trust, be warmly taken up by the members, and the Council have in their report referred to it. It will not affect the present architects so much, but will certainly improve the status of those who follow.

As regards the knowledge required by an architect in modern times there has been a great change, for although he cannot expect to be thoroughly expert in the whole of the subsidiary items of construction, he should have sufficient experience to be able to arrange for the best advice on the many points which will occur in extensive schemes—electric light, heating, girders, concrete reinforced in various ways, &c. This latter must of necessity make great headway and its possibilities are unlimited. Of course, this material will not lend itself to every case, to the disadvantage of the older materials, but for special work, where the materials forming the matrix are handy, possibly it will be cheaper than brick or stone. I have no doubt that you have all received pamphlets and descriptions of various systems, and bars twisted and indented, cut and plain, the agents for which all assure you that theirs is the only one worthy of consideration; in fact, the variety of patents is legion. I am convinced that it will be found that certain firms will specialise in the erection of this class of work, but I do not think that architects need fear that Edison's scheme of pouring out a house, as per catalogue, has arrived. The architect will still be wanted, but if the outside walls are to be of concrete, then there will be no necessity to disguise the fact, and cut lines to indicate joints in masonry. They will be stucco, certainly, but honestly so, I trust.

It is to be hoped that when the City Council of Melbourne revise the obsolete Building Act some measure of attention may be given to this question.

In the development of natural material for construction there has been but little progress. We, as an Institute, have heard papers on the magnificent possibilities of the country, but there has been no discovery of a cheap building stone of good colour. I am pleased to see that there is more general use of marbles, but these have to be brought long distances and arranged for months before wanted. There are some of the finest varieties possible, but I am doubtful of their permanence in outside work unless carefully looked after and repolished. It is, however, to be hoped that, as clients have now to be satisfied with lower returns on expenditure, a more permanent and better class of building will be put up.

The unfortunate dispute in the building trade which has recently occurred has had, I am afraid, a bad effect on the capitalistic class, who naturally consider that the cost of construction will be raised in anticipation of further claims on the part of the men, and I am afraid that in many cases schemes which were about to be carried out will be delayed indefinitely, and the cause of labour will suffer equally with our own, as investors will put their money into more liquid securities than buildings.

It is to be hoped that the members of the Institute will assist in every way possible in the education of the various tradesmen on whose work they have to rely for the execution of their designs, and as the present schemes of technical education do not cover sufficiently the practical side of the question, it is still necessary, in my opinion, that a defined apprenticeship should be entered into by those learning the higher branches of labour. It must be patent to all of us that it is difficult to get the same class of work at the present time as existed twenty years ago. This is partly due to the fact that the better class of tradesmen have either died out or have left the colony for other parts. I feel that there is also a great want of personal interest in their work on the part of many of the younger workmen, and this can only be instilled into them by a higher moral tone, which I regret to say is largely wanting. It appears that there is a feeling of antagonism on the part of many men against anyone who employs them. There is certainly not sufficient interest in their work to warrant their being good employers themselves, if even they have the ambition to occupy the position.

The architectural profession itself has had a very trying experience in Australia for many years, as there is no occupation which feels the commercial depression sooner, and the tender columns of the papers form a very good indication of the progress of a country. I, however, hope that with the introduction of population and a continuance of good seasons, the present prosperity will continue and that opportunities will be given for the exercise of the good taste and constructional experience which there is no doubt exists among members of this and other Australian

Institutes. Our own Institute has, I hope, taken a fresh lease of life with the new lease of better rooms, and the amalgamation with kindred societies in their occupation will give opportunities for exchange of ideas and an acquisition of knowledge which will be of great use to us, and I venture to think of equal value to our co-operators. It is a great matter for regret to me that our meetings have not been attended as many of them deserved, and unless the younger members assert themselves by coming forward and taking part by reading papers, or discussing those of older members, the Institute will not have the weight it should have.

I shall not weary you longer by my remarks, but will conclude with the hope that my services as President have met with your approval, and to congratulate you on the appointment of a gentleman who will, I feel sure, raise the status of the position, and who is by character and attainment worthy of your confidence.

### SCOTTISH CASTLES.

UNDER the supervision of H.M. Board of Works a number of necessary improvements have been made at Edinburgh Castle. The Esplanade, formerly very unpleasant to walk on because of loose, sharp stones, has been partly laid with tar macadam. The drawbridge has been strengthened and the causeway relaid, and a lot of repointing done to the stonework of the buildings. A tank capable of holding 50,000 gallons of water, in order to add to the precautions against fire, has been erected, and round it has been built a circular wall of grey stone so that the tank, which can be seen from Princes Street, does not detract from the amenity of the buildings. Other provision has also been made for dealing with an outbreak of fire. Big alterations have been made in the drainage of the Castle. The old brick or rubble drains were in a bad state, and they have been replaced by an improved type, while the drains from Crown Square and the southern and eastern portions have been remodelled. The laying of the new drain down the face of the rock was a difficult undertaking. Crown Square, which is the resort of all visitors to the Castle, has been levelled, and improvements have been made in the officers' mess and the military hospital. The old prison block is to be converted into a central bath-house, and the old regimental colours in the banqueting hall are being preserved by silk netting.

At Stirling Castle a huge cast-iron red-painted tank, plainly visible from the King's Park, has been removed, as well as certain unsightly chimneys. All visitors to Stirling Castle know the Douglas Garden and the Douglas Room, where James II. murdered the Earl of Douglas. The original part of the castle there was destroyed by fire in 1855, but was restored in 1856 in keeping with the old design. The building is therefore in a thoroughly well-preserved state, but not so the old outlook wall which bounds the garden. To that wall all visitors go to scan the Highland mountain peaks in the far distance beyond the pleasant fertile straths. The ravages of time had made the wall at that view-point show signs of decay. It was falling away badly and was bulging considerably. About 175 superficial yards had to be repaired to make the wall thoroughly substantial again.

The sculptured figures on the exterior of the old palace, with its fantastic architecture, had also in many instances become terribly defaced, and if the statues and grotesque figures were not to be lost completely, something had to be done speedily for their protection. Apparently generations had gone by since anything was done to preserve them. In some cases the fastenings had decayed, and others were blown loose. All the figures have now been properly secured with holdfasts to prevent their destruction, but, of course, there has been no tinkering with the figures themselves. The south-west corner of the officers' quarters in the Douglas block, where there was an overhanging bay, had become in an exceedingly dangerous state, and bulged as much as 6 inches. That portion had to be taken down and underpinned. Owing to frequent alterations the building had become "dislocated." In its original form there was no finer bit of architecture in the castle buildings than the ancient Parliament House. Changes to provide barrack accommodation have, however, ruined the beautiful Tudor window and other distinctive features, and these are now beyond recall. All that can be done now is to point the walls to keep them in repair. That operation has now been carried out.



A great improvement has been made in the Argyll Lodging, Stirling, situated to the south-east of the Esplanade, which has been used as a military hospital since 1799. This fine spacious quadrangular building was much in need of an overhaul. By some strange freak the four windows on the ground floor had been bricked up till only a small aperture was left at the top. This unsightly treatment spoiled the whole front of the building. The windows have now been opened up as they were originally, and the effect greatly enhances the general appearance of the old edifice. The common form of rain-gutters, which also detracted from the look of the building, have been removed, and others more characteristic have been put in their stead. With its beautifully kept grounds, the Argyll Lodging now presents all the charm of an old-time mansion.

#### HOLYROOD CHAPEL.

THE Council of the Edinburgh Architectural Association in February accepted the resolution adopted at a meeting of the members. It was to the following effect:—"That looking to the public interest that has been aroused on the question of the repair and restoration of the Chapel Royal, Holyrood, through the intimation of a legacy of 40,000*l.* for these purposes by the late Earl of Leven and Melville, it be remitted to the Council to report upon the following points, viz.:—(1) What remains of the structure exist; (2) The condition and capabilities of the parts remaining; (3) Whether the evidence of these parts is sufficient to enable a satisfactory repair and restoration of the structure to be made." The Council appointed the following special committee to examine and report:—G. S. Aitken, T. Arnold, F.R.I.B.A., J. T. Baillie, Hippolyte J. Blanc, R.S.A., F.R.I.B.A., F. W. Deas, Henry F. Kerr, A.R.I.B.A., David Robertson, A.R.S.A., F.R.I.B.A., H. O. Tarbolton, F.R.I.B.A., John Watson, F.R.I.B.A.

The following report is the result:—

Nine meetings of the committee were held, three of which (each of several hours duration) were at the chapel. Many independent visits also were made by the members of committee. Further, your committee have had, as instructed, the advantage of consultation with the following eminent architects in Scotland, and other persons of skill who are not members of the Council:—J. J. Burnet, A.R.S.A., F.R.I.B.A., Glasgow; Wm. Leiper, R.S.A., F.R.I.B.A., Glasgow; A. M. Mackenzie, LL.D., A.R.S.A., F.R.I.B.A., Aberdeen; E. C. Morgan, Glasgow; Alexr. Ross, LL.D., F.R.I.B.A., Inverness.

1. The remains of the structure existing comprise:—The north aisle wall.

The west wall, except the top of the gable.

The north-west tower, to the top of the bell chamber; parts of two piers on the north side of the main arcade, and vestiges of the triforium and clerestory. The south side of the main arcade, the triforium over the fragments of the clerestory arcade and high vaulting.

The south aisle wall, so far as not interfered with by the palace buildings; the vaulting of the south aisle; fragments of the cloister; the piers and three arches which opened into the transepts and crossing, filled with later walls and window tracery. These now form the east end of the chapel. Fragments of the west walls of the two transepts.

2. Of the condition and capabilities of the parts remaining your committee find that:—The walls and piers (so far as your committee were permitted to examine them) are well built with rubble core, and ashlar or cube stone facing. The stone appears to have been carefully selected, and is, with the exception of some surface wasting, in good condition. Where it was possible to examine the mortar in the walls, it appeared to be sound. The walls are not all vertical, but with the exception of the south wall of the main arcade, they are so slightly off the perpendicular that their stability is not affected.

The south wall, embracing the main arcade and triforium, 42 feet in height, bulges inward on plan from each end and overhangs in vertical section about 14 inches into the nave (near the centre of its length). The thickness of this wall averages 4 feet 3 inches. Your committee believe that this wall is able to support the clerestory, the stone vault and the timber roof needed to complete the building. If, on a more thorough inspection than your committee were permitted to make, any parts of the structure were found to be seriously faulty, those parts might be reconstructed without affecting the fabric.

3. Upon the third point of the remit your committee have no hesitation in saying that from the evidence of the parts remaining there is sufficient to enable a satisfactory structural repair and restoration to be made, but they express no opinion on the historic or æsthetic aspect of the question, as such does not fall under the remit.

Your committee desire to place on record their appreciation of the courtesy and kindness of Mr. W. T. Oldrieve, H.M. Chief Architect for Scotland, under whose directions, Mr. Robertson, his chief clerk of works, and the members of his staff, gave your committee every facility and assistance in their power.—In the name of the committee,

HIPPOLYTE J. BLANC, R.S.A., F.R.I.B.A.,

Convener.

At a meeting of Council, held on August 9, the foregoing report was submitted and unanimously adopted.

#### A HOUSE OF OWEN GLYNDWR.

THE district selected for the annual excursion of the Shropshire Archæological Society was, according to the *Shrewsbury Chronicle*, the extreme edge of Shropshire bordering upon Denbighshire, where the fertile valleys were for centuries debatable ground between tribes and nations. Sycharth, an entrenched mound, marks the site of one of the chief houses of Owen Glyndwr. Here the Rev. Prebendary Auden read the following paper:—

Mr. A. G. Bradley, in his work on Owen Glyndwr, in the "Heroes of the Nations" series, claims for him that he stands at the head of Welsh patriots, and in reputation towers above all the rest. It is to be feared, however, that the details of his career are known to comparatively few outside the Principality and its borderland, though many more are familiar with his name as one of the characters of Shakespeare. In the play of "Henry IV." (part 1) the dramatist introduces him as surrounded by an atmosphere of mystery and magic, as one at whose birth

The front of Heaven was full of fiery shapes;  
The goats ran from the mountains, and the herds  
Were strangely clamorous to the frightened fields—

and as altogether one not in the roll of common men.

We need not, however, go to what is legendary to arrive at Owen Glyndwr's greatness—a man who for more than ten years remained unconquered in face of the power of the whole English kingdom deserves our highest respect. Born in or about the year 1359, it is remarkable that for the first forty years of his life he was a peaceful, law-abiding subject of the king. And he was no wild bandit chief. In Shakespeare's play, already quoted, when Hotspur taunts him, he replies:—

I can speak English, lord, as well as you,  
For I was trained up in the English Court.

And this is confirmed by history. As a youth he was a squire to Henry of Bolingbroke, afterwards Henry IV., and his bitterest enemy: possibly before that to King Richard II. In his early manhood he married the daughter of Sir David Hanmer of Hanmer, and was the father of a numerous family. He had two homes in North Wales—the one at Glyndyfrdwy, near Llangollen, the other at Sycharth, where we stand. He had also some possessions in South Wales. At one or other of these northern homes he was leading the life of an ordinary country gentleman when a quarrel with one of his neighbours wrought a complete change in his life. This neighbour was Lord Grey of Ruthin, one of the Marcher barons, who seized on a strip of land which had formed part of Owen's estate. The matter was tried in the law courts and Owen's claim was sustained, but when—towards the close of 1399—the crown passed from Richard II. to Henry IV., Lord Grey took the opportunity of again seizing the coveted territory. Owen's second appeal was contemptuously refused and he resorted to arms. This quarrel between the two neighbours soon took a wider sweep and assumed larger dimensions. It was an easy matter for his enemies at Henry's Court to denounce Owen as opposed to the new king, and he was treated as a rebel. Time will not allow us to pursue the story. It is largely summed up in the words Shakespeare puts into his mouth:—

Three times hath Henry Bolingbroke made head  
Against my power; thrice from the banks of Wye  
And sandy-bottomed Severn have I sent  
Him bootless home and weatherbeaten back,



And everyone here will remember his association with the Battle of Shrewsbury. True, we must give up the tradition of his climbing the Shelton Oak to watch its progress, but he was in alliance with the Percies in their rebellion, and had he come up from South Wales in time the battle might have had a different result. He held out against the king to the last, and at length, according to tradition, died in the house of his youngest daughter, about the year 1416 or later, and rests in the churchyard of Monnington, in the neighbouring county of Hereford, which was his daughter's married home.

I turn now to Sycharth itself. It is, I think, impossible to study the site without arriving at the conclusion that it was occupied by a dwelling long before the time of Glyndwr. The central mound with its surrounding ditches goes back to Saxon or at least to Norman times, when it would be occupied by a house constructed of wood and protected by a stockade. We know nothing as to the period at which this gave way to a more substantial edifice, but it happens that we possess two records contemporary with Glyndwr, one of which describes the house which he himself inhabited, and the other what were the circumstances under which it was destroyed. Owen had among his friends a poet by name Gruffydd Llwyd, but better known by his bardic appellation of Iolo Goch. This friend apparently often stayed at Sycharth, and he has left an account of the house and its management. He speaks of its large extent, embracing nine halls or rooms, each furnished with a wardrobe to hold clothes for his retainers; and in illustration of this latter fact it may be mentioned in passing that there is a tradition that on one occasion Glyndwr caused Lord Grey to retreat from a contemplated raid by driving a number of stakes into the ground and covering them each with a cap and jacket, which were mistaken for men. Iolo goes on to say that near the house itself, on a verdant bank, was a wooden building supported on posts and roofed with tiles, where, in eight rooms, were sleeping apartments for guests; and that there was also a cruciform church containing several chapels. Among the surroundings were the usual accompaniments of a gentleman's residence—entrance gateway, pigeon-house, mill, fishpond, heronry, and so on—and a park well stocked with game. The owner was held in such respect that bolts and bars were unknown, and so profuse was the hospitality that no porter was needed at the gate. Nor does the poet forget the mistress of the establishment. He has not only praise for her white bread and her metheglyn, but for herself as the best of wives and the mother of a beautiful nest of chieftains.

It is sad to think that this mansion, which called forth so much poetic enthusiasm, was destined so soon to more or less complete destruction. Among the "Original Letters Illustrative of English History" preserved in the British Museum and printed by Sir Henry Ellis is one in Norman French from Henry, Prince of Wales, afterwards Henry V., addressed to the king and his Council. It bears date May 15, but without mentioning the year. It is uncertain whether it belongs to 1401, 1402 or 1403, but any way it was written not long before the Battle of Shrewsbury. The prince was not much more than a boy, but his father had sent him to the Welsh border to ascertain the state of affairs before he came himself. The letter, it will be noticed, shows the prince in a very different light from the Madcap Harry of Shakespeare.

The translation of the part bearing on our present subject is as follows:—"Very dear and entirely well beloved, we greet you much from our whole heart, thanking you very dearly for the attention you have paid to everything needful that concerned us during our absence; and we pray of you very earnestly the continuance of your good and kind disposition, as our trust is in you. By way of news that have here occurred, if you wish to hear of them, we have among other matters been lately informed that Oweyn de Glyndourdy has assembled his forces and those of other rebels adhering to him, in great number, purposing to commit inroads, and in case of any resistance being made to him by the English, to come to battle with them, for so he vaunted to his people; wherefore we took our forces and marched to a place of the said Oweyn, well built, which was his principal mansion, called Saghern, where we thought we should have found him, if he had an inclination to fight in the manner he had said; but on our arrival there we found nobody, and therefore caused the whole place to be burnt, and several other houses near it belonging to his tenants. . . ."

The letter then goes on to state that the prince afterwards marched straight to Owen's other place at Glyn-

dourdy, and burnt a fine lodge in his park and put to death a friend of his whom they captured. Then, having related how they further laid waste the country of Merioneth and Powys, the letter concludes:—"May Our Lord have you always in His holy keeping. Given under our seal at Shrewsbury the 15th day of May."

What was the real extent of this destruction wrought by the prince at Sycharth we have no means of knowing—he evidently regarded it as complete. The place was probably never restored, at least to any large extent, for during the rest of his career Glyndwr had no opportunity of settled life. He had committed himself to a game of which the stakes were nothing less than royalty, and the play involved constant movement from place to place. He is well described by his contemporary Capgrave as one "whom the king was continually searching for and never was able to find, for, wandering among the mountains and caverns of Wales, he had never any certain dwelling-place, nor indeed could he be captured by anyone."

Sycharth probably remained a ruin as left by Prince Henry's soldiers, and through the five centuries which have since rolled by became like other ruins a quarry for new erections in the neighbourhood. When Pennant visited the spot in the second half of the eighteenth century there were stones still to be seen scattered about, but all these have now disappeared and greensward covering the earthworks alone remains. But its memories like the grass are green. Sycharth must ever remain a sacred spot—to the Welsh first, but after them to all others who reverence whatever is noble and brave and patriotic in the annals of the past.

#### THE LATE WM. LECK.

THE death lately occurred in Durban of Mr. Wm. Leck, architect, member of the firm of Leck & Emly. According to a local journal it has caused the keenest regret among a large circle of friends and acquaintances to whom Mr. Leck had endeared himself by his culture and urbanity. His decease has taken from Johannesburg one of its leading architects, and deprived many men of one whose friendship was very deeply valued both for his kindness of heart and the intelligent and keen interest he always displayed in those who had the honour and pleasure to be on terms of intimacy with him. As an architect and business man Mr. Leck was invariably in the front rank, and his services were at all times in demand, whether for the design of large buildings or in courts of arbitration and law. His great experience of his profession was always recognised by his brother architects, and the highest positions amongst the architectural societies in the Transvaal were filled by him. At the time of his decease he was president of the London Society of Architects (South African branch), and senior vice-president of the Transvaal Institute of Architects, of which body he was in 1903 the president, and had life permitted he would next year have undoubtedly been its president for a second term. Three years ago he was elected a Fellow of the Royal Institute of British Architects. Amongst the buildings with which Mr. Leck was connected as architect were the New Stock Exchange, New Club, Trust Buildings, Public Library, National Bank, Carlton Hotel, besides many of the fine mansions in Parktown and other quarters, amongst others those of Mr. H. C. Hull, Johns, Eckstein, &c. Mr. Leck was regarded as being particularly happy in planning interior decoration, and he showed intelligent appreciation of the stronger works of the Italian and English Renaissance, on which most of his own work was based. In addition to his professional work, Mr. Leck displayed the greatest interest in general affairs, as an examiner in architecture of the University College, in connection with the Caledonian Society and the South African Association for the Advancement of Science. Though he did not enter public life, he exhibited at all times a broad-minded spirit and rendered willing service in connection with many public and charitable movements. His is a loss which cannot fail to make itself severely felt for a long time, as his activities were at the full and extended far in many directions during his seventeen years' residence in Johannesburg.

The Sunderland Educational Committee have agreed to extend its technical college, in order to make engineering laboratories and day-training college accommodation, at an estimated cost of 10,000*l*.



## NOTES AND COMMENTS.

OWING to the operation of the Civil Service age rule, Colonel PLUNKETT has resigned the directorship of the National Museum of Science and Art in Dublin. He is succeeded by a namesake, Count PLUNKETT, who holds a Roman title; he is in his fifty-sixth year, and can therefore fill the office for nine years at least. He is an excellent type of the cultured amateur; he has already delivered a course of lectures on the arts of the Italian Renaissance in the museum, and he was the founder as well as one of the principal upholders of the Arts and Crafts Society of Ireland. In all movements for the promotion of art and literature in Ireland he has been foremost. He has written about SANDRO BOTTICELLI; also PINELLI (for the Dante Society), and original and translated poems, besides contributions to magazines and journals. Under his direction the museum should prosper, and from his experience as a collector it may be assumed he will rival the director of the Irish National Gallery in making the limited allowances of the Government secure objects which will be worthy of attention.

It is not often so much success awaits exploration on a limited area as has been granted to Lord Boston. In May 1905 he began excavations near his house at Dinlligwy, in Anglesey. A Romano-British outpost was revealed. It consists of an outer enclosure covering about half an acre, which surrounds smaller enclosures, comprising roughly two circular and practically oblong chambers. The walls in some cases are in a remarkable state of preservation. They are formed of limestone without mortar. Among the relics contained in the enclosure were black pottery of the Romano-British period, flint implements, Gaulish ware, lumps of iron, seashore shells, Roman coins and metallic slag, the last being abundant. Some of the pottery bore marks of having been repaired with iron clamps, which peculiarity had not hitherto been found in connection with pottery of the Romano-British period. The old village, consisting in part of the two circular chambers, was constructed about the beginning of the Christian era, or earlier; while other portions were probably erected under Roman influence, if not under direct Roman supervision, about the beginning of the second century. Sir HENRY HOWORTH, who visited the ruins, expressed the opinion that the coins discovered pointed to the Roman occupation of the ground in the fourth century. He regarded the buildings as Roman, though the round chambers seemed very much like Irish. Professor SAYCE believed the settlement was no earlier than the Late Roman period, the coins pointing probably to the fourth century. He was also of opinion that the settlers were engaged in working mines, as evidenced by the fact that they used iron for mending pottery.

## ILLUSTRATIONS.

GIFFORD HOUSE, ROEHAMPTON.

THIS house was rebuilt for Mr. J. D. CHARRINGTON during 1900-3, from designs by and under the supervision of Mr. G. H. FELLOWES PRYNNE, F.R.I.B.A. The work was rendered peculiarly difficult by the necessary incorporation of some portion of the old walls and floors of various levels of an existing house. The whole of the south façade, which is 216 feet in length, is, however, entirely new, as are also the various other portions of the house illustrated. The building was carried out under a priced schedule by Mr. JAMES CARMICHAEL, builder, of Wandsworth.

HOUSE AT MOHARREM BEY, ALEXANDRIA.

THE house at Moharrem Bey is the property and residence of Mr. J. DAVIES BRYAN, of Alexandria, and was built by native labour from the drawings and under the supervision of Mr. ROBERT WILLIAMS, F.R.I.B.A., who in order to introduce good English work in Egypt has been practising for some years in

Alexandria. The house, erected in Moharrem Bey, a suburb of the city, is composed of a basement, a ground floor and a first-floor storey, and the happy disposition of the rooms makes it a striking and comfortable residence. Its style, though keeping its Arabic character, has been cleverly combined with some English features which give a rectilinear symmetry to the whole structure. The masonry work is mainly executed in local limestone and is bonded by courses of native brick. The principal features of the house have been carried out in local brick, cut to shape and prepared to receive the decorative mouldings, which have been run in plaster over them. The building stands in its own grounds in which a tennis court has been provided, the whole forming a unique architectural contribution to this rapidly growing and important city of the near East.

COUNTRY HOME, HEREFORD.

THIS picturesque country home is delightfully situated at the top of Adams Hill, between Hereford and Breinton. The windows of the chief reception rooms command extensive views over the Wye Valley and the Black Mountains beyond. The planning is a model of convenience and compactness; the rooms for the family are cleverly cut off from the kitchen quarters and the main entrance door can be reached by the servants without the necessity of traversing the main entrance hall, which has become a valuable additional room. This is a point which is frequently overlooked. The entrance porch is recessed and forms a convenient place for bicycles, &c. The floors of the chief rooms are laid with solid oak blocks, and all the woodwork in the main entrance hall, including the staircase, is the best Crown Austrian oak, dull waxed. A novel feature of the plan is a folding panel partition separating the drawing-room from the morning-room, and enabling the two rooms to be thrown into one large room about 36 feet long and 16 feet wide, for receptions, dancing, &c. A verandah along the garden front of the house enables full advantage to be taken of the fresh mountain air, and can be reached from the drawing room and dining-room, as well as from the entrance hall, thus affording communication between these rooms without passing through the hall. The top of this verandah is formed into a really serviceable balcony, access to which is obtained from a small landing, separating the chief bedroom from the dressing-room adjoining. On the first floor are five bedrooms, dressing-room, day and night nurseries, two servants' bedrooms and two bath-rooms, each of the latter being supplied with a plentiful amount of hot and cold water. The hot water is supplied from an independent boiler in the basement, and also from a boiler at the back of the kitchen range; both these boilers can be worked together, or either separately. The various rooms have fireplaces and mantelpieces designed by the architects; the rooms and passages are also heated by radiators, the heating medium being low pressure steam from a boiler in the basement. The exterior walls are brick, relieved with oak half-timbered work; the roofs are covered with boarding and felt upon which are laid picturesque rustic slates, in random sizes. The architects are Messrs. GROOME & BETTINGTON, of Hereford.

SEMI-DETACHED HOUSES, CHALKWELL HALL ESTATE, WESTCLIFF.

CATHEDRAL SERIES.—SOUTHWARK: NORTH SIDE OF CHANCEL, SHOWING TRIPORIUM.

RESIDENCE, BLACKROCK, BRIGHTON.

THIS was designed and executed some years ago by the owner acting as an amateur builder, without superintendence on the part of the architect. The house was planned to command views out to sea and to accommodate a quite small family. Three floors are obtained in the back extension. The perspective drawing is by Mr. F. L. GRIGGS. The architect is Mr. WALTER MILLARD. The illustration appeared in our issue of August 30.



## THE PALACE OF WESTMINSTER.

WE have already published the most important part of the evidence given last year before the select committee of the House of Lords relating to the unfinished condition of the rooms in the Palace of Westminster appropriated to the service of the House and their approaches. The committee again met this year to consider their report. The following are the recommendations offered as the results of their investigations:—

A.—*The Royal Staircase*.—The intention of the Fine Arts Commission was that this staircase should be adorned by statues. Seventeen pedestals have been erected but they are all vacant, not one having as yet received the statue which was meant to be placed upon it. It will, the committee think, be granted that, the pedestals being there, they should not be allowed to remain permanently useless and empty. But, on the other hand, it cannot be said that the supply of statues for them is an immediate necessity, any means one of the first objects to be considered in connection with the completion of the decorative work of the Palace. At the top of these stairs are two wall spaces which the Fine Arts Commission proposed to fill with paintings. But the light here is extremely bad, and it may be questioned whether any pictorial treatment of these spaces is at all desirable.

B.—*The King's Robing Room*.—The Fine Arts Commission determined that the walls of this apartment should be decorated in fresco with subjects illustrating the legend of King Arthur, and committed the execution of the work to Mr. Dyce, whose frescoes cover the north and west walls of the room. The two spaces on the south wall on either side of the throne are still blank, and should, in the opinion of the committee, be filled with paintings in harmony with the already executed by Mr. Dyce.

C.—*The Queen's Robing Room*.—In this room there are two large panels, now covered with flock paper, which were by the Fine Arts Commission intended for pictures, one of which has been even begun. These two rooms and C are among those which possess the best light in the building, and from a purely artistic point of view may be considered to be those in which any fresh work should be done. But with a view of exciting public interest in the progress of the work it is probable that it would be more prudent to commence any renewed effort to complete the decoration of the Palace in some part of the building more generally frequented.

D.—*The Royal Gallery*.—This fine gallery was intended by the Fine Arts Commission to contain nineteen large pictures representing scenes from English history. Two of these, filling the largest panels in the room, and representing the *Death of Nelson* and the *Meeting of Wellington and Blücher*, have already been painted by Maclise. The designs and sketches of a third, representing Queen Elizabeth at Tilbury Fort, still exist, but owing to misunderstandings arising with respect to the painter's remuneration the picture was never completed. Seventeen panels remain unfilled. It may be questioned whether the apartment would not gain in dignity by such a modification of the original scheme as would provide for a greater amount of plain wall space than was originally contemplated by the Fine Arts Commission. The statues intended for the Royal Gallery have all been executed and are in place.

E.—*The Prince's Chamber*.—For about two-thirds of the length of this room the scheme of decoration laid down by the Fine Arts Commission has been thoroughly carried out. Twenty-eight narrow upright panels are filled with interesting portraits of persons connected with the royal families of Great Britain, and the twelve smaller panels with bronze carving representing events selected for decoration by the Fine Arts Commission. But the upper part of the room is still unfinished. The intention of the Fine Arts Commission was that the six large panels next the ceiling should be filled with tapestry reproducing the hangings destroyed in the fire of 1834, representing the flight of the Spanish Armada. The Fine Arts Commission stated that they deemed the preservation of the design of ancient tapestries to the nation by such a reproduction "of great importance." Whether it would be desirable to carry out this original intention, to substitute for tapestry original copies of the designs, or possibly to break up the spaces which if so filled might seem to overweight the comparatively small scale of the scheme of decoration displayed in the Royal portraits and wood-carvings below, are questions which may be more properly considered by the advisory council (the appointment of which

is recommended in another part of this report) than by this committee, but the committee are of opinion that the decoration of this room, considering its importance and its immediate contiguity to the House of Lords, should not be left in its present half-finished condition.

F.—*The House of Lords*.—This is one of the few apartments in the Palace in which the recommendations of the Fine Arts Commission have been fully carried out and thoroughly executed. This being so, the committee have nothing to recommend under the terms of the reference made to them.

G.—*The House of Lords Lobby* and

H.—*The Peers' Corridor between the House of Lords and the Central Hall* may also be said to have been completed in strict accord with the intentions of the Fine Arts Commission and therefore removed beyond the scope of the committee's inquiry.

I.—*The Chairman of Committees' Committee Room*.—Of the seven compartments in this chamber reserved for paintings two have been filled and five remain empty. The two pictures completed are the great fresco *Moses and the Israelites*, by Herbert, and an oil-painting of the *Judgment of Daniel*, by the same artist. The light in this room, which is wholly from above, is good, and the committee are of opinion that the decoration of this room should be completed.

J.—*The Central Hall*.—It was intended by the architect and by the members of the Fine Arts Commission that this hall should contain sitting statues of four of the greatest English statesmen, and that the four arched compartments above the doors should be filled with mosaics of the patron saints of England, Scotland, Ireland and Wales—St. George, St. Andrew, St. Patrick and St. David. Two of these compartments have been filled in; two remain empty. It will be seen on reference to the evidence taken by the committee that it has been suggested that the arched compartment over the door between the Central Hall and St. Stephen's Hall should be pierced and filled with open tracery. Probably, however, it will be found desirable to adhere closely to the original scheme. The two mosaics already completed represent St. George and St. David. These being already in their places, it might seem somewhat invidious were either St. Andrew or St. Patrick omitted. Two admirable coloured designs for the figures of these two saints were completed by Albert Moore in 1866, and are in the possession of the Government. The committee find it impossible not to regret the abandonment of the original decision that only sitting statues should be placed in this hall. The present standing statues with their pedestals go far to destroy the repose and dignity which the hall would otherwise possess, and their heroic size dwarfs its proportions, while the contrast between their size and that of the numerous and comparatively diminutive stone statues of kings and saints in their immediate vicinity offends the eye.

K.—*St. Stephen's Hall*.—The twelve statues of eminent members of both Houses of Parliament selected by the Fine Arts Commission are all in place, and the windows are filled with stained glass approved by it, but the twelve panels, or rather compartments, which were intended for pictures are still covered with paper, which gives a somewhat mean appearance to an otherwise noble gallery. Considerable difference of opinion will be found expressed in the evidence taken by the committee as to the most effective mode of dealing with the eight wall spaces which the Fine Arts Commission intended to cover with representations of scenes from Parliamentary history. Strict adherence to the scheme of the Fine Arts Commission was advocated by some of the witnesses. Others recommended sculpture or inlaid marble decoration in colour, some urged that the panels should be filled with tinted bas-reliefs in gesso.

L.—*St. Stephen's Porch*.—This is the name given to the passage-way at the upper end of Westminster Hall and the stairs to Old Palace Yard. It contains two empty niches in which the Fine Arts Commission proposed to place statues of Marlborough and Nelson. The statues were the next work contemplated by the Commission at the time of its dissolution, and in their last report the commissioners expressed their confident belief that they would be at once proceeded with. Forty-five years have since elapsed but the niches are still empty. It is a curious fact that no statue of Marlborough is known to exist in any public building or open place in Great Britain.

M.—*The Corridor from the Central Hall to the Lower Waiting Hall*.—This corridor has six panels intended by the Fine Arts Commission to be filled by paintings of moderate size. None of these have been executed, and



the spaces meant for them are covered temporarily with the red flock paper so abundantly found in the Palace as a substitute for decoration. The light in this corridor is good, the passage itself, which gives the only public access to the committee-rooms upstairs, is during the session daily thronged. The committee consider this to be one of the places to be first attended to in any attempt to complete the decoration of the Palace. The committee will refer to this corridor again in a later portion of this report.

N.—*The Lower Waiting Hall* at the foot of the stairs is completed.

O.—*The Peers' Private Corridor*.—The walls of this corridor were regarded by the Fine Arts Commission as space available for frescoes. They are now concealed by book-cases and cupboards reaching nearly to the ceiling.

P.—*The Library*.—The four rooms composing the library are completely finished according to the original plan, and are therefore removed from the field of the committee's inquiry.

Q.—*The Dining Rooms*.—These rooms contain twenty-six panels, all of which were intended by the Fine Arts Commission to be filled with pictures, but which are in fact covered with red flock paper. For one of these panels, Sir E. Landseer's well-known picture of the *Monarch of the Glen* was painted, and he was also commissioned to paint three other panels. The sketches for these are believed still to exist, but the commission to the painter was subsequently cancelled. The light in these rooms is good, and the committee have no hesitation in saying that, in their opinion, the intentions of the Fine Arts Commission should here be given full effect, and that the work of decoration as contemplated by them should be proceeded with, however gradually, until it reaches completion.

R.—*The Upper Stairs Lobby, formerly known as the Poets' Hall*.—This lobby was decorated by frescoes representing scenes from the works of eight British poets, Chaucer, Spenser, Shakespeare, Milton, Dryden, Pope, Scott and Byron. With one exception all these have entirely or mainly perished. The one exception is *St. Cecilia*, an illustration of Dryden. This is not well seen, for a telephone box of huge dimensions and portentous ugliness has been placed immediately in front of it. One of the damaged frescoes, that representing *Lear and Cordelia*, might in Professor Church's opinion possibly be repaired, but the remaining six are absolutely destroyed. There are eight pedestals for statues in this lobby which are however unfilled. In this lobby and in that immediately below it the fine architectural fireplaces are disfigured by tables running right in front of them and serving, the one as a refreshment bar, and the other as a place of deposit for great coats and umbrellas. The general result of the committee's investigation throughout the building is that of 161 panels which it was intended to fill with paintings, 57 have been so filled and 104 remain blank. Of the statues contemplated 23 have been executed and 27 have yet to be provided.

In this survey the committee have not taken into account the numerous wall spaces in the corridors and committee-rooms, amounting to many hundred square feet, which the Fine Arts Commission undoubtedly proposed to employ as surface for painting. Practical difficulties would now in many cases attend the attempt to carry out these intentions, but the committee do not consider it necessary to dwell at any length on this topic, for in any case many years must elapse before any question respecting the decoration of these apartments can—perhaps under very changed conditions—come under the consideration of the advisory council or the First Commissioner. For a long time to come the completion of the more important and more public apartments will be amply sufficient to engage their whole attention.

The committee have felt some doubt whether Westminster Hall was intended to be included in the reference to them as one of the "approaches" to the House. It is, however, unquestionably so used. No general scheme with regard to Westminster Hall was laid down by the Fine Arts Commission, in the reports of which only vague allusions are from time to time made to it. But it is worthy of notice that in the evidence given by Sir Charles Barry before the House of Commons Committee of 1841 strong representations were made by him as to the desirableness of placing paintings or hangings on its walls, and that from various slight indications it is clear that the Fine Arts Commission did not consider Westminster Hall to be excluded from their sphere of action. The statues which are now in the Hall were not originally intended to be

placed there, but were found to be unsuited to their destined site in the Royal Gallery. They are equal of place where they now are. Their appearance is gruous and as a series they are incomplete. Their removal, the committee consider, be of distinct advantage.

Perhaps the most important duty devolving on a committee is that of recommending, as directed in terms of reference, in what manner the unfinished work of the Fine Arts Commission may be best continued and completed. This inquiry may be said to consist of two divisions—whether the original plan of decoration should be adhered to or departed from, and what may be the best method of carrying out practically whatever scheme may finally be adopted. By reference to particular galleries and corridors in the Palace of Westminster and to the approaches thereto, the committee have now reviewed the present unfinished condition of the decorations, and shown to what extent the scheme of the Fine Arts Commission has not been carried into effect.

The committee have heard evidence from many persons qualified to speak on questions relating to the work of the Fine Arts Commission, who were all agreed that the work of the Fine Arts Commission gave a great and healthy stimulus to art, which has been attended with lasting advantage. That the work now contemplated is likely to produce beneficial results. The witnesses, although they may have differed amongst themselves as to the best modes of decoration to be adopted, gave many valuable suggestions to the committee as to the manner in which the decorative work in the Palace could be continued and ultimately completed.

After careful deliberation the committee have come to the conclusion that it is not their duty to make detailed recommendations in detail as to how the work of decoration could best be carried out. They consider that it is questions on which there must of necessity be a divergence of opinion, and should therefore more properly be referred to the advisory council, the formation of which they advocate further on in this report. On the whole, however, after fully weighing the evidence given, as well as much other information derived from various sources, the committee believe that the best policy will be in the main to adhere, with such modifications as altered circumstances may require, to the programme sketched out in the report of the Fine Arts Commission of 1847.

The committee have heard evidence respecting the present method of mural painting as carried out in the Royal Exchange in London and in public buildings in France and in the United States of America, which suggests to them as to the permanence of the work thus executed. This evidence has convinced them that the scheme of decoration contemplated by the Fine Arts Commission may now be completed without any risk of the deterioration which has occurred in the case of the frescoes in the Lobby, to which allusion has already been made.

Abstractly considered, and with a view only to the artistic completion of the decoration of the Palace, it is probable that the revival of some such body as the late Fine Arts Commission with a uniform annual sum at its disposal would be the best instrument for effecting this purpose. But whatever may have been the case sixty years ago, it would probably be difficult at the present time to reconstitute such a Commission or to invest it with independent powers. It must be recognised that in the event of an annual grant being made by Parliament for the completion of the decoration in the Palace of Westminster, any decision with regard to the expenditure of that sum in the carrying out of the work would probably rest with the First Commissioner of Works as the Minister responsible to Parliament. The committee therefore consider it to be absolutely essential, in order to insure the continued progress of the work on systematic lines, that a small permanent advisory committee or council should be appointed to watch over the report on the progress of the work and to make suggestions in connection therewith.

Left wholly to himself, the First Commissioner, he happens to take a strong personal interest in the work, is exposed to many temptations to allow all decorative operations to languish. In any case, the mere pressure of other business and other interests may lead him to be indifferent to the subject and negligent of its claims. A desire to present economical estimates may cause him, as it has many of his predecessors, to abstain from proposing any outlay upon works of mere decoration. Or again, he may be a man who not only has no knowledge of art but actually despises and dislikes it—as has been the case



st one instance—not only will any future decorative be brought to a standstill, but works of artistic beauty y completed may be removed or destroyed, sacrificed at he may deem the claims of comfort or convenience. Great improvements in the decoration of the Palace ly carried out by the present First Commissioner t mainly in the removal of defacements made in the ither through want of proper advice or ignorance.

e appointment of an advisory committee, which the er would be bound to consult on all matters relating Palace, and which would have the right to make entations and offer suggestions to him, would not her obviate these dangers, but it would, in the n of the committee, go far to diminish them. It be the duty of this advisory committee annually to to the First Commissioner what had been done during st year, and what work should, in their opinion, be taken in hand, and this report should be laid both Houses of Parliament at the commence- of the Session. The recommendations made by the ry committee to the First Commissioner would prevent rgetting or avoiding the subject, and the annual ation of their report would tend to keep alive public st in their work.

e committee may be asked whether they contemplate mediate taking in hand of the whole of the works d to finish the plans of the Fine Arts Commission. e reply is that they do not. They attach far more im- ce to steady and slow persistence in the work than to id execution. A comparatively small sum spent ly every year will effect more than the grant of sums irregularly and uncertainly bestowed. The annually placed at the disposal of the Fine Arts Com- n between 1850 and 1861 was 4,000*l*. If only half m had been spent yearly during the forty-five years ave elapsed since the Commission ceased its labours oration of the interior of the Palace would probably e complete. The committee therefore suggest that n formerly appropriated to the work, viz. 4,000*l*. a ould be annually placed by Parliament at the disposal First Commissioner until the work of decoration is ed. The committee do not believe that the people of ntry would grudge the small annual expenditure which ecommend to complete the decoration of a building as intended to be not only the abode of their ture, but also the great national monument of their mentary history, and which, in the opinion of the ttee, is worthy of the purpose for which it was ed. The committee would also point out that the eeded for the completion of the decorative work in ace of Westminster would be minute in comparison e expenditure constantly incurred by the nation on oration of public offices, law courts and museums of e and art—buildings which, although no doubt worthy ect, cannot compare in importance or national interest e Houses of Parliament.

e committee have expressed the opinion that it will, ly speaking, be wise to leave to the advisory ttee, of which they have recommended the formation, gestions of a more detailed character. But they have y ventured to make some recommendations in their upon the different chambers they have inspected, ey desire to make a few others of a general nature.

e Fine Arts Commission at an early period of its ce laid down an absolute rule that all works under- ould be fully paid for by the State. The motives aused the adoption of this regulation are easily per- and entitled to respect. Nevertheless, the committee r the prohibition unfortunate and its policy mistaken. ecommend, on the contrary, that every effort should e to encourage the defrayal of the cost of works ivate sources. A good deal of evidence was taken ommittee with regard to the decoration of the Royal ge, the paintings in which have all been paid for y. In this case the subjects for the panels in the s of the Exchange were laid down by the Gresham ttee. They are 24 in number, and of these 15 have ecuted in the course of the last 12 years at the cost iduals or companies connected with the City. Is it h to hope that a similar result might be obtained by suit of a similar policy in regard to the Palace of nster?

ommittee strongly recommend that the paint with he greater part of the stonework of the Palace is now ould be removed. This has already been done e most pleasing result in many of the apartments

more immediately occupied by the House of Commons, and the committee cannot too earnestly advocate the extension of a similar treatment to the remainder of the building. They also recommend the immediate removal of the unsightly telephone boxes and refreshment bars which at present disfigure the two halls at the foot and at the top of the main staircase.

The transfer of the telephone boxes to a site only a few feet distant from that which they now occupy would in no way interfere with the convenience of the public and could be effected at very slight expense. The removal of the refreshment bars would cost more, but Mr. Norman Shaw has shown (not in his evidence, but by personal demonstration to the committee), how easily their transfer to an equally accessible position might be effected.

The committee recommend that the tinting process which has been most successfully applied to the statue of Sir William Harcourt in the lobby of the House of Commons, should be applied to the other statues in the building.

With regard to the completion of the work of decoration, the committee are of opinion that the two places which require first attention are St. Stephen's Hall and the Corridor M, from the Central Hall to the staircase. Of these two, St. Stephen's Hall is undoubtedly the most important, but in view of the difference of opinion, already referred to, with regard to the most suitable form of decoration for this hall, it will probably be found advisable to begin with the Corridor M, the compartments of which should be filled with paintings, as in the case of Corridor H.

Finally, the committee recommend that steps should be taken to secure the concurrence of the other House of Parliament. Not only is any progress in the contemplated work impossible without its sanction to the expenditure involved, but it must be borne in mind that as the occupant of more than half the buildings it is at least equally interested with the House of Lords in any question relating to the Palace, and that, though the committee, as in duty bound, have confined themselves to that which relates to the portions of the buildings more immediately depending on the House of Lords and the approaches common to both Houses, the subject of the completion of the unfinished work of the Fine Arts Commission is one which can only be adequately treated as a whole, concerning both Houses equally, and which can only be dealt with satisfactorily by their joint action.

## NATIONAL ART COLLECTIONS.

THE directors of the National Art Collections Fund have recently acquired the following works of art and other important objects for the national collections:—(1) Portrait of Morris Moore, by Alfred Stevens, purchased by a body of subscribers and presented to the fund, and by the fund to the National Gallery British Art, Millbank. (2) An oil-painting entitled "A Picnic," by Wilkie, the gift of Sir J. C. Robinson to the National Gallery British Art, Millbank. (3) Five German illustrated books of the sixteenth century, presented by an anonymous member of the fund to the British Museum through the National Art Collections Fund. (4) A copy of "Der Teutsch Cicero," printed by H. Steiner at Augsburg in 1535, with woodcuts by Breu, Schäufelein and Weiditz, the gift of Mr. Campbell Dodgson, for presentation to the British Museum. (5) Five thirteenth-century Persian lustred tiles, presented by Sir T. D. Gibson-Carmichael to the British Museum. (6) Three coins (the gift of Mr. Max Rosenheim) and two medals (the gift of Mr. Charles H. Read), presented to the Victoria and Albert Museum.

**Gloucester House, Piccadilly.**—The rebuilding of this well-known residence, which was formerly occupied by the late Duke of Cambridge, is now nearly completed from the plans and under the directions of the architects, Messrs. T. E. Collcutt & Stanley Hamp. The elevation to the Green Park and Park Lane is an imposing one of glazed Carrara, supplied and fixed by Messrs. Doulton & Co. Messrs. Drew, Bear & Perks carried out the constructional steelwork, and the fireproof partitions were supplied by the "Kulm" Partition Co. The general contractors for the building were Messrs. Patman & Fotheringham, builders and contractors, of Theobald's Road, Holborn, and Park Street, Islington. The work has been carried out in a very short time.



## ECONOMIC HOUSING OF THE WORKING CLASSES.\*

AT the outset I desire to express my sincere appreciation of the honour done me in calling upon me to act as President of the Section of Engineering and Architecture, and my hope that all who have gathered to this conference in the ancient and beautiful capital of Ireland will gain pleasure and profit in bountiful measure. Many, in approaching Dublin, travelled from Kingstown on one of the earliest railways in the British Islands, and it is interesting to remember that the first electric railway in Great Britain was that from Portrush to the Giant's Causeway, and that it owes its existence largely to the energy and enterprise of Dr. Traill, provost of Trinity College. The only railway on the Lartigue or mono-rail system in these islands is to be found in the West of Ireland, between Listowel and Ballybunion, and the latest ideas regarding mono-railways have sprung from the fertile brain of Mr. Brennan, a native of Connaught. Dublin is full of interest to the architect and antiquarian, and I regret to think no time has been set apart for a disquisition on the beauties of old Dublin by Sir Thomas Drew, who is a devout student and an eloquent expositor of them.

I should greatly desire to touch upon many points of interest to members of the Institute, with the view of indicating the progress made in matters affecting the public health and public convenience in recent years, but the brief time at my disposal may, I think, be most usefully spent in directing attention to what has been done in Ireland in connection with the great question of the housing of the working classes, which has engaged so much attention in these islands since the first Acts bearing on the subject were passed through Parliament in 1851 by the late Earl of Shaftesbury, whose successor now most worthily fills the high office of Lord Mayor of Belfast.

In this country, as in England, the younger members of the rural community, whose views of the possibilities of life have been widened by an education of a kind which was beyond the reach of their fathers, are not content to live on in their native environment, and flock in an increasing proportion to join the life of more varied interests to be found in towns where, though they as a rule do well on account of their superior physique and vigour, they cause a congestion in the labour market, and crowd out the feebler folk who constitute the unemployed and unemployable in the city. It has now been long recognised that organised efforts should be made to ameliorate the lot of labourers in the rural districts, and to help the working classes in our towns to live a healthy life. But it is in only comparatively recent years that the *laissez faire* policy has been frankly abandoned in connection with this question, and there are many who are still of opinion that, unless satisfactory balance sheets on a commercial basis can be produced with regard to such schemes, they should not be undertaken. Public opinion now, however, generally agrees with Goldsmith, that

Ill fares the land, to hastening ills a prey,  
Where wealth accumulates and men decay,

and while we have not yet re-enacted the statute of the 31st year of Elizabeth, which provided that no cottage should be erected without having four acres of land attached to it, the attention of Parliament has been steadily directed in recent years towards measures calculated to improve the dwellings of the people.

The waste of capital and revenue involved in the conditions of life in slums or insanitary hovels is now being generally recognised, and the perils to all classes of the community caused thereby have become manifest. We cannot afford to allow such conditions to exist, and it is the truest economy to remove them. Professor Koch says:—

"It is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root and wage war against it with effective weapons."

In 1895 Dr. Bowmaker attributed the want of success in the application of the Housing of the Working Classes Acts to apathy on the part of local authorities, who, he stated, were unwilling to take action to remedy unsatisfactory conditions, or even to prevent the growth of such conditions. Alderman Thompson, in his invaluable handbook on housing, explains this apathy to some extent by stating

\* Presidential address by Mr. P. C. Cowan, B.Sc., M.Inst.C.E., read at the conference of the Sanitary Institute in Dublin.

that the local authorities dare not carry out the Health Acts for fear of inflicting worse evils upon them than they endure at present.

In 1900 the Local Government Board pointed out that local authorities should have a house-to-house inspection of their districts to ascertain what nuisances call for removal and what houses are unfit for human habitation. I am not aware of any really effective action in this respect outside a few of the larger English cities. There is no doubt that the primary need in the case is efficient legislation. In the report of the Select Committee on the Housing of the Working Classes Acts Amendment Bill, lately published, it is stated:—

"The house famine in town and country which exists in regard to the working classes is incontrovertible. The many investigations, royal commissions on housing and labour, &c., select committees of the House of Commons and official departmental reports have placed the fact beyond controversy," and also, "that however cheap cottages may be built, they cannot be erected in the rural districts . . . so as to cover interest and principal and the usual annual outgoings within the rent-capacity of the labourer."

There is a special reason why a liberal policy is needed in Acts affecting agricultural labourers in Ireland. Reports of Mr. Wilson Fox, Labour Commissioner for Ireland, Board of Trade, show that the average rate of earnings per week (including all allowances in kind) of agricultural labourers in Ireland in 1898 was less than two-thirds the average rate in Great Britain, and ranged from 8s. 6d. in co. Mayo to 12s. 6d. in the counties of Antrim, Down and Dublin. In July 1906, before the Select Committee on the Housing of the Working Classes Bill, Mr. Wilson Fox produced evidence that rural housing cannot at the present time be developed upon an economic basis without some form of subsidy or cheap loan, and that, even with a six per cent. subsidy for a loan at 2 per cent., a cottage costing £150 should be let at 2s. 6d. a week to cover the interest charges, rates, taxes, water supply, repairs, insurance and collection.

The first Labourers (Ireland) Act was passed in 1906, and at March 31, 1906, 20,634 cottages had been built, and 887 were in course of erection. For these cottages amounting to 3,415,280l. were sanctioned, equal to 159l. per cottage with plot. These loans are repayable by an annuity, covering interest and sinking fund, of 4l. 10s. per cent., with a period of fifty years.

By the Labourers (Ireland) Act, 1906, a great improvement in the financial facilities for building cottages was effected, and the district councils may now obtain loans exceeding, in all, 4,250,000l., repayable by an annuity of 3½ per cent., and the Government has agreed to take to pay 36 per cent. of the loan charges, so that only 64 per cent. of 3l. 5s., or slightly less than 2 1/2 per cent., will be payable by the district councils for interest and repayment of the loans, for which the period is 68½ years. During the passage of the Bill of 1906 it was stated that the cost of a cottage and plot should not exceed 170l. On this assumption the 4½ millions made available should provide for the erection of 25,000 cottages and plots.

With a rent of 1s. 3d. a week for a cottage and plot costing 170l., a deficit of 5l. 0s. 2d. on loan charges was inevitable until the Act of 1906 was passed, but, under the terms of that Act, a similar deficit of only 5s. 9d. per cottage will fall upon the local rates. Of course, in the case the cost of maintenance, insurance, collection, &c., in addition, to be met by the local authority. Mr. Wilson Fox puts these charges, along with water supply, at 10s. a year, which is probably too high for Ireland.

Between 1883 and 1906 an annual Government grant of 36,811l. was distributed in Ireland, to be applied to the cost of providing cottages under the Labourers' Act. The allocation was made in proportion to the expenditure on roads and bridges in the various counties, and as expenditure bore no relation to the urgency of the housing question, or the expenditure incurred in connection with the amount available from this grant for relief of local rates in respect of each cottage provided varied from 11s. in co. Meath, where 1,589 cottages had been provided by November 1, 1906, to 18l. in co. Armagh, where cottages provided only numbered fifty-nine.

Under the Act of 1906 this annual grant is reduced to 30,811l., and will now be distributed according to the number of cottages actually provided prior to November 1, 1906. It will relieve the local rates to the extent of 17s.



for each cottage provided before the loans were obtainable on the very special terms of the new Act. Up to 1906 only about 2 per cent. of the total number of cottages was erected in Connaught, and less than 10 per cent. in Ulster. In the latter province a number of cottages with weaving-rooms attached have been erected for hand-loom weavers of linen.

The rents now charged throughout the country for a cottage and plot of at least half an acre provided under the Labourers (Ireland) Acts, vary from 6½d. to 2s. 6d. a week, the general average being 11d. a week; but in Mr. M. O'Sullivan's excellent book on these Acts 1s. 3d. a week is indicated as an average rent which might fairly be expected. It was apparently never expected that the rents would meet the annual charges fully, and the original Act provides that the district council may levy a rate not exceeding 1s. in the £ for the purposes of the Act, and this limit was closely approached in recent years in parts of the counties of Cork, Limerick and Waterford.

In the report of the select commission already referred to, the opinion is expressed that the difficulty as to rent would be largely diminished by the addition of land to the cottage, and one witness, who has given great attention to the study of rural conditions in England (Mr. Rider Haggard), said:—"The real solution of all this cottage question is small holdings; give the men some land—a small holding—and they will soon find their own houses."

Opinions I think widely differ on this point; much evidently depends on the quality of the land and its proximity to good markets. Small holdings are very plentiful in Ireland, and the results are not altogether satisfactory. So far as I can learn, the wisest view as to the Labourers (Ireland) Acts is that the most pressing part of the work to be done is to supply sanitary houses of moderate dimensions and cost with a reasonable garden plot, and that there is a danger, if great economy is not exercised, that, even with the facilities of the Act of 1906, the task will become impossible on account of the great disparity between outlay and revenue, and the large number of cases to be dealt with.

Until the present year designs for cottages under the Labourers (Ireland) Acts were prepared by architects for the local authorities, in accordance with simple general requirements framed by the Local Government Board; but, in accordance with a somewhat general desire, the Board has now issued a set of eight plans for houses with three or four rooms, and a general form of specification which contains a number of alternative clauses to suit varying local conditions.

Four of the plans were obtained by means of an open competition, the terms of which called for a kitchen and three bedrooms, an open shed and simple pail closet, a height of ceilings on the ground floor of eight feet, and a minimum net cubic capacity in the rooms of 3,300 cubic feet, at a cost not exceeding 130%. All the prize plans are for one-storeyed houses, and the particulars as to gross and net cubic contents are as undernoted:—

	First prize design. Cubic feet.	Second prize design. Cubic feet.	Third prize design. Cubic feet.
Cubic contents of building (excluding out-offices), taking outside dimensions on plan and height from mid-level of foundations to mid-level between eaves and ridge . . . . .	7,500	6,255	7,223
Net cubic contents of each room:—			
Living-room . . . . .	1,500	1,203	1,305
Bedroom A . . . . .	975	614	938
"    B . . . . .	975	918	650
"    C . . . . .	900	612	650
Total . . . . .	4,350	3,347	3,543

About 400 sets of plans were submitted in the competition, and many of the designs were of considerable merit. Those selected have been very freely criticised, and some interesting letters and original designs have recently appeared in the Dublin newspapers. It will, I think, be readily conceded that any such plans would be open to adverse criticism. Some critics urged extreme provisions as to ventilation and others laid stress on the value of cosy corners. Nearly all the criticisms and suggestions were, however, of some value, and it is to be hoped they will aid in the solution of the difficult problem how to secure a satisfactory labourer's cottage at a cost which bears a reasonable relation to the rent obtainable and to the available financial resources.

Two enterprising firms of contractors have erected, for the Home Industries Committee, at the Irish International Exhibition, cottages on the designs which obtained the first and second prizes in the competition, but it is probably only fair to them to state that the time afforded for erection was very limited, and also that the roof of the second prize cottage as erected is higher than, and not quite so picturesque as, the roof shown on the premiated plan. I understand that these firms are prepared to erect cottages according to the prize designs, with or without slight modifications, for a price closely approximating to the sum of 130% already referred to; but of course, to secure a low cost, they would probably require to have a contract for a considerable number of houses. In co. Cork contracts have already been taken for the erection of a number of cottages, according to the third prize design, at less than 130% for each cottage.

In Ireland, as might be expected, the operations of the sanitary authorities, as to building houses under the Housing of the Working Classes Acts, have not been very extensive, though the attention of the various councils has been carefully directed to the subject.

The Act of 1903, which gave added borrowing powers for this purpose, does not extend to Ireland, and, except in the case of the county boroughs and a few urban districts which obtained local Acts, the main difficulty has been one of borrowing powers. No Government grants or special terms for loans are obtainable under the Housing of the Working Classes Acts, and at present 4 per cent. is the rate charged for interest only on Government loans for a period of forty years.

Up to March 1906 the local authorities in Ireland under these Acts provided accommodation for 4,279 families, at a cost of about 180% per family, or 789,874% in all. The average rent is about 2s. 4d. a week, and the average annual loss about 3% 5s. per annum. In the Dublin district, including the townships, most interesting examples of municipal effort in this direction can be seen; and the magnificent rehousing schemes of Lord Iveagh are worthy of special attention, as are also the varied and able designs of the city architect. In the Dublin district the Dublin Artisans' Dwelling Co. has provided 3,500 excellent dwellings, at a cost of about 600,000%; and if to these are added the dwellings provided by the Iveagh and Guinness Trusts, the Suburban Artisans' Dwelling Co. and the Association for the Housing of the Very Poor, a total of 4,665 dwellings, costing about 750,164%, is reached. It is interesting to observe that these associations have provided more houses in the Dublin district than have been provided by other town authorities in the whole of Ireland.

I would here draw attention to a few points in the recommendations of the Select Committee on the Housing of the Working Classes Acts Amendment Bill, which appear to be of very special interest. It should be noted that in England and Scotland these Acts apply to rural as well as to urban districts. This committee recommends:—

- (1) That the administration of the Public Health and Housing of the Working Classes Acts should be transferred from the Rural District Councils to the County Councils.
- (2) That a great improvement in sanitary inspection should be provided for, and requires the appointment of a staff of county sanitary inspectors, who should be properly qualified whole-time officers and act under a county medical officer of health, who should also devote his whole time to his public duties.
- (3) That a register of survey of all buildings intended for human habitation should be compiled and revised periodically.
- (4) That the County Councils should make by-laws for every district.
- (5) That the Local Government Board should appoint a special housing and public health department, with a staff of travelling sanitary and housing inspectors to supervise the administration of the public health and housing laws by the County Councils and their executive officers.
- (6) That the Treasury should lend money for the purposes specified in the report, at the lowest rate at which the Treasury can borrow (a) to local authorities, up to the full amount of the security; (b) to public erecting societies, up to 75 per cent. of the security.
- (7) A simplification and codification of the laws under the Public Health and Housing Acts.

The select committee expresses surprise that the Housing of the Working Classes Acts have not been applied to a greater extent for the adaptation of old buildings, but experience in Ireland has shown that as to rural districts such adaptation is usually less economical than new building.

The great influence of a good caretaker on the condition of working-class dwellings, and on the cost of maintenance,



is not sufficiently regarded, and I am convinced that a city may possess an abundant supply of cheap houses in fair condition, and yet be in great part insanitary on account of the domestic habits of the people. An improvement in these habits is urgently required, and can only be secured by education in simple hygiene and a much more rigorous inspection of the sanitary condition of houses than is now provided for. The Swiss method of collecting along with the rent a fixed sum for repairs, and returning to the tenants at the end of the year any portion of such sums not actually expended, has much to recommend it, as it tends to secure "the stitch in time." Local authorities in Great Britain and Ireland require additional powers to regulate the laying out of streets and buildings on the outskirts of the towns, to prevent them from being encircled with mean streets.

As to the provision of new houses for the working classes in towns, the operations of voluntary societies or companies should probably be looked to as the most hopeful factor, and it is most desirable that such operations should be aided as far as possible by the State.

### "HOW ARCHITECTS GET WORK."

THE New York *Sun*, a metropolitan newspaper of standing and large circulation, has recently published an entertaining article explaining "How architects get work," and has done it good-naturedly, truthfully, and in a manner that will really interest the general reader. More than this, it may well cause the man on the point of placing a job in an architect's hands to stop and consider how well-advised his action really is, and just what are the motives or whence come the impulses that are guiding his action, and this may cause the loss of a job here and there to a reasonably able and deserving architect; for often there is no very good reason for the selection, or rather the selection has actually been forced on the owner by an adroit architect or the still more adroit "promoter" whom he employs. It is in dealing with the promoter that the writer of the *Sun's* article becomes most interesting, for, among other things, he shows, says the *American Architect*, how a certain architectural firm is on the high road to much wealth, and will assuredly arrive at their goal unless their promoter, who is associated with them as a partner, should chance to ruin his health through the drinking of much tea at afternoon functions; for it is through his charming manner, his consummate social address—which finds ample play during his assiduous attendance at social occasions—that he succeeds in knitting the links of the chains that draw wealthy and desirable clients to the doors of the office where his partners, the real architects, are waiting, ready to serve whomsoever may come.

How should an architect get his work? It is a serious question that each beginner has to ask himself, one that has been put to us more than once. There is but one answer, and that is he must be "known of men." But this hardly helps, as it simply causes the query to be changed so as to read, How may an architect make himself known? In a certain number of cases the answer comes naturally, and in course of time the draughtsman who is of the right stuff to make an architect, and who has proved himself of exceptional value to his employer, is taken into partnership, and his name thenceforward becomes as well known as that of his partner. But the men who become known in this way are usually men who, though capable and well educated, have to depend on their daily wages, and so are rather forced to graduate from the bench, as it were. But there are others willing to take more risks, perhaps more confident in their real powers, or, happily, possessed of independent incomes, who do not care to wait to be known until middle age overtakes them, but wish to gain name and fame and money while young. How shall these be known? They cannot advertise in a commercial way as can business men, since it would be "unprofessional," and such advertising as can legitimately be done on a door-plate is not likely to be very productive. If they are unwilling to adopt the old-fashioned course of establishing themselves in some new community, growing up with it, becoming known therein by daily intercourse with their fellow-citizens and satisfying their needs as they develop, then there are only three ways open—to make an alliance with a speculating builder, to seek success by constant participation in competitions of all kinds, or, frankly, to tout for work.

Of these three methods the first is dangerous, as it almost inevitably leads to a lowering of the moral tone and

a debasing of artistic and ethical standards; the second is absolutely professional, and, in spite of the manner in which established architects talk against the method, is altogether too good ever to be abandoned. As to touting, there is much more of it done than architects will be ready to admit, for methods of touting are almost as various as men are numerous, and methods one man would employ would be scorned by his neighbour; and yet most of the methods actually used are permissible, decent and professional. The method that is at once the most legitimate and most successful is social touting, which consists simply in mixing with one's fellow men as often and as widely as possible through membership in one or more clubs, in becoming an active member of a church congregation and in taking part in such social functions as are accessible. And it is for this reason, we fancy, that Sir Aston Webb reminded the architectural students of the Massachusetts Institute of Technology that they should take care to acquire a broad and general culture, quite as much as skill at the drawing-board. The cultivated man in society will become known—and so draw to himself chances of securing work through and because of his displayed intelligence—in a way quite beyond the grasp of his fellow who has scorned to spend time and means in acquiring knowledge that did not lead by the shortest route to bread and butter.

But when all is said, the best agency for becoming known, the one that has had an effective part in the upbuilding of every architectural reputation in these days, is nothing more nor less than the printing press. It is the legitimate advertising given, without pay, by newspapers, magazines and professional periodicals that has made familiar to readers in every part of the world the names of architects in association with their accomplished deeds. It is quite common for architects to say that they derive no benefit from the publication of their work in the pages of the professional Press, because the circulation of these among the general public, the mass of possible clients, is very limited. This argument is good, so far as it goes; but if the periodical Press does not widely reach the general public, it does reach the editors of newspapers and magazines, and informs them as to who is who and what is what, and from that point they carry on the free advertising in a more effective way. In other words, publication in the professional journals is the first step on the pathway of the only form of advertising that is open to the profession. The last thirty years has witnessed the appearance and the disappearance in this country of a bewildering number of architectural journals, and the editors and publishers who have lost health and money in these undertakings are remembered only with pity, if not with scorn; and yet what they did, while they were able to do anything, was really to give substantial aid to the making of the reputation of many an architect who, now that it is made, fancies it is wholly due to his own transcendent genius.

### ST. ALBANS CATHEDRAL.

ALTHOUGH the late Lord Grimthorpe expended a large sum of money on the conversion of St. Albans Abbey into Denisonian Gothic some parts escaped. One was the ceiling of the north aisle, which it is now proposed to vault in order to be in keeping with the south aisle. One of the promoters is Mr. H. J. Toulmin, who explained the proposals to a representative of the *Herts Advertiser*—

"This matter," he said, "has been in my mind for the last fourteen years, ever since Lord Grimthorpe finished his alterations. This roof is really the only structural part of the work which Lord Grimthorpe left undone. Personally, I consider the north aisle rather a maimed object and a blot and a blemish upon our grand old cathedral, of which, I am sure, we are all justly proud. If the county has been saved a very large expense during the past fifteen years in consequence of the generosity of Lord Grimthorpe, I do not think it will be asking too much of them now to provide the necessary means for carrying out an improvement which I am sure will make St. Albans Cathedral second to none in the country. Of one thing we may be sure, and that is that the work will be carried out with judicious care and with full regard for what is most in keeping with the architectural features of the abbey, for it has been decided to have it executed under the direction of Mr. John Oldrid Scott, in whom, from past experience, we have full confidence."

The promoters of the scheme cautiously avoided making any appeal until the Bishop's desires in regard to the Bishoprics Fund had been fulfilled. Now that the sum necessary for the rearrangement of the dioceses of Herts



and Essex has been achieved, they are giving the people of the county an opportunity of putting the great county church into proper order and of making it worthy the high position it holds. *Apropos*, it was recalled by Mr. Toulmin that he one day asked the late Sir Gilbert Scott in what order he placed the cathedrals of England, and the reply of the great architect was significant. "I put Lincoln first as queen of the cathedrals," he said, "and I put St. Albans next as the cathedral of the greatest interest."

The cost of the work it is now proposed to undertake is approximately 4,500*l.* That is the sum which Mr. J. Oldrid Scott estimates it will be, and that is the amount for which the committee, with the full approval of the Lord Bishop of the diocese, are appealing. Already several substantial promises have been received.

For the primary restoration of the cathedral, for which scheme the Dean and Mr. Toulmin acted jointly as honorary secretaries, a sum of between 30,000*l.* and 40,000*l.* was raised, and this included the purchase from the county of the old monastic gateway. Then Lord Grimthorpe came along and made a further expenditure of 150,000*l.* upon the fabric, which, thanks to his princely generosity and to the watchful care which the Dean and his churchwardens have for years exercised, to-day promises to stand for many more centuries to the memory of Britain's proto-martyr.

Matters of detail, such as the painting of the roof of the nave and the filling of the great west window with stained glass, which it is estimated would cost about 1,000*l.*, were also referred to by Mr. Toulmin as desirable; but these, he thinks, may be left to the voluntary efforts of private individuals. "I love the dear old abbey," he said, "and I am very happy in doing what I can for it. My great-uncle, who lived where Bank House now is, used to plant his pear trees and plum trees against the abbey and hammer the nails by which they were supported into the walls of the abbey; and it has fallen to his great-nephew to do what he can to compensate for that."



#### The "Noise Fiend" of the Metropolis.

SIR,—In regard to the assumed objectionableness of noise, I think that perhaps Mr. T. B. Green does not indicate the source of any righteous annoyance created by his "fiend." And perhaps, too, Professor Petrie is not the safest guide, as his time is so largely engaged in the vast silences of Egyptian exploration.

It is safe to assume that Mr. Green refers to the motor traffic of our streets, and I have yet to learn authoritatively that the national health is seriously impaired by noise and odour. We who are living in this twentieth century would do well to remember that our great-grandparents were subjected to the ordeal of noises and stench to which we are strangers, and yet, 100 years ago, numerous instances (too numerous to form exceptions) of longevity occurred.

Besides, Sir, is not the objection to the noise of street traffic a purely personal idiosyncrasy? Does not the bustle and roar convey an impression of humanity in the making, which proves a panacea for any incipient trial to the nervous system?

I commenced by doubting whether Mr. Green has indicated the source of reasonable annoyance, and to this I will now revert. Whilst advocating liberty of noise-creation where the business of a city is concerned, I have my grave doubts as to the justification for intramural disturbances of the peace. Has one neighbour, have a dozen neighbours, the right to foreshadow Hades by the mechanical horrors of the pianola and the tin-kettle outpourings of the gramophone? And yet, Sir, here again it has been seriously urged that a neighbour so acting, and generously leaving his windows open towards the thoroughfare, confers an inestimable boon on his fellow-sufferers—I mean his fellow-men.

By this means and that, we are therefore brought to the practical objection—which we find to consist not in noise, but in danger to life and limb; and here I should be glad to think that Mr. Green and I are on common ground. In the interests of general progress, the Car of Juggernaut Motor Bus Company, Unlimited, may be a necessity; but Parliament should not have allowed the

user of the streets for mechanical traffic by the general public. The G. P. is radically selfish taken in sample; and as long as No. 1 can travel his so many—so *very* many—miles an hour for gratification of self and companions, it matters little how many four-footed beasts—and incidentally, two-footed *beasts* also—are injured by the way. I say advisedly that selfishness has received a great impetus to growth since private motor traffic has been legalised. The motor-fiend apparently takes as his motto one from Omar Khayyam's "Rubaiyat," and tries to believe he is acting unselfishly:—

Why! if the soul can fling the dust aside,  
And naked on the air of Heaven ride,  
Were 't not a shame, were 't not a shame for him  
In this clay carcase crippled to abide.

"And," adds the motor-fiend, "I'll help him (the soul) out of his clay carcase." Apologising for the length of this letter,—Yours, &c.,  
PERCY L. MARKS.  
10 Matheson Road, West Kensington.

SIR,—The thanks of the community at large are due to you and your correspondent, Mr. Thomas Bowden Green, for the letter which appears in your last issue. The noise and stench caused by the motor omnibus and electric trams are abominable, and property is being depreciated to such an extent that the matter is getting a serious one. The noise in Holborn, one of our great highways, is beyond description, and if I desire to have converse with a client I have to shut my windows before I dare attempt it. Our "benevolent" Government with its enormous majority might surely take the matter up and earn the everlasting gratitude of one who has nothing to thank them for at present.—Your obedient servant,  
T. SQUARE.

#### Trade Touting.

SIR,—Possibly the enclosed cutting from *The Timber News* may interest many of your readers. Probably the builders concerned have overlooked the fact that there is such an individual as the architect, and that he usually has something to say in the matter; and that clients who have to pay usually take some interest in the question also, and, my experience is, have a wholesome dislike to all "rings" and "combines." At any rate this is the experience of—  
Yours, &c.,  
FAIRPLAY.

#### "Inter-Trading Touting."

"It would appear that the Manchester timber trade has been pretty well circularised this week by a Mr. Robert Hall, who states that he is the organising secretary of the Manchester, Salford and District Building Trades Employers' Association. The gist of his circular is that, as he is anxious to increase the membership of the Association, he begs to draw the attention of our merchants to certain rules which this Building Trades Association has seen fit to adopt, and known as inter-trading rules. For the benefit of our readers in general we herewith reproduce these, which are very strongly emphasised on the circular by being printed in red ink. They read as follows:—

"(a) That we, the members of the Manchester, Salford and District Building Trades Employers' Association, hereby mutually agree not to give or take tenders to or from or otherwise employ or deal with regular employers in the building trades of this district who are not members of this Association, or with a regular employer of any other district who is not a member of the County Federation or some other branch of the National Federation of Building Trades Employers, to which this Association is affiliated.

"(b) We also agree when placing an order for building materials in this district to do so with a dealer or manufacturer who is a member of the Association if practicable, and will in all cases give such members reasonable preference. Should it become necessary to place an order with a non-member either of this or of any other district, we will use all reasonable efforts to induce the firm to join this or some federated association."

"Now, then, we think the trade will agree with us that there is a veiled threat attached to this, and so far as we have been able to sound members, Mr. Hall's circular, instead of creating a friendship towards his Association, is likely to do the opposite. Would it not, by the way, be better for this Association to endeavour to secure as members the bulk of the builders of Manchester, Salford and district? Their present list of members is a remarkably short one, and if there is room for improvement we should say it ought to take the direction we have indicated. However, this secretary is evidently of opinion that guineas will



be obtained a good deal sooner from timber merchants, hence his worrying us. Coupled with the veiled threat there is, of course, a promise of good things to come foreshadowed in these so-called inter-trading rules, but even this will, we think, be insufficient to induce any considerable portion of the trade to adopt this organising secretary's suggestions. If we can offer a further suggestion, it is that the Manchester Timber Trades Association should adopt some sort of an inter-trading or preferential rule, and appeal to the local builders to become members. In fact, this could go on *ad infinitum*, and we might all make a living by soliciting subscriptions from each other."

### GENERAL.

**Mr. George Washington France**, of Huddersfield, architect to the West Riding County Council, was killed in a motor-car accident about six miles from Doncaster on Monday night. He was thrown out of the car and died almost immediately. Mr. France was in his fifty-third year.

**Mr. Edward H. Bruton, F.R.I.B.A.**, informs us that he has taken Mr. F. Burwell Foster, A.R.I.B.A., architect, of Weston-super-Mare, into partnership, and the firm will be carried on at 119 Queen Street, Cardiff, as Messrs. Bruton & Foster.

**At the Monthly Meeting** of the lately formed Street Noise Abatement Committee on the 31st ult., the Secretary mentioned that during August a considerable number of banks and insurance companies in the City and West-End had attached their names to the petition to the Home Secretary respecting the undue noise caused throughout the Metropolis by motor-omnibuses and traction-engines. The petition, it was stated, had now been signed by more than 100 bank and insurance managers, principally on the ground of the enormous depreciation in the value of house property on every route taken by motor-omnibuses.

**The Wallasey Council** will be asked at their next meeting to consider the following resolution:—"That this Council invite the submission of designs for new public offices (only) to be erected on the North Meade site at a cost of not exceeding 35,000*l.*"

**The Southport Education General Purposes Committee** recommend the Council to erect a boys and girls' school on a site of from eight to ten acres of land belonging to the Corporation in Park Road.

**The Pre-Roman Fort of Wincebeorh**, on the road from Salisbury to Shaftesbury, has been sold. The fort which was known in Anglo-Saxon times, is an entrenchment of 12½ acres, girt by a single ditch and a rampart 39 feet high. General Pitt-Rivers discovered in it an Anglo-Saxon cemetery, and removed many skeletons.

**The Carnegie Dunfermline Trust** and the Burgh School Board have authorised their joint art committee to engage a drawing master at a salary of 150*l.* per annum. His chief duty will be to visit the schools of the burgh and to supervise the teaching of drawing. The aim of the committee is to assist the ordinary class teacher to bring the subject of drawing into accord with the most approved methods, and to secure that the teaching of the subject shall be linked as closely as possible with the advanced work of the special technical and craft classes held in the evening. The School Board and the trustees will each contribute one-half of the salary.

**Mr. W. H. St. John Hope**, in reporting progress of excavations at Silchester, states that during the exploration within the last few weeks of one of the insulæ near the middle of the town, there has been uncovered the remains of a small square temple. The ground plan is quite perfect and shows a podium about 18 inches high and about 36 feet square outside, with a wide entrance on the east and a cella measuring internally 12 feet by 14 feet. The podium is paved with coarse red mosaic, but the floor of the cella has been destroyed; it was perhaps of fine mosaic laid on a bed of opus Signinum. Against the west wall of the cella is the base of a platform about 3 feet broad for the image of the deity. On and about this were found some of the shattered fragments of the image itself, which was about life-size and of stone. Several important architectural fragments have also come to light, but more of these are wanted to enable a reconstruction of the temple.

**A French Amateur, M. Audesud**, who died lately in Cairo, has bequeathed his large fortune and his valuable collections to the Louvre.

**The Manchester Art Gallery Committee** recently organised an exhibition of pictures illustrating childhood. In six weeks it was visited by 70,000 school children. The experiment being deemed a success, the committee have purchased eleven of the water-colour drawings to form the nucleus of a permanent collection in a "childhood gallery," and the Friends of Art Society have followed this up by purchasing four more and handing them over to the city authorities.

**The Old Monkland School Board** have resolved to proceed with the erection of a Higher Grade school in Albert Street, Coatbridge, where an eligible site has been secured. By a majority of six to four, the competitive plans of Messrs. H. & B. Barclay, architects, Glasgow, were adopted. They show an estimated cost of 15,230*l.* Premiums were awarded as follows:—Thos. Baird, jun., Glasgow, 20*l.*; Andrew Balfour, Glasgow, 15*l.*; James Shaw, Coatbridge, 10*l.*

**A Local Government Board inspector** (Mr. P. M. Crosthwaite, M.Inst.C.E.) sat at Portsmouth last week to inquire into the proposal of the Town Council to borrow the sum of 24,000*l.* for the purpose of extending the borough asylum, the idea of the asylum committee being to erect four villa blocks for the accommodation of the patients. Mr. Cogswell (of the firm of Rake & Cogswell) explained the plans, and informed the inspector that the buildings would be of very simple construction and as cheap as was possible.

**The Dean of Guild Court** have passed plans for the erection of an extensive linoleum factory at Pathead, Kirkcaldy, for the Fife Linoleum Co., Ltd. The factory is to be built of brick with redstone dressings, and will be fitted with the most up-to-date machinery. The building is to be four storeys high, while the main chimney-stalk will be about 180 feet in height. The site of the building is in Commercial Street and Mid Street, Pathead. Messrs. J. D. Swanston & Syme, Kirkcaldy, are the architects, and a start has already been made with the erection of the building.

**The Plans**, specifications and details in general in connection with the reconstruction of the South Parade pier, Southsea, are complete, and Mr. C. W. Ball, of Southsea, has been appointed at 1½ per cent. to take out the quantities.

**The Purchase** has been completed by the Manchester Tenants, Ltd., of a plot of land, comprising over 53,000 square yards, fronting Burnage Lane, Burnage, for the purposes of a garden city.

**At a Meeting** of Kilmarnock Parish Council attention was called to the way in which an architect had been appointed for the proposed extension at the Cuninghame Combination Poorhouse. The directors invited competitive plans and the assessor chose three in order of merit. Subsequently the Local Government Board examined all the plans, eleven in number, and selected one that was not in the assessor's three. Finally, the plan adopted for the work was neither the one chosen by the Local Board nor the one that got first prize from the assessor, being in fact the one that was placed third. The chairman ruled that the matter could not be discussed at that meeting. Notice of motion on the subject was given for next meeting.

**The North Bridge**, crossing the river Hull about a mile from its junction with the Humber, and serving one of the busiest thoroughfares in the city of Hull, has recently been reconstructed. The bridge consists of two main outside girders, 7 feet deep and about 80 feet in length, placed at 19 feet 6 inch centres, and of the lattice type with cross girders carrying the main roadway. There are two sets of tramway lines on the main roadway, and to accommodate foot traffic two footpaths, 8 feet wide, outside the main girders and carried by cantilever brackets, are provided. The contract involved the conversion of the close lattice girders into N girders by cutting away the existing stiffeners, substituting much heavier verticals, and introducing an independent set of diagonals, the existing latticing being retained as a screen. The flanges have also been strengthened by extra plates, and new N plates have been fixed on the approaches and on the bridge. The bridge was closed for four weeks, and during the work of reconstruction a temporary footbridge, with a lift span for allowing traffic on the river to pass, was erected over the permanent structure.





COUNTRY HOME: HEREFORD  
*Dröome & Pettignton; Architects*

INK PHOTO SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

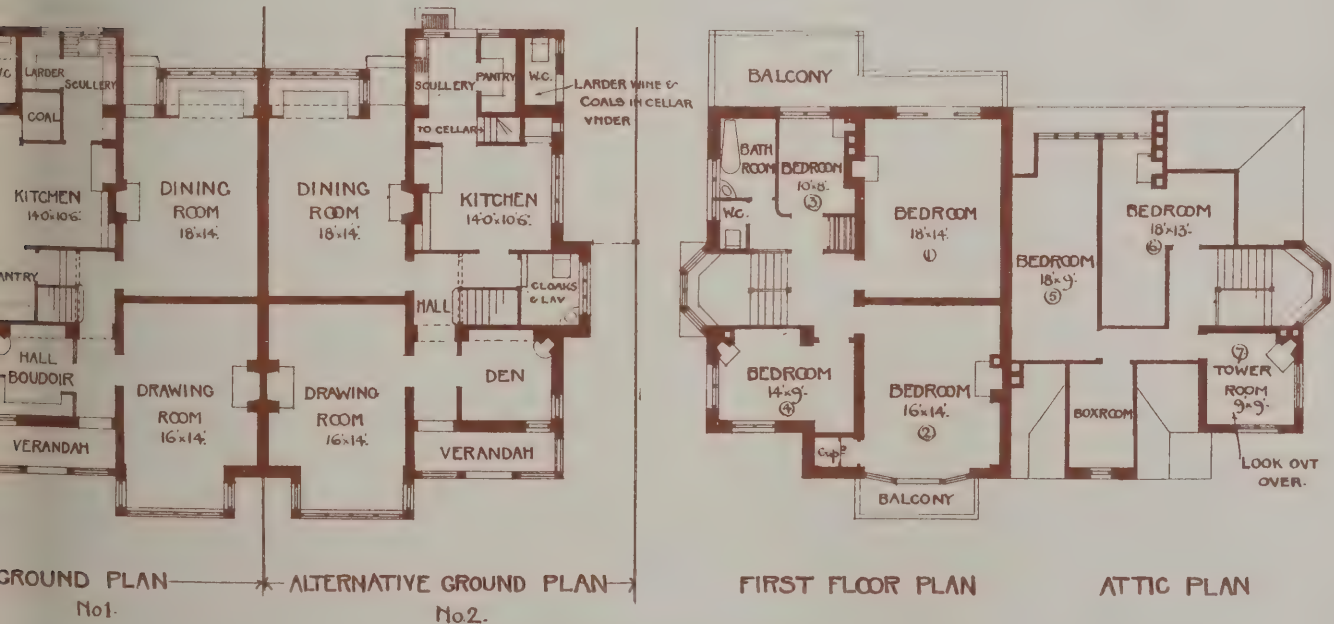








NEW DETACHED HOUSE, CHALKWELL HALL, FOSTER, WESTCHURCH.



CLARE & ROSS, architects and decorators.

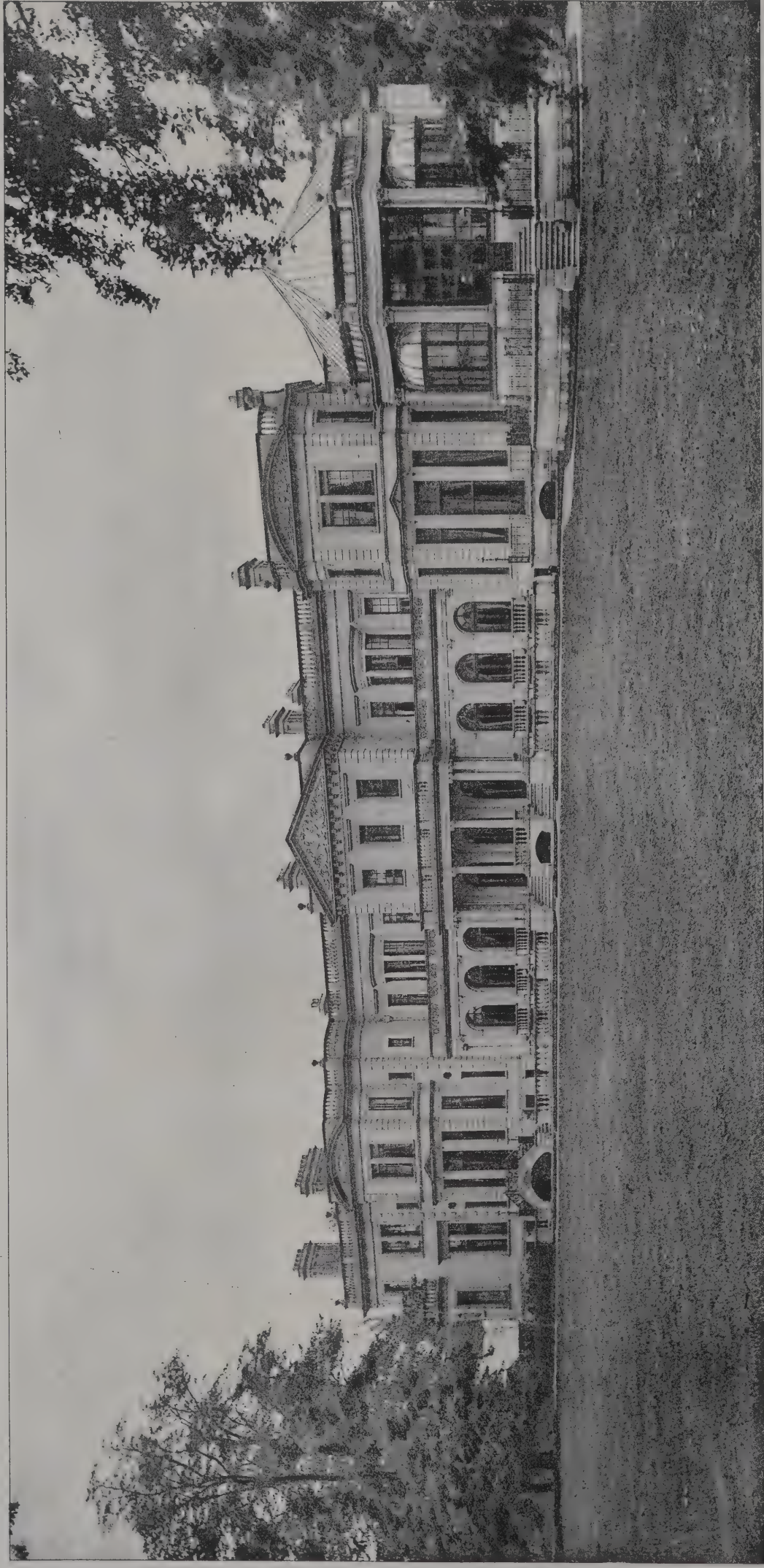




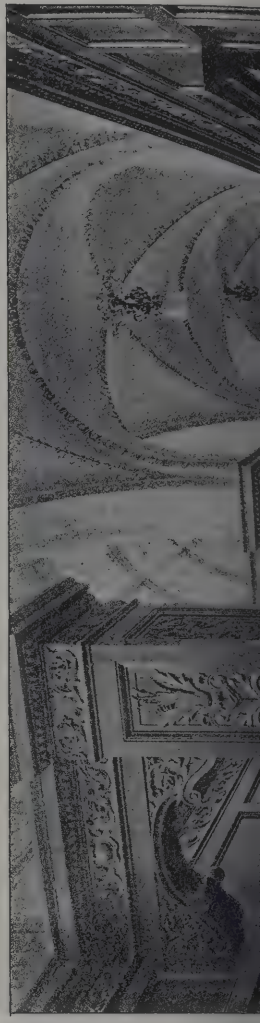
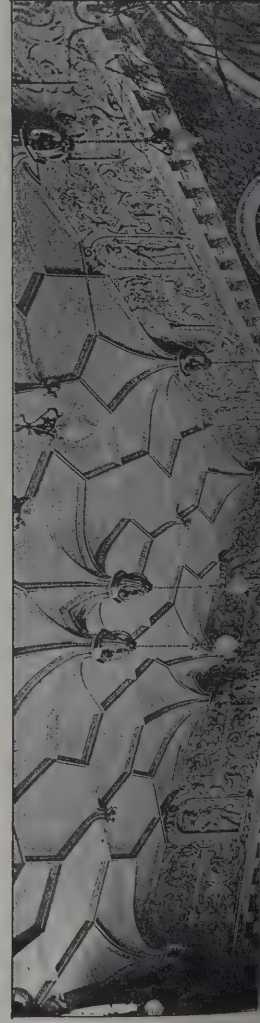








SOUTH-EAST VIEW.







INNER HALL.



DINING ROOM CORRIDOR, LOOKING EAST.



ENTERTAINMENT ROOM FIREPLACE.



BALL AND MUSIC ROOM FIREPLACE.

GIFFORD HOUSE, ROEHAMPTON.

G. H. FELLOWES-PRYNNE, F.R.I.B.A., Architect.

"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.





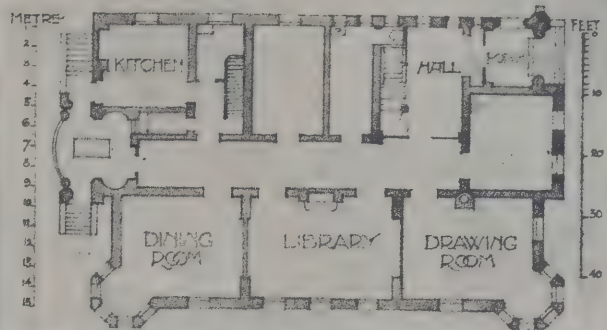












HOUSE OF MOHARREM BEY  
ALEXANDRIA  
ROBERT WILLIAMS  
F.R.I.B.A. ARCHITECT.









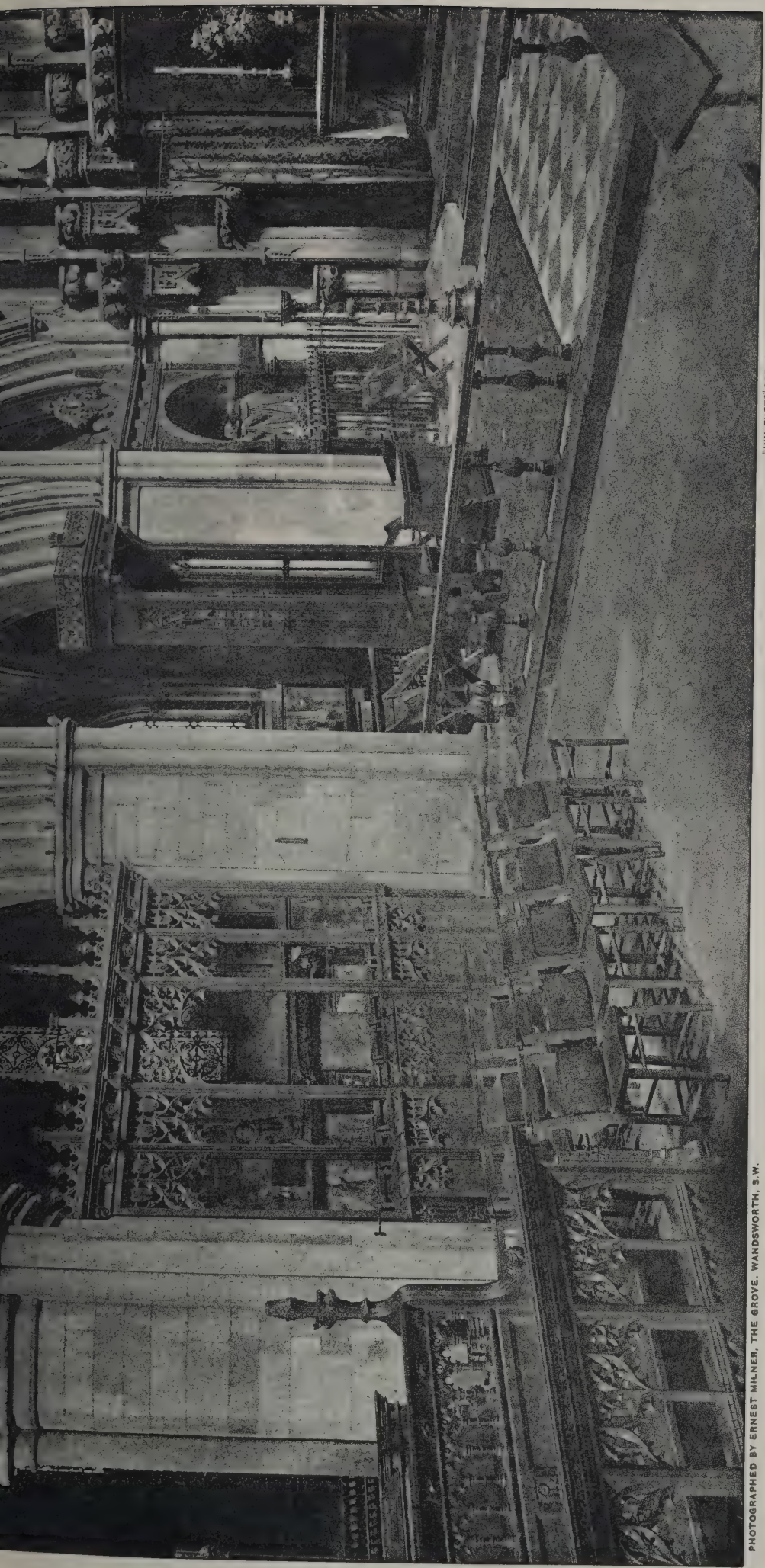




The Architect, Sept 6<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

"INK PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 611.—SOUTHWARK: NORTH SIDE OF CHANCEL, SHOWING TRIFORIUM.







# The Architect.

## THE WEEK.

It is satisfactory to know that the foreign protests against the neglect of the Alhambra have not been useless. The Spanish Government have placed the buildings in charge of Señor ZAVALA, architect, and he has lost no time in reporting about the measures which will have to be undertaken. During several centuries rubbish has been allowed to accumulate both within and without the walls, which were not designed to resist such a pressure. The rubbish also concealed some parts of the plan. For instance, it was not known that at the foot of the Hachabi tower there was a door from which steps descended into a mysterious passage, which has yet to be fully explored. It was probably part of a secret communication with the different buildings. It is feared that some new slabs of marble will have to be introduced in the Lions' Court. The fountains are likewise out of order, and it is considered that, owing to the absence of regular conduits and drains, the substructure is suffering from damp. In order to form a bath one of the governors of the Alhambra in the eighteenth century caused much destruction by introducing great balks of timber wherever he thought necessary. According to Señor ZAVALA the Alhambra resembles an invalid. But though there may be suffering, with care the last hour can be staved off.

The house which stood on one side of the Place Pigalle in Paris had for tenants on the first floor J. HENNER and PUVIS DE CHAVANNES. Their studios had some of the characteristics of the two artists, who differed not only in appearance but in the theory and practice of art, have been before now described in *The Architect*. Several artists who had to make a reputation occupied the upper floor. So unpretending a building is not considered suitable for the present generation of artists, and it is likely to be taken down and converted into a restaurant, although there are several within a few yards. HENNER was a typical Alsatian, speaking slowly and never pretending to imitate the accent of Parisians. "M. PUVIS," as his pupils and assistants used to call him, might have been a French baron and one of the stars of society. There was little communication between the two men though they lived on opposite sides of a narrow corridor. But both held to their ideals regardless of opposition. One of the first works of M. PUVIS presented Gambling, and was to be presented to a Paris club. But when it was seen the wits said it was purely symbolical, for the figure was bodiless and could have no heart. To the end of his life the painter was different to ordinary anatomy, and thought more of the ideal than of bones and muscles. HENNER found that the world preferred to have figures in profile with their nebulous contours than mere exact representations, and though they seemed easily produced, they were slowly, and it may be painfully, elaborated.

The site of the infirmary in Manchester continues to perplex the City Council. Economy has to be considered, and there are advocates of different ways of utilizing the ground. The special committee entrusted with the investigation recommend that designs should be obtained from architects in competition showing how the site could be appropriated for a public library and gallery. The city architect, Mr. PRICE, considers that there cannot be the slightest doubt that the existing infirmary will not bear to be adapted for an art gallery, museum, a reference library, or municipal offices. In spite of that opinion there are members of the Council who maintain that there is no need to demolish the old building; and at the last monthly meeting the following resolution was adopted:—"That the matter be deferred

with the object of securing an opinion from an absolutely disinterested architect free from local circumstances, who should be commissioned to report upon the possible adaptability of the Royal Infirmary buildings for the purposes of a reference library, art gallery and municipal offices." It is not difficult to foresee the kind of report which will be received. An hospital after a few years becomes more or less dangerous to the inmates, and continual attention is necessary to keep it in a safe condition. It can hardly be expected that ordinary civilians will exercise equal care. Even if they succeeded they could not overcome the prejudice which must arise in the minds of ordinary visitors and of those who would use the sections of the transformed Infirmary for the purposes of study.

OVERHEAD bridges for communication between warehouses in narrow streets are not in favour with authorities in the Metropolis, although applications to erect them cannot always be rejected. But once the privilege is granted inhabitants in the street accept the arrangement as one of those things which have to be endured in a city. In Dundee it is otherwise. A firm of photographers, having obtained permission, erected a bridge. Another firm with premises in the street brought an action against the Town Council and the photographers, contending that the Council had only rights over the street so far as was necessary for its use as a highway, or for the purpose of laying under it pipes, drains or sewers; that nothing could be erected above the street without the consent of those owning or having a right of access along the avenue. It is remarkable that the judge adopted the opponent's views. The photographers were held to have no valid right to erect a bridge or gangway, and the Town Council could not delegate the right of determining the kind of bridge to the burgh engineer. In conclusion, his Lordship said Police Acts, written, many of them, under the inspiration of mere love of power, had in them, concealed by their verbosity, many queer provisions, but it might be said broadly that as a rule these queer provisions must be construed in the light of the indisputable general law of the country. They could never be strained to warrant interference with private property, except on some plausible pretext of tax-gathering necessary for the obtaining of money for the general advantage of the community.

RUMOUR used to be represented in the early dramas as having a thousand tongues, but in those days the world was not as populated as now. A myriad tongues would now be necessary to symbolise its power. An example is being afforded at Brecon. Some of the flooring joists in the town hall showed signs of decay. This was interpreted into a report that the building was falling. The President of the Chamber of Trade wrote to the Mayor "to summon a few of the members of the Society to see into the matter or to take outside expert opinion, as it really looked as if it would be little short of criminal to let the work proceed on the lines it was stated it was intended to proceed." The meaning of this is that the Corporation had ordered the repairs to be carried out by the surveyor at once, but for the sake of those who had grown eloquent over the danger it was considered there should be a public investigation, when startling revelations might come out. A meeting was held, but there could be no question about the limited danger. But to satisfy all the following resolution was adopted:—"That this meeting of the Brecon Chamber of Trade is unanimously of opinion that the scheme for repairing the Brecon town hall is quite inadequate, and that the Town Council be asked not to proceed further with the work until they obtain the opinion of a building expert, who shall be asked to report on the scheme generally, and especially with regard to the condition of the walls and timber which it is proposed shall remain and form part of the new building."



### VIOLLET-LE-DUC: A REVIVAL.

THE preparations are in progress in Paris for the Autumn Salon, which may now be considered as an institution like the Summer Salon. One interesting experiment will be made in it, for it will contain a collection of drawings and sketches by VIOLLET-LE-DUC. Will they be attractive? which is a quality most desired by people who attend exhibitions. In all lands architecture is "caviare to the general"; and besides VIOLLET-LE-DUC has been dead since 1879. The fame of many of the painters and sculptors who were his contemporaries has declined, and it would be difficult to discover anything in VIOLLET-LE-DUC beyond his cleverness as an artist by which a new generation of the public could praise him.

There are, on the other hand, grounds for a prejudice against him. He was more versatile than was generally imagined, and his services were in demand for some of the theatrical entertainments given at the Imperial Court. He was also one of the literary and artistic "intimes" who used to gather round the Princess MATHILDE, and he was noted for his irreverence towards everything connected with the churches which he was engaged in restoring. Frenchmen are not always persistent in their opinions, but they occasionally display a desire for the virtue of consistency by abusing men who are not worse than the majority. Whether VIOLLET-LE-DUC sufficiently atoned for his Imperialism by acting as a military engineer in the defence of Paris remains to be seen. He became an out-and-out Republican, to the amazement of those who imagined they knew him; and, incredible as it may appear, he was elected to represent the Faubourg Montmartre in the Municipal Council of Paris. It is to be hoped that after nearly thirty years all the old animosities have been forgotten and admiration will be given to the drawings and designs of VIOLLET-LE-DUC, and that his memory will be considered as worthy of being classed amongst the great men of France, to whom Frenchmen are supposed to be willing to always render homage.

Although he was the son of an official and held official positions during the greater part of his life, it is remarkable that VIOLLET-LE-DUC was not brought up under that official system which is held to be essential for every architect, painter and sculptor who desires to succeed. He was born in 1814, and was the son of an esteemed and scholarly official connected with the Department of Historic Monuments. He became a pupil of ACHILLE LECLÈRE. He does not appear to have spent a week in the Ecole des Beaux-Arts, and that fact may help to explain the refusal of the students to accept him as a professor in 1863. His delightful draughtsmanship must have been early displayed, and from LECLÈRE's atelier he went to study old buildings in the South of France, Italy and elsewhere. To some extent he might therefore claim that he was his own teacher. But although he exemplified the advantages of that method, he also suggested its drawbacks. All through his life VIOLLET-LE-DUC regarded himself as a superior person. As Fate would have it, he was the nephew of old DELECLUZE, who was a pupil of DAVID, but whose paintings were not successful, and who became the lawgiver on art in the *Journal des Débats*. His conversation was ultra-Voltairian, though he allowed he was surpassed in that respect by his nephew. Much of VIOLLET-LE-DUC's education was derived from his uncle, especially as regards all matters relating to philosophy and religion. The nephew was not to be restrained, and went beyond the old revolutionist's doctrines. In course of time the comic spectacle was presented of DELECLUZE as a matter of duty publishing two articles against the dangerous theories of architecture which his nephew announced. Yet he could not forbear impressing on people that he had something to do with the new heresy and to say:—"C'est pourtant là un œuf que j'ai couvé."

In 1840 VIOLLET-LE-DUC was back again in Paris from his travels, and owing no doubt to the influence of

his father, who was one of the first men in France to promote the study of early French writers and whose catalogue of his own library is precious to bibliophiles, was appointed inspector of works under LASSUS. DUBAN at La Sainte-Chapelle—a building with which he was connected during the remainder of his career. The position he obtained was usually reserved for students who had returned from residence in Rome. But France can make exceptions in Paris as in other places. Many other restorations under him followed, and VIOLLET-LE-DUC in 1853 was considered to be so well acquainted with Mediæval architecture and restoration that he was appointed one of the three inspectors-general of churches in France. He was also entrusted with the restoration of the cité of Carcassonne and château of Pierrefonds.

If VIOLLET-LE-DUC's drawings were confined to those required for the official restorations they could hardly be expected to be adequate to constitute a section of a public exhibition. But in 1853 he commenced the publication of his great "Dictionnaire de l'Architecture Française," which took several years to complete, and the next year the "Dictionnaire du Mobilier Français" and "L'Architecture Militaire du Moyen Age." His perspective sketches are marvellous. While they were evidently intended to be diagrams in a technical book, there is no sacrifice of lines to picturesqueness, they have a finesse which was novel in the art of illustration. The lines might have been drawn with a needle, yet they are firm and precise, and the small figures introduced recall stained-glass windows. How a man could work such large works and make so many drawings for himself with his own hand, besides carrying out his other duties, must surprise ordinary men, and is evidence only of wonderful power which had been rigidly disciplined, but of an orderliness in the execution of work which might rival machinery. The pencil, we are told, can speak the tongue of every land, and the countless woodcuts in VIOLLET-LE-DUC's volumes can be appreciated more or less by those who are without much architectural knowledge. But we fear if the original drawings are exhibited in the Grand Palais they will be found to be too delicate to satisfy a crowd.

In 1863 he was appointed Professor of the History of Art and Esthetics in the Ecole des Beaux-Arts. It required courage to select him. A man who did so definitely could not fail to possess decided views, and it was easy to anticipate that he would be in favour of a return to Mediæval ways. He belonged to the Romantic School, who considered independence essential for an artist, and architecture of the Gothic type offered far greater scope for liberty than was to be found in an adherence to the Classic orders. The existence of the Académie des Beaux-Arts was in itself a fetter on originality, and we may therefore be surprised that the potentates who belonged to it did not altogether disapprove of the rebellion of the students. About VIOLLET-LE-DUC's excellence as a draughtsman, although his work was always on a small scale and mainly architectural, there could be no doubt. It was as an expert he condemned the academic system, which made drawings from lithographs or other prints compulsory. He made no secret of his opposition to the whole established process, which appeared to be intended for the creation of embryo academicians.

He had decided opinions about successful art. He looked on it as the slave of fashion, and considered a term of about twenty years was the duration of a reputation. It is to be hoped that law will not apply to his own works. Architecture he considered too should be an expression of the age in which it was produced. He denied that it was possible in the nineteenth century for people to express themselves either in the style of the Greeks or of the Frenchmen of the Middle Ages. With such a belief he could not be happy in the production of his own designs. WILLIAM BURGESS publicly declared VIOLLET-LE-DUC was not an architect—that he was simply an archæologist, and



remains to be seen whether any of his original designs find favour with Parisians. They have to suffer from one evil. It was known he was not a believer, and he may therefore be looked upon as the representative of a state of things which was brought forward as one of the reasons for the separation of the State from the Church. Some of the views may also invite pity. For if churches and cathedrals are to be converted into municipal institutions for secular purposes or left as mere relics of antiquity, where was the use of so much labour and expense in restoring them? It is possible that the drawings made by VIOLLET-LE-DUC as an amateur military engineer during the siege of Paris will arouse greater interest than his æsthetic drawings. It would appear as if a new era was opened to him with the Republic. He entered with earnestness into plans for the improvement of the city. And as at one time he wished to have every house with a statue in it, or, as he said, a parakeet in each cage, so he was eager to multiply the statues of Paris. It was at his suggestion that the Exposition of 1878 was divided between the Trocadéro and the Champ de Mars. The latter is now again about to be cleared, and the halls of the Trocadéro are desolate. His sudden death at his country residence near Lausanne put an end to his amazing activity. Modern Frenchmen should recognise the peculiarity between VIOLLET-LE-DUC and themselves. In the laws of heredity were exemplified. His father preferred the poetry which appeared in France prior to the sixteenth century to all later works. The son, being more of a man of science, preferred the ancient writings. On his mother's side he inherited the irrepressible spirit which preceded the first Revolution. He did not fail to imbibe from the men around him the doctrine that an artist should follow art for the sake of art, and should be glad to display his power in a statue or in a cathedral. These diverse influences explain the peculiarity not only of his work but of his life.

### ARCHITECTURAL CATEGORIES.

THE effort of man to systematise things was displayed so early, we may suppose a tendency of this kind was inherent in him. Without it there could be no civilisation. "Order is Heaven's first law," and this maxim remains true although at one time order was held to be less desirable than disorder. We cannot imagine an age, however distant, when strength and order did not prevail. Divisions of the people into classes, trades, citizens, helots, patricians and plebeians were simply based upon some theory of categories. Hence, therefore, ARISTOTLE announced his series of categories, viz. substance, quantity, quality, relation, time, position, possession, action and suffering, it is not likely he was only making another attempt to put everything in its proper place. Some of the divisions were recognised before his time. It is also remarkable that a nearly similar series is found in Indian logic; but whether it was derived from the Greeks, or ARISTOTLE was indebted to the Indians cannot be ascertained. His categories had a powerful influence on the progress of philosophy during the Middle Ages. The Church set greater value on the Stagyrice than on his master PLATO; and it cannot be denied that the old divisions are more valuable than those formulated at a later time. The Church placed no value on them, and STUART MILL proposed to supersede them by four:—(1) Feelings or consciousness; (2) the minds which experience these feelings; (3) the bodies or external objects which excite certain of these feelings, together with the power or properties whereby they excite them; (4) the successions and co-existences, the likenesses

and unlikenesses between feelings or states of consciousness.

The desire to discover some common denominator which will simplify the astounding variety of the world is always likely to continue. COMTE's three eras of the world's progress can be considered as categories. The attempts of RICKMAN, SHARPE and the Cambridge Camden Society to subject Gothic architecture to one or other of their systems are also evidence of a like tendency. Such comprehensive titles are becoming obsolete. At one time there was supposed to be one kind of Greek architecture; now we have indications enough of several varieties. Renaissance has been an affair of cities and schools, if not of individuals. Sciences like medicine and law have had to submit to division into strange provinces. Even theology, although it is not supposed to be progressive, is undergoing a process of reclassification of which no man can see the end.

Dictionaries, which might be supposed to be the first of all classes of works where new theories could be tried, resist innovations in a marvellous way. For ordinary people the alphabetic arrangement is the best adapted for consultation when time has to be considered. But various attempts have been made to display the relationship of words in a more evident way than is possible by that arrangement. One of the most familiar is ROGET's "Thesaurus," which begins with words expressing abstract relations. He was compelled to adopt over a thousand categories instead of ARISTOTLE's ten in order to make the book useful for reference, and his lists had to be supplemented by alphabetical indexes. COLERIDGE also, when he was consulted about the "Encyclopædia Metropolitana," proposed to base it on the principles of method, and the master thought of his plan was, he said, the moral origin and tendency of true science. But he could not avoid a supplementary alphabetical dictionary.

Although we suppose so-called philosophers who deal mainly with words could not dispense with an elaborated system of categories, the human mind in later times (as well as in prehistoric), instinctively turns to a system based on a recognition of relations, although it may not be so subtle as ARISTOTLE's. When a poor woman arranges to have everything in its place and a time for all things, what she does is based on a categoric basis. If a professor of Greek or Mediæval philosophy would condescend to visit the premises of a builder's ironmonger on a large scale, he could not fail to be amazed. The messengers and porters who come for goods are always in a hurry, and take care to demonstrate they are not disposed to act as lookers on. The varieties of goods could be described not by hundreds, but by thousands, and yet there is no delay. Categories may be called arranging nameable things in pigeon-holes. The ironmonger is always increasing his stock as new inventions are brought out. But there is no clue apparent to the system by which a grimy assistant at once places his hand on the object required. Infinitely more philosophic than the shop system is a bill of quantities by a London surveyor for a large building. It is based on a system by which omissions are generally detected, and items of the different kinds of work appear in their proper places with as much precision as if the treatises on rival methods of categories were familiar to every assistant.

We have been led to offer these remarks from seeing one of the Bulletins of the University of Illinois, entitled "An Extension of the Dewey Decimal System of Classification applied to Architecture and Building," by Mr. N. CLIFFORD RICKER, D.Arch., Professor of Architecture. Dr. DEWEY is one of the men who believe in the intellectual revolution which will arise from the spreading of public libraries among his countrymen. Believing that much depended on the skill of the librarian, he set up a school for training them, and he devised a system of classification which is not only comprehensive, but is adapted to the needs of men of



business. All books, according to him, may be classified into ten classes or centuries, viz. :—

0 to 100	General works
100 to 200	Philosophy
200 to 300	Religion
300 to 400	Sociology
400 to 500	Philology
500 to 600	Natural science
600 to 700	Useful arts
700 to 800	Fine arts
800 to 900	Literature
900 to 1,000	History

It would be easy for Professor RICKER to have started with 0, but as the DEWEY system is becoming national he adopts it. Thus fine arts start with 700 and architecture with 720. In that way the system is continued between 720 and 730, the latter being the starting number for sculpture. We believe it is the custom in preparing the various bulletins of the University to allow the students to co-operate, and the preparation of the lists for architecture would allow a great many to take part in the work to their own advantage. In all cases books come first. For example, in building materials there are theories of constructions, compends, dictionaries, essays, periodicals, societies' proceedings (including trades unions), educational study, museum, history of building materials, processes, materials and preservations. Then follow woods, stones, bricks, lime and cement, plaster, glass, iron and steel and other metals, plans, specifications, estimates, building laws, construction of various kinds, carpentry, plumbing, lighting, ventilation, &c.

After materials and construction, fine arts begin, as exemplified in the history of various countries. Landscape architecture takes precedence of ordinary architecture, and lists are made out of different items which may be made the subject of books, papers or discussions. Altogether the lists fill over seventy pages, with over 2,000 items, and to facilitate use there are twenty pages with the items in alphabetical order. In the latter the reference is not to the page where the subject is found, but to the decimal number. In that way we have the recognition of relations however wide apart.

The Bulletin can be made use of by students in order to discover what they know and what remains to be studied. Thus, where elevations have to be considered—composition, subdivision, proportions, light and shade, perspective effect, balance, axial lines, accenting; the section—longitudinal, transverse, diagonal, broken, oblique and the plan—composition, distribution, proportions, sequence of rooms, communications horizontal, communications vertical, axial lines, balance, must also be taken into account.

A quantity surveyor or a busy architect, if he condescended to glance over the pages, might say that they were merely child's play, hardly worthy of his consideration. It is not a difficult task to take a great many terms in a glossary and to arrange them in a new order. In the Bulletin something more is done. By accepting the DEWEY classification architecture falls in its right place among subjects of a very different class. That is to say, as indicated in the general list, it is one of the fine arts that come between the useful arts and the world of books. What is more important, features that are common to all styles are distinguished from those peculiar to one. We should not be surprised if we were informed that those who took part in the arrangement of the list had acquired very clear notions about unity in architecture, and were also able to realise where innovations were most likely to succeed.

What is most remarkable perhaps in a logical sense is the difference between the architectural categories and those which the Greeks accepted as comprehending the universe. A wall, a ceiling, a floor are from their simplicity almost outside the region of dialectics, like much else in building. But no ARISTOTLE or MILL could make any simpler division of them which would have any practical use.

## ARCHITECTURAL REFINEMENT: RHEIMS CATHEDRAL.

By WILLIAM H. GOODYEAR.

ON Monday, July 1, I arrived at Rheims and called on M. Léon Margotin, inspecteur des travaux for the cathedral, in order to present my credentials with a view obtaining a permit for photography. During the interview I mentioned to M. Margotin my wish to obtain from him official certification for the existence of an intentional constructed outward vertical divergence in the lines of the cathedral nave (the widening refinement).

M. Margotin replied that he did not understand me, and took down from his library shelves the folio publication, *L'Alphonse Gosset*, on the cathedral of Rheims, dated 1898. He turned to the plate giving a transverse section of the cathedral, and requested me to point out in it the feature which I had described.

I then explained to M. Margotin that this transverse section did not represent the real facts, and that the cathedral was not constructed with perpendicular lines, as represented in this survey; that the piers were perpendicular only to the height of the capitals, but that, directly above the capitals, the vaulting shafts and all surfaces were inclined outward, in straight lines, up to the nave vaulting. M. Margotin declared himself to be unaware of the existence of such a vertical divergence. I thereupon suggested a mutual examination of the cathedral, and an appointment was made for this purpose for nine o'clock on Tuesday morning, July 2.

On our way from M. Margotin's office the next morning he stopped at the Chantier, and requested M. J. Martin (chef du Chantier, contremaître de travaux à la cathédrale de Reims) to accompany us. M. Martin was also unaware of the existence of a vertical divergence in the nave.

No sooner had these gentlemen entered the nave with me than they verified with great interest the divergence of the vertical lines. I pointed out to them that the piers of the nave (and choir) are exactly perpendicular up to the capitals (which can be verified by the numerous plumb lines which are furnished by the wires of the chandeliers which hang from the vaulting), and that the outward divergence in straight lines could not therefore be attributed to thrust from the aisle vaulting, as in that case the piers would lean into the nave. As regards the thrust of the lofty nave vaulting, I pointed out to them that the divergence begins at the springing of the aisle vaulting against their thrust and weight, and that the divergence includes all the masonry surfaces, as well as the vaulting shafts. Consequently, thrust from the nave vaulting could not operate below the triforium, so as to carry outward the weight and thrust of the aisles, in lines and surfaces which are straight (although inclined outward) for the entire remaining height of the church.

As a matter of fact, this much argument was hardly necessary. I pointed upward to the enormous masses of the aisle vaultings and a nod of assent was the reply.

The official certificate which follows this letter was subsequently furnished by M. Margotin for publication, and during three weeks' stay in Rheims I enjoyed many opportunities for conference with him and with the chef du Chantier. With the latter, on a subsequent occasion, I examined the transepts, and was pleased to have him verify, in the transepts, the same construction which I found in the nave, and with a system intersecting the system of the nave.

I also accompanied both gentlemen on separate occasions to the Gothic church of St. Jacques, where I was able to show them similar facts, which they found equally remarkable and which were also previously unknown to them, including vertical curves which they both on these separate occasions verified as constructive.

At least two-thirds, and perhaps a larger proportion, of the Mediæval cathedrals and Mediæval churches of Northern France exhibit a construction similar to that which is attested by M. Margotin's certificate for the cathedral of Rheims. I do not know of a single instance in which the divergence does not begin below and against the thrust and weight of the aisle vaultings throughout the nave; excepting in Notre-Dame at Paris, and here this evidence of constructive intention is found in the eastern crossing piers.

I estimate the maximum divergence at Rheims to be not less than 10 inches (25 cm.) at the centre of the nave on each side, making a total maximum divergence of not less than 20 inches (50 cm.). In the crossing piers the divergence is hardly perceptible, and in the tower piers at the entrance the divergence is very slight, although distinctly perceptible.



by plumb-line test. The inclination of the vaulting shafts increases from these piers towards the centre of the nave (and they also return to the full amount of inclination in the choir).

The gradual increase of inclination toward the centre or the nave is reflected in the existence of curves in plan, convex to the exterior, on both sides, in the upper nave, beginning near the triforium. At the clerestory parapet these curves have a deflection of  $9\frac{1}{4}$  inches on the north side and of  $11\frac{1}{4}$  inches on the south side. At the roof parapet the curves measure 10 inches deflection on the north side and  $11\frac{1}{4}$  inches deflection on the south side.

These curves are manifestly connected with the increase of outward vertical inclination toward the centre of the nave, and indicate a total divergence of 20 inches at the clerestory parapets, thus verifying the estimates based on photographic surveys in the nave with surveyor's disk on the plane of the measurement. The alignment of the piers of the nave, from base to capital, and of the outer walls of the church, is rectilinear, although the usual bend in plan occurs in the choir. (It bends in plan to the right.)

M. Margotin and M. Martin are well acquainted with the existence and intentional construction of these curves in plan, convex to the exterior, although they had naturally not related them before my visit to the vertical inclinations of the nave.

The responds, or engaged pillars, of the aisles have an outward inclination like that of the nave. They incline delicately outward in straight lines at the fourth course of masonry, about 9 feet above the base. The effect is that of delicate entasis, and the positive existence of these delicate inclinations can only be ascertained by plumbing. The eye remains in doubt without this assistance. The facts are uniform for all responds in both aisles, with the exception that the first respond adjacent to the transept on the north side, and the two responds adjacent to the transept on the south side, are perpendicular.

This arrangement certainly relates to the fact that these responds are the ones adjacent to the perpendicular piers of the transepts. If these responds were inclined, the fact would be apparent by sighting on the perpendicular transept piers, and the delicacy of the arrangement would lose by this conspicuity.

The plumb tests on these responds were made in the presence of M. Margotin and M. Martin, and were verified by them and excited their great interest. These plumb tests have been photographed for most of the responds. The outward inclinations average about  $2\frac{1}{2}$  inches in a height of 30 feet 8 inches.

I subjoin another certificate for related facts in the church of St. Loup, at Châlons (Marne), where the divergence is in straight lines and against aisle-thrust, from the pavement up. The inclinations are about 4 inches to a side at the apse, in a height of about 24 feet.

This church had windows at the choir end of the aisles, with sides and mullions inclined obliquely, so as to align with the immediately adjacent inclined piers at the angle of the terminal wall of the aisles and the apse. I photographed the window of the right aisle in 1903 (published in 1904). At that date the curé told me that he intended to have the window rebuilt, because it did not harmonise with the lines of the modern altar which he had caused to be built under it (this fact was also published). The curé died in 1905, and as a tribute to his memory the window has been rebuilt at an expense of 500 francs, and the mullions are now perpendicular.\* The obliquity of this window on the side adjoining the pier at the apse angle has been plastered to the perpendicular, but the window is still oblique on the exterior side, where rectification could not be carried out without tearing down the wall. I now have a photograph of the window in its present condition to contrast with the one made in 1903.

The similar oblique window in the terminal wall of the opposite left aisle still has the oblique mullions.

In addition to the certificates furnished by MM. Margotin and Aubertin for the existence of the widening refinement in French Mediæval architecture, I am authorised by M. Auguste Choisy to publish certain quotations from a letter which he has recently addressed to me. M. Choisy has been familiar for some years with the progress of my observations regarding the widening refinement (as announced in Italy in my "Architectural Refinements of St. Mark's at

Venice," and as announced for France in "Vertical Curves and other Architectural Refinements in the Gothic Cathedrals of Northern France and in early Byzantine Churches at Constantinople" \*). He personally expressed to me four years ago the opinion which he has now given in writing, and which I am authorised to quote in publication.

#### M. AUGUSTE CHOISY'S OPINION.

The question of the interior inclinations of the piers appears to me to be studied with a conscientiousness and with methods of observation which place the fact beyond doubt. . . . The astonishment of the architects of the cathedral of Rheims shows what a novel field of investigation you have opened up. Whatever theory one may adopt, here are facts which must be reckoned with, and which no one before you had thought of analysing.

#### CERTIFICATE OF M. LÉON MARGOTIN.

Rheims: July 3, 1907.

Sir,—I am pleased to have been able to verify, and with great interest, certain distortions (*déformations*) in our cathedral. In fact, and as you have been kind enough to point out, I have been able to observe that at Rheims the piers of the nave have preserved their perpendicular, but that, above the capitals, they diverge gradually toward the exterior up to the springing of the vault. These distortions, also observed by you in other buildings of our territory, appear to me intended by the architects who were charged with the construction of these monuments, and to have been arrangements of construction. They cannot be attributed to a lack of resistance in the powerful flying buttresses at Rheims, especially since these same distortions are verified in all the piers and even near the transepts, where the masonry constructions make any thrust from the vaults impossible.

In my opinion, we must recognise certain effects of grandeur as having been purposed, which are wholly to the advantage of the edifice.

Please accept, Sir, the expression of my cordial regard,

L. MARGOTIN,

*Architecte diplômé du Gouvernement,  
Inspecteur des travaux à la Cathédrale de Reims.*

#### CERTIFICATE OF M. A. AUBERTIN.

I, the undersigned, Albert Aubertin, architect at Châlons-sur-Marne, author of the spire and other works of repair on the church of St. Loup, consider that the very visible inclinations of the four great piers at the transepts, and of the pillars of the aisle chapels, are not the result of thrust, but that their condition dates from the construction of the church.

Here is an effect designed by the builder, and the arches thus display a sort of horseshoe form, destined to correct, or rather to modify, the effects of perspective.

The inclinations begin at the bases of the piers; there are no defects in the adjacent masonry, either in the walls or in the vaulting ribs or vaultings.

Given at Châlons, June 27, 1907.

A. AUBERTIN.

#### CLASSIC CAPITALS.

CAPITALS to columns are of early invention, and are as useful as they are ornamental. They embellish the upper part of the column, and prevent its angles from being fractured or from damaging the architrave. In the earliest times columns were used without capitals, and a short time afterwards with only an abacus, as in some Egyptian specimens, particularly in the ruins of Thebes. This afterwards was improved to a sort of bell-formed capital, at first plain and afterwards sculptured with hieroglyphic figures, foliage, &c. The fruit or flowers of the lotus probably gave rise to the bell-formed capital, which was afterwards embellished with palm leaves, as in some examples found at Esné. In some temples at Amara and in the island of Philæ the capitals are formed of the head of Isis.

The capitals used in Persian architecture are of three kinds, one of which is nearly half the height of the shaft of the column and resembles a plume of feathers which falls down all round, in the middle of which rises another plume, and from thence an unknown ornament. The others are composed of the anterior moieties of the fabulous unicorn, in the manner of the heads of Janus of the Romans. Capitals of this kind are found in the royal tombs of Persepolis, near the palace.

\* This work was not done by M. Aubertin, whose earlier employment on the repairs of St. Loup is mentioned in his certificate.

\* *Memoirs of Art and Archæology of the Museum of the Brooklyn Institute*, Nos. 2 and 4.



The capitals of the temple or pagoda in the island of Elephanta are like broad and flat cushions, somewhat compressed, consisting of a double echinus, one turned to the other and separated by a fillet.

In the architecture of the Greeks and Romans, the following are the usual divisions of the capitals. According to Vitruvius, the height of the Tuscan capital from the astragal at the bottom must be half the diameter of the body of the column below. And the height being divided into three parts, the first and uppermost part goes to the abacus, the second part goes to the echinus and fillet under it, and this part is subdivided into four parts, of which three go to the echinus and one to the fillet; the third and last part is divided into two parts, one of which is the breadth of the astragal under it, which consists of a semicircle and a fillet under it. The astragal again is divided into three parts, of which two are given to the semicircle and one to the fillet. The projecture of the capital to be one-eighth part of the diameter of the body of the column below. The astragal projected from a square. According to Scammozzi, the height of the capital from the astragal at the bottom must also be one-half the diameter of the column below. And this height being divided into sixty parts, twenty of them are to go to the abacus or plinth, as he calls it, fifteen to the echinus, which Vitruvius calls the boulder, five to the roundel or bead moulding, which is a semicircle, three to the listella, which Vitruvius names a fillet, and seventeen to the neck or frieze. Again, seven such parts must go to the ovolo of the astragal and three to its listella. According to Palladio, the height of the capital is half the diameter of the body of the column below, viz. at the astragal, which none of them reckon a part of the capital, though in propriety it ought to be so esteemed; and this height is divided into three equal parts, the uppermost of which goes to the abacus, which he calls the dado or dye; the next part goes to the ovolo or echinus; the rest is divided into seven, of which one is for the listella under the ovolo, and the other six parts go to the collarino or neck; he also called it the hypotrachelium or frieze of the capital.

The height of the Doric capital from the astragal at the bottom is said by Vitruvius to be equal to half the diameter of the body of the column below. And this height being divided into three parts, the first and lowermost goes to the neck, the next part goes to the echinus, by which term he here comprehends several members. He describes this part in two forms, one of which is an echinus and three fillets under it; the other an ovolo and an astragal under it, and this portion was divided into three parts, two of which go to the echinus and the other to the three fillets or to the astragal, and the fillets are all of an equal size. In the astragal the fillet is one-third of the whole; the third and uppermost part of the capital is again divided into three, the two lowermost of which go to the square and the other to the cimatum, which is an ogee with the hollow downwards and a fillet over it. An ogee or cima recta is a moulding somewhat resembling an S, which Vitruvius makes of two quarter circles joined together, and this cimatum being also divided into three parts, two of them go to the ogee and one to the fillet; the astragal under the capital is equal to half the neck.

Scammozzi makes the capital of the same height, which he divides into sixty parts, of which three go to the fillet of the cimatum, five to the ogee of the cimatum, twelve to the square, fourteen to the boulder, five to the rondel, two to the fillet of the astragal under the boulder and nineteen to the neck. The astragal contains ten such parts, of which six and a half go to the rondel and three and a half to the fillet.

Palladio also makes the capital of the same height with Vitruvius, which he divides into three parts, the uppermost of which he subdivides into five parts, two of which go to the cimatum, and is again subdivided into three parts, one of which goes to the listella or annulet and the other two to the cima recta. The other three of the first subdivisions of this part go to the abacus; the second of the three grand divisions of the capital is subdivided into three parts, two of which go to the ovolo or echinus and the other to the annulets under it, which are three and are equal; the third principal part goes to the hypotrachelium or frieze. The astragal under the neck is as high as all the annulets.

In every Grecian Doric order the abacus of the capital is always plain, being a solid parallelepipedon, of which its two horizontal sides are equal squares and its vertical or perpendicular sides are equal rectangles; the inward recesses of the annulets in the capital are in the same curve

line as the ovolo above them (the Doric portico at Athens excepted), and their outward extremities are equal to their inward recesses.

The Ionic capital is formed thus by the Vitruvian rule. Divide the semi-diameter of the body of the column below into eighteen parts; take nineteen parts, of which three must go for the cimatum, one to the fillet and two to the cima or ogee under it. Then take four parts for the trochilus of the volute or scroll (the trochilus is the member from whence the scroll begins); then take four parts for the boulder, which is one-fourth of a circle, and is to be carved with eggs and anchors. Then take two parts for the astragal under the boulder. The astragal is carved with beads, and has a fillet on each side of it, each one-fourth of the whole. The six remaining parts must go to the half of the volute below; then take eight more such parts, which must go to make the remainder of the frieze or neck of the capital, and three more such parts for the astragal, under the neck on which one part goes to the fillet.

According to Vitruvius, the height of the Corinthian capital from the astragal at the bottom is equal to the diameter of the body of the column below, one-seventh part of which goes to the abacus, which consists of an ovolo, a fillet and a cavetto. The abacus being subdivided into three parts, one of them goes to the ovolo, and a third part of the next goes to the fillet and the rest to the cavetto. The height of the astragal below the capital is one-twelfth part of the diameter of the body of the column below, and is divided into three parts, whereof the fillet contains one part and the boulder two. Scammozzi makes this capital one diameter and one-sixth of the column high, which divided into seventy-five parts, four of them go to the boulder, one to the fillet, nine to the plinth and the rest to the neck. Palladio also makes the height of the capital equal to the whole diameter of the body of the column below and one-sixth part more, which is allowed for the abacus, by which probably he meant all the mouldings above the acanthus leaves.

Vitruvius divides the Roman or Composite capital like the Corinthian, and so does Scammozzi and Palladio, only the carving of it is somewhat different.

#### SHIRE HALL, WORCESTER.

CONSIDERABLE progress has been made with the scheme for the heraldic decoration of the eight windows in the large hall of the Shire Hall at Worcester, and in the course of the next few months the work which has been entered upon by the County Council after minute attention to designs and cost, will in all probability reach such a stage as will afford much gratification to Sir H. Vernon, Bart., Mr. W. Pearce and the members of the sub-committee who have studied the records of the county since the erection of the hall in 1837. Quite recently, says the *Birmingham Daily Post*, the co-operation of the city of Worcester and the five boroughs in the county was invited in order to make complete the decoration of the centre light of the north window. Bewdley, Evesham and Kidderminster have signified their willingness to join in the project, and at a cost of 14*l.* emblazon the arms of their respective boroughs. The Worcester City Council have referred the matter to their general purposes committee, by whom it will probably be considered next week, and replies are expected from the two other boroughs, Droitwich and Dudley.

The coats-of-arms of the boroughs, although interesting, will form but a small part of the general scheme, which it is calculated will cost the county about 200*l.* It is intended by the Council that the other windows in the hall shall be filled with stained glass, representing the arms of the Lords-Lieutenant, the High Sheriffs and the chairmen of Quarter Sessions and of the County Council who have filled those offices since 1837. The cost of emblazoning the arms is borne by the noblemen and gentlemen interested, the County Council bearing the expense of fixing, protecting and insuring the windows. The work on the south window is practically complete, and is a source of considerable interest to visitors. In the centre light the arms of the four Lords-Lieutenant have been fixed—viz. Thomas Henry Baron Foley, George W. Baron Lyttleton, Frederick Earl Beauchamp and George William Earl of Coventry—while in the two side windows the arms of the High Sheriffs from 1837 to 1884 have been fixed as far as practicable. The borders and geometrical glazing for panes which are not to be filled



with arms are also executed. Two of the High Sheriffs, namely, for the years 1867 and 1876, appear to have borne no arms, and it is proposed to place the crest and motto borne by these gentlemen, with their names, in lieu of arms in the panes reserved for those years. The consent of their representatives has been obtained and the cost promised.

The arms of the Sheriff for the year 1866 have not been supplied, and one other High Sheriff has not yet consented to provide arms. The sub-committee hope, however, that they may be forthcoming on a further appeal. The panes for which no arms or crests have been supplied will be dealt with in accordance with a resolution of the standing joint committee, at the cost of the County Council of 3*l.* per pane. It has not been possible to trace the present representative of Mr. John Richards, High Sheriff in 1844, and these arms will have to be provided at the cost of the Council. So far as the two side-lights in the northern window are concerned, one will be devoted to the arms of the High Sheriffs from 1885 to 1906—there are thirty-two panes in each window—and the remaining side-light will be reserved for future purposes. All the High Sheriffs' arms to be placed in the northern window have been obtained, with the exception of those of the Sheriff for 1891. The pane allotted to this year will be treated in the same manner as that for the year 1866 in the south window. The arms of one other Sheriff in this window may not be forthcoming, but he has furnished his crest, and is willing to pay for the treatment of the pane in whatever way the committee may decide. To sum up, out of the sixty-nine emblazonments required for the panes in the High Sheriffs' windows from 1837 to 1906, all but four have already been obtained, and one of these will probably be forthcoming.

The south-west window has been reserved for the arms of the chairmen of Quarter Sessions and the north-west window for those of the chairmen of the County Council. Up to the present time the Council has been presided over by only two chairmen—Mr. G. W. Hastings from 1889-92 and Mr. J. W. Willis Bund from 1892. With regard to the south-west window, it has been found that unless the Council go back further than 1837 they would have only five coats of arms for decorative purposes, and it has been proposed to go back as far as 1800, and thus obtain eight more coats, viz. William Welch, 1795-1817; William Earl Beauchamp, 1817-23; Benjamin Johnson, 1823; Earl of Mountnorris, 1823; Thomas H. Bund, 1823; Other Archer Earl of Plymouth, 1824-8; Sir Christopher S. Smith, 1828-33; Thomas Beale Cooper, 1833-6.

### GLOUCESTER CATHEDRAL.

A REPORT prepared by Mr. F. W. Waller for the Dean and Chapter of Gloucester Cathedral in February 1906 pointed out that the following reparative work was then most urgently needed:—West pinnacles of the nave; south-west turret of the south transept and clerestory windows of the nave, north side; great central tower, including roof and first bay of the choir adjoining the tower; roofs of the nave and south aisle; roofs of the north transept, north aisle and south cloister; exterior stonework of the south and north aisles and of the west end of the nave. Mr. Waller also directed special attention to the lighting of the cathedral, and stated that as so many services and recitals were held in the nave, this had become a very important question; the present system, by means of gas jets, causing injury to the stonework apart from the discolouring.

Since Mr. Waller's report, repairs have been fully completed in connection with the pinnacles at the west end of the nave, the west window, the south-west turret and the interior of the south transept, and also the stonework in the west walk of the cloisters. The most urgent and important repairs in connection with the choir vaulting adjoining the south-east angle of the tower itself at that point have almost been completed. This latter has proved to be a very difficult and extensive work, and one needing exceptional care to bring to a satisfactory conclusion, as serious settlements had taken place in the facework of the tower and in the groining above, resulting in the fall of part of the stonework, to which attention has been previously called. A very careful examination will now be made of other parts of the stonework and groining of the choir, including that beneath the tower, as further repairs are undoubtedly needed.

Scaffolds have been erected on the east and south sides of the great central tower, and a closer inspection shows the urgency of the work. The erection of such scaffolds requires exceptional care, the upper stages of the tower

being of slight construction and entailing a large expenditure both in material and labour. It is hoped to complete the repair of the upper portion of the east and south sides of the tower before the winter, so as to enable the higher portion of the scaffolds to be taken down. The north and west sides of the tower are in the same condition, and similar scaffolds will have to be erected to enable the repair to such two sides to be carried out.

With regard to the question of lighting in the nave, Mr. George Embrey, the county analyst, has been consulted and has made an analysis of scrapings of stone taken from the small pillars in the nave triforium over the existing gas-jets, and the analysis shows that decomposition of the surface of the stone must result, and in fact has already commenced, and that consequently the use of coal gas in such a building as the cathedral should be condemned. The Gloucester Corporation have laid an electric cable into the cathedral free of charge, and the Dean and Chapter are anxious as soon as the necessary funds are available to carry out the work of lighting the cathedral by electricity, or at least the lighting of the nave, which Mr. Embrey's report shows is a very urgent matter.

A report has also been made by Mr. Waller on the condition of St. Mary's Gateway, which, on examination, has been found to be in an almost ruinous condition. The necessary steps have been taken to protect and support this most interesting building, but the cost of keeping it in position and of carrying out such repairs as are necessary for its future protection will be considerable.

A list of contributions paid and promised to the restoration fund to date is appended, amounting to 6,658*l.* 2*s.* 7*d.*, and the Dean and Chapter wish to express their most grateful thanks to the many generous donors, and especially to the Provincial Grand Lodge of Freemasons of Gloucestershire for their munificent donation, which is to be applied in payment of the cost of repairing the pinnacles, &c., at the west end of the nave. A large sum, which may be estimated at 5,000*l.*, in addition to that already subscribed, will be required to enable the Dean and Chapter during the next three or four years to carry out the whole of the urgent repair work, including the electric lighting, and they therefore have to earnestly appeal for further donations during such period.

The expenditure up to the end of July 1907 is as follows:—Two large pinnacles at west end of nave, 745*l.* 19*s.* 8*d.*; small pinnacles and other work at west end, 55*l.* 8*s.* 3*d.*; south-west turret of south transept, 283*l.* 18*s.* 10*d.*; lightning conductors to pinnacles and turret, 60*l.* 9*s.* 4*d.*; choir vaulting and south transept (to date), 305*l.* 11*s.* 3*d.*; west walk of cloisters, 170*l.* 1*s.* 2*d.*; great central tower (to date), 360*l.* 0*s.* 8*d.*

### SOCIETY OF ARCHITECTS.

THE following are the nominations for officers and Council, 1907-8:—Professor H. Adams, R. G. Bare, J. Bartlett, Geo. E. Bond, F. W. Chancellor, F.R.I.B.A., J. B. Corby, F.S.I., T. W. Cotman, J. W. Dyson, H. V. Milnes Emerson, H. E. Hawker, F.S.I., Cholton James, F.R.I.B.A., W. J. Jennings, J.P., F.S.I., Col. F. S. Leslie, R.E., Ellis Marsland, H. W. Matthews, C. H. Mead, T. R. Richards, E. J. Sadgrove, F.R.I.B.A., Anthony Scott, W. A. Scott-Deakin, F.R.I.B.A., T. F. Tickner, F.R.I.B.A., Percy B. Tubbs, F.R.I.B.A., B. R. Tucker and R. F. Vallance, F.R.I.B.A.

It is proposed to organise a visit to Letchworth on Saturday, September 21, for the purpose of seeing the Garden City and the Urban and Small Holdings Exhibition now being held there. The visit will be open to members and students of the Society and their friends, and ladies are invited.

The price of tickets will be approximately as follows:—(a) For a half-day visit, starting at 1.45 p.m., including return fare from King's Cross, tea and exhibition, four shillings. (b) For a day visit, starting at 11.10 a.m., including return fare from King's Cross, lunch, drive round the estate, tea and exhibition, seven shillings. Those who propose taking part in the visit are asked to communicate with the secretary at once, indicating which time they prefer, (a) or (b), and stating approximately the number of their party. The visit can only be organised if a sufficient number send in their names before Monday, September 16.

Roman Relics consisting of over 100 pieces of pottery, apparently portions of burial urns, have been discovered during excavations on the site of Wareham (Dorset) Castle.



## NOTES AND COMMENTS.

It may be remembered that two or three years ago an effort was made by Mr. LANE to obtain examples of pictures by modern artists for a public gallery in Dublin. The Irish National Gallery is occupied with older works from which students cannot derive much profit. Mr. LANE's efforts were rewarded by several gifts and promises of others. But there was no gallery available for modern art. The term had nearly expired in which the pictures should be received. The public libraries committee therefore some months ago secured a lease of premises in Harcourt Street, at a rent of 100*l.*, for fifteen years, but with a right to surrender at the end of five years or any subsequent year. The question remained, from where was the rent and the money for the upkeep of the gallery to be obtained. At least 500*l.* a year will be required. The penny in the pound is barely sufficient to support the libraries. The only way out of the difficulty seems to be to derive the money from the borough fund. It has to be seen whether the Local Government Board will sanction the arrangement.

A REPORT has been presented to the French Fine Arts Department by the Chef de la Sureté, with the approval of the Prefect of Police, concerning the measures necessary for the protection from vandalism of works in the galleries of the Louvre. First is the formation of a brigade of thirty agents, the next is the erection of a barrier along the walls in front of the paintings. Any artists who work in the Louvre and who are possessed of a card of admission can be allowed to enter within the enclosure on making application to the officer in charge. It is considered to be wise if the small rooms, which are connected by a long corridor, were closed, as it is difficult to give them the close attention which is desirable. If they must be retained then it would be well to have detectives in the corridors in order that the slightest attempt to injure a work shall be at once prevented. It is recommended that the rule "Défense de toucher" should be strictly enforced and that the slightest infraction should be followed by punishment. Lastly, it is advised that the number of special guards should be increased. A great many lovers of the Louvre are of opinion that the throwing open of the galleries to unfortunate people who come there for the sake of warmth in winter or as a resting-place in summer should not be unrestricted. With all its wealth Great Britain charges for admission to picture galleries on certain days in each week. In other countries there is a similar rule, and it is quixotic on the part of France to be unique in dealing with so important a matter.

THE construction of reservoirs in connection with waterworks offers many risks which cannot all be foreseen. It is not certain that some of those lately carried out in this country will answer all the expectations of the engineers and local authorities. The same difficulties are found in the United States. Last month the Board of Water Supply of New York awarded the contract for the Ashokan dam in the Catskills to MACARTHUR BROS. Co. and WINSTON & Co. for 12,669,775 dols. This was not the lowest bid, as the John Peirce Company submitted a tender of 10,315,350 dols. In announcing the award Commissioner CHADWICK made the following formal statement:—"The question regards the construction of a dam which shall hold water, which involves a special form of construction, requiring expert knowledge and experience, and the details of which must be rigidly insisted upon. The cost of the work, as separately and independently estimated by the chief engineer, two designing engineers and an assistant engineer, is shown to be over 2,000,000 dols. more than the bid of the lowest bidder. These estimates of the engineering department are confirmed by the bids of four of the five bidders, each one of whom has had

more or less experience in this particular kind of work. In an analysis of the bid of the lowest bidder his figure on masonrywork, with which he is familiar, are approximately correct, according to the best evidence obtainable, but in the items of excavation and embankment his figures are over 2,000,000 dols. less than the next lowest bidder. In regard to their bid, Mr. PEIRCE, of the John Peirce Company, the lowest bidder, states that in the matter of excavation and embankment for reservoir construction, his company has had no experience, that they were dependent upon others for their figures, and that upon investigation he can procure no figures on these items to protect their proposal, and that upon rechecking his figures he finds that the estimate is too low to do satisfactory work for himself or the city. Therefore the estimate of the engineering department and four bidders out of five is practically confirmed by the statement of Mr. PEIRCE himself, and there is no other conclusion to be reached, in the light of this evidence, than that the bid of the lowest bidder is much below the necessary cost, besides being concededly based upon lack of knowledge and experience as to excavation and embankment items. To best secure the efficient performance of this work it is necessary that the Board of Water Supply should take into consideration every phase of the question, the elements of which are financial standing, knowledge, experience and such a margin for profit as will secure willingness and ability to continue the work to its conclusion with essential speed, the absence of any one or more of these elements being vital. Your committee therefore recommends, in view of the report of the chief engineer and the reasons set forth therein, and the answers to questions submitted to each one of the three consulting engineers, Messrs. FREEMAN BURR and STEARNS, which are herewith submitted, and which concur, supported by such additional thought and judgment as it itself has been able to bring to bear upon this subject, that contract No. 3, for the construction of the Ashokan dam, be awarded to MACARTHUR BROTHERS Co. and WINSTON & Co., at their bid, which, on the assumed basis of quantities amounts to 12,669,775 dols., the committee having satisfied itself as to the financial standing, knowledge, experience and ability of the said company to do the work."

## ILLUSTRATIONS.

SANDROYD SCHOOL, COBHAM.

THIS group of buildings has been erected on an elevated site near Cobham, Surrey, for Messrs. C. P. WILSON & W. M. HORNBY, and comprises a complete boarding school, with dining-hall, chapel, play-rooms, cricket pavilion, swimming bath, laundry, electric-power station and playing fields for eighty boys. The building is of local red bricks with Bath stone dressings, and the roofs are covered with sand-faced red tiles. The building is considered the most up-to-date boarding school of its kind in England, and no detail has been overlooked to make it so. The general contractors were Messrs. MARTIN, WELLS & Co., of Aldershot. The whole building was heated on the "Wreck" system by Messrs. HADEN & Co. and the consulting engineers for this and for the whole electrical work were Messrs. O'GORMAN & COZENS HARDY.

The architects were Messrs. TREADWELL & MARTIN, of Charing Cross House, W.C.

CARNEGIE LIBRARY, RAMSGATE.

SHIPPING OFFICES, TOOLEY STREET, S.E.

VOLUNTEER DRILL HALL, DARTFORD, KENT.

A PAIR OF COTTAGES AT LAMBERHURST, SUSSEX.

THE MAPPIN ART GALLERY, SHEFFIELD.



# UPTON.\*

would be pardonable for the casual visitor to suppose that the town of Slough was also the parish of that town, and he would expect to find in it an ancient parish church, or at any rate a successor to an ancient building. As a matter of fact, Slough is a comparatively modern town, whose growth has been continuous with the progress of the railway. Slough is in the parish of Upton-Chalvey; the mother church is that of St. Laurence, Upton, a most interesting structure. As a consequence of modernity, there is little of interest in the town of Slough, and perhaps the chief point is the fact that it is the home of the Herschels. M. Arago, the great French astronomer, writing of what was then the village of Slough, "C'est le lieu du monde où il a été fait le plus de découvertes," referring to the work of Sir William Herschel. The great observer came in April 1786 to Slough from Datchet, when he took the precaution to cut down all the trees, in order to allow free ocular communication between himself and the heavenly bodies. His astronomical researches were shared by his sister Caroline, who lies buried in Upton churchyard, while Caroline herself died in Hanover. The house in which they resided, the Windsor Road, although the front portion, bearing the title Observatory House, is a modern addition. It is occupied by the Herschels, and a small portion of the old telescope remains, the circles on the lawn indicating its position.† But the object of our visit is the very beautiful church of St. Laurence, Upton. Built originally about the year 1058, it was enlarged in 1250, the tower raised and the nave tiled about 1400. After this the nave was extended some 10 feet. In 1835 the church was in disuse and was pulled down, a sham Norman building, St. Mary's, having been erected in Slough in that year. This pseudo-Norman is gradually disappearing by rebuilding as funds permit. Bishop Wilberforce called it "a barn-like edifice," and acquired the plate, bells, registers and even the name of the church. It was desired to supersede, for it was known to be Laurence's for a time. To return to Upton Church, which seems to have been doomed to destruction, but Mr. W. K. a local farmer, gave 50*l.* to the parish on condition that the old church should not be destroyed. In 1850 it was saved by Mr. Ferrey, a south aisle added, and it was restored by Bishop Wilberforce in 1851. The restoration was far from being a conservative or preservative one, but might be expected from the date at which it took place. The church is a most interesting example of a Norman church; the north wall of the nave, the chancel and the tower are Norman of an early character. On the north wall of the nave may be seen an earlier opening which is now blocked up, as at St. Peter, Iver; this has been called Saxon, although it does not present any specific features of work of that period. The quoins of the Norman tower are to be seen about 18 feet from the present ground level, and the position of the original north doorway of the church is indicated by its position in the north wall. Perpendicular windows were inserted in the nave in the east wall of the chancel, but the latter was removed in the restoration of 1850, and replaced by two nineteenth-century Norman lights. At the same time the north wall of the nave was destroyed and rebuilt in that style of Norman which always offends the taste of the lover of ancient architecture. The south doorway is of this date, and the material of the old wall was used in building the new one, and some of the stonework of the old windows was inserted in the process. The narrow chancel arch, which was about 4 feet 3 inches wide and 12 feet high, was pulled down and the stones re-erected, together with those of the blind arches on either side, at the east end of the south aisle. The tower was also lowered by about 10 feet, and the present cap placed on it. A Perpendicular window on the nave north wall was also displaced by two round-headed windows of the objectionable type. It was said that "a beautiful rood-screen was found in fragments to the tower, fragments of which had since been made into a frame for the Commandments in the new church." Mr. Myers, whom I am quoting, thought that if the screen had been entire it would have been one of the finest in the county. Its date was about the fourteenth century. The register dates from the first day directed by

read by Mr. Theophilus Pitt, F.C.S., at a meeting of the Norwood Athenæum.

Professor Alexander Stewart Herschel, D.C.L., F.R.S., Professor of Physics and Experimental Philosophy at the College of Science, Newcastle, died at Observatory House on June 18, 1907.

the Act of Parliament of 30 Henry VIII., viz. October 23, 1538.

Near the north door is a curious tombstone "To the memory of Sarah Bramston, spinster, a woman who dared to be just in the reign of George the Second." Miss Mary Russell Mitford says of Upton Church:—"We visited the old church at Upton, whose ivy-mantled tower claims to be the veritable tower of the 'Elegy.' A very curious scene did that old church exhibit—that of an edifice not yet decayed, but abandoned to decay, an incipient ruin such as might probably have been paralleled in the monasteries of England after the Reformation, or in the churches of France after the first Revolution. The walls were still standing, still full of monuments and monumental inscriptions; in some the gilding was yet fresh, and one tablet especially had been placed there very recently commemorating the talent and virtues of the celebrated astronomer, Sir John Herschel. But the windows were denuded of their glass, the font broken, the pews dismantled, whilst on the tottering reading-desk one of the great prayer-books, all mouldy and damp, still lay open." Such was the state of many an ancient church, not only at the time Miss Mitford wrote, but even some forty or fifty years later.



ST. LAURENCE, UPTON: NORTH DOORWAY.

The removal of whitewash from the walls revealed a great deal of coloured painting, including scenes from Our Lord's life, as well as some consecration crosses; the colouring which appears now has been retouched. The circular font is Norman; it has twelve round-headed panels, and was returned to the church from the new one, whither it was taken when the old church was abandoned in 1837. There is also a Norman piscina of pillar shape now in the chancel, as is a portion of an alabaster figure representing the Blessed Trinity. It is one of the anthropomorphic representations of the Eternal Father which sometimes occur in Mediæval work. He is holding the Son between His knees, and doubtless the image was surmounted by the Holy Dove, as representing the Third Person of the Blessed Trinity. There is also an interesting carved wood blind arch of the thirteenth century with dog-tooth ornament and foliage. Now at the east end of the new south aisle, it was formerly on the north side of the chancel arch. There are traces of gold and colour upon the wood, as also upon the alabaster image just mentioned. Of the monuments the most interesting are the brasses to members of the family of Bulstrode—Edward Bulstrode, Esq., his wife and children, 1599.

Upton Court is a very charming house on the south side of the church. It belonged to the canons of the Augustinian priory at Merton, and at the Dissolution passed into private hands; amongst others it was owned by the families of Hungerford, Eaton, Lane, Lascelles and the Earldom of Harefield. Among its tenants have been Mr. Nash, Mr.



More, Mr. Jennings, Mr. G. A. Sala, Mr. Nelson, Sir Douglas Forsyth (the Oriental traveller), Mrs. Drummond and the present occupier, Mrs. Burton. George Augustus Sala says of it:—"I resided five-and-twenty years ago in a dear old house called Upton Court—a weird and ancient mansion with high-pitched thatched roof and dormer windows, a very antique manor-house of the Tudor period, I should say." Again he says:—"How often on calm summer evenings, from the garden of my old house at Upton, have I looked between the two tall elms across the busy farmyard, athwart the fat meadows with their solemn cows, along the steaming meads of Datchet, across the bright white Thames, and watched the distant vision of Windsor's castled steep—its shadows bluer than David Roberts ever painted the dome of St. Peter's towering in the far-off Campagna—and I have seen the Round Tower all at once turn fiery red with the last rays of the expiring sun. Then the shadows of night have come down upon it, down, down, down, and then in tower after tower, and along the façade of the terrace, the windows have been lit up, and from the number of the illumined casements I have speculated upon the brave doings and grand company in the Castle." He further describes the Court as having a lake in front; this has been filled up and a lawn takes its place, a garden all run to exquisitely picturesque wildness and a rosary with eighteen varieties of roses. To these must be added a ghost who wore a white night-gown richly frilled, with a large stain of blood on the left breast. She always walked on Friday night, and her footsteps crunched the gravel paths as she went, according to the servants. Gipsies! says Mr. Sala. Mr. Myers says that "formerly two of the outer doors of Upton Court opened upon a sort of half quadrangle. The fabric is pretty nearly full-timber frame, and inside it contains some very sturdy beams. One, in particular, passes through two floors and then forms a roof beam. There is one very large room, which was possibly the refectory; in it is a large chimney, and connected with it there is a secret room, the existence of which can be plainly discovered by tapping the walls. In the room now used as a drawing-room are two recesses, which, no doubt, were formerly cells of the monks. There were several interesting and valuable examples of foreign glass in the building, principally Dutch."

#### LIVERPOOL CATHEDRAL.

THE walls of the Liverpool Cathedral are rising slowly, but surely and solidly, above the soil of St. James Mount. The building of a cathedral is not a work to be hurried. Destined to last through the ages, scrupulous and painstaking care must be devoted to every detail and soundness and solidity form the stamp on every brick and stone. Some impatient critics, says the *Liverpool Courier*, have contrasted the slow rate of the work with the rapidity of construction of such buildings as the new Cotton Exchange and the Dock Board offices. The comparison seems to bring into contrast the methods of English Mediæval building and the modern mode exemplified in the skyscrapers of New York or Chicago. The two are as the poles apart. In practical fact no such comparison is possible, for the style of building is fundamentally different. The modern buildings instanced have a framework of steel with cross sections, and upon this skeleton you can run up a building as quickly as workmen can be crowded upon the structure. A cathedral upon such a plan as Liverpool's is an assemblage of buildings, massive in all parts and with no such skeleton framework embracing the whole. Even with the best appliances that modern ingenuity can devise the process of erection must in the nature of the case be slower than in the steel-framed structures built for business purposes. Any such comparison is futile.

As a matter of fact the progress of the cathedral is entirely satisfactory to those immediately concerned. The foundations, gigantic works in themselves, were completed in the spring of last year, and in July the superstructure was commenced. To-day very considerable progress has been made with the lady chapel, which will be the first portion completed, while the main wall of the cathedral choir is simultaneously rising. The first steps were taken last week in fixing the base of one of the massive piers which will rise 80 feet in the air, while the bases of other piers are already in position. A glance at these ponderous masses of masonry will indicate the vast size of the tremendous piers, not built around a steel shaft, but of solid rock resting upon the solid rock beneath. The lady chapel will be complete and ready for use in three years.

Of its total height of roughly 120 feet the structure now reached about 33 feet. Within the last fortnight sills for the clerestory windows have been fixed at the corners of the eastern vestries placed in position. There is now there is some indication of the beauty of the completed edifice with its Gothic ornamentation and design, and passages, steps and arches have all that appearance of combined solidity and grace so charming in ecclesiastical architecture. The main wall of the choir now rises 9 or 10 feet, and the doors of the vestries are well on. It is in the lady chapel, however, that the visitor will find the greatest evidence of progress, and very interesting find it to watch a cathedral in the making.

Visitors to the site have been rather numerous, and it is to be feared that their presence has to some extent hampered the operations. Some care has to be exercised with strangers. To what length the audacity of the hunters may go is shown by a sensational incident, before published, which took place on the day the foundation-stone of the cathedral. A well-dressed man, apparently of perfect respectability, was detected in an attempt to chip off a piece of the foundation-stone. Needless to say, he was removed with all haste from the premises. The stone is now covered in a wooden frame, and the example of the enthusiast is not to be followed. Apart from such parties, it is found that visitors delay the operations by engaging the workmen in conversation as to the structure, or pursuing inquiries upon all sorts of details. In consequence of this it has been found necessary to curtail to some extent the visiting privileges. At present an average of some fifty persons visit the site during the week, while on Saturdays, at a time when work has ceased, large parties of Sunday scholars are taken by their teachers over the site.

Another point in connection with this matter is the question of liability for accident. A tour of the site occupied as it is by masons at work, with large quantities of hoisting stones and gang planks spanning deep holes, is unattended with danger. The Employers' Liability Act may possibly apply in case of accident, and steps have been taken by the contractors to cover themselves against it. Each visitor has now to sign his name in a book on the page of which is printed the following:—

"I, the undersigned, hereby acknowledge that I have obtained the permission of the Liverpool Cathedral Committee to visit the work in connection with the building of the Liverpool Cathedral at my own personal risk, and in consideration of so allowing me to inspect such work I undertake not to make any claim against you, or anyone in your employment in respect of any injury I may sustain from any whatsoever during the time I am on the premises."

Having signed this declaration and being provided with a ticket of admission obtained from the Cathedral House, the visitor is at liberty to inspect the works.

Apart from the actual structure of the cathedral building, there is much to interest him, and perhaps the first point to engage his attention will be the huge masses of uncut stone which are piled up on every hand. There is about 50,000 cubic feet of stone on the premises, weighing some thousands of tons. This is all sandstone and brought from the quarries at Woolton, Runcorn, Helsby and other hills. Some of it, of a harder kind, comes from the Dean, and is used for the steps and landings. This stone is carted to the works daily at the rate of some three or four thousand feet in the week. It is dressed on the site by masons with their labourers, some 160 men, who are constantly at work in their sheds chipping and shaping the stone. Stone saws are at work dividing the masses of stone into seven large cranes electrically driven transfer huge blocks from place to place. Some of the cranes travel on a metal roadway and convey the blocks with wonderful speed and certainty. All this is done in what is necessarily a very circumscribed area, and the visitor will find it necessary, therefore, to exercise caution. Mallets and crowbars are at work all around him, the cranes are swinging great lumps of rock through the air, and he will have to frequently the lines along which the travelling cranes are moving. Proceeding towards the lady chapel he will traverse slippery gangways over the yawning foundations and descend sloping planks beneath a network of scaffolding. As may be imagined, some care is required in making such a tour, but it will nevertheless be found of stimulating interest. Here is the cathedral ground under one's eyes, a fabric which will be a glory to the Church and a source of worthy pride to all who look upon it, however humbly, to raise it.



## BIRMINGHAM AND ROMAN BRITAIN.

THE Transactions of the Birmingham Archæological Society, of which volume xxxii. has just been issued to subscribers, contain an exceptionally interesting paper by Mr. G. Bernard Benton upon "Early Earthworks, and Hollow Roads of the Upland of Barr and Sutton Fields." The history of Birmingham as a town is comely modern, says the *Birmingham Daily Post*, but it is upon the border of a district which was of considerable importance, both in Saxon and in Roman times. A new "Dictionary of Birmingham," now out of print, says:—"We have no record or traces whatever of there being inhabitants in this neighbourhood before the seventh century, though there can be little doubt that in the time of the invasion of the Romans some British strongholds were situated a few miles of the place, sundry remains having been found to show that many battles had been fought near it." It is also generally known that Icknield Street derives its name from an ancient Roman, and not improbably, highway which crossed the country near the Hockley Hill, and of which portions are still traced on Park on one side and the foot of Weatheroak Hill on the other. Beyond this, however, the average citizen of Birmingham little dreams of how important the late neighbourhood must have been during the time of the Roman occupation. Mr. Benton, however, touching the subject from the point of view indicated in the title of his paper, says:—"This road, the great Icknield Street, from St. Davids to Northumberland, communicated by branches (which must have been in Birmingham) with Cirencester and the South coast, and by Worcester and Gloucester with the other Channel ports. Of other smaller roads one is that which Queen Henrietta followed from Walsall, Tamebridge, Sandwell, Smethwick, and Warborne, the Icknield Port Road, in fact; one connecting Birmingham with Roman Coventry; another, a street, with Roman Tamworth. It was this latter road, running to Salford, the decay of which in the valley of the Aston Brook led in the fourteenth century to the formation of St. John's, Deritend. It had branches by Lane to Boldmere, by Erdington to Sutton, and by Shepherd's Green, where its ancient surfaces were discovered in the garden of Wood End House, paved with pebbles, accurately curved and accurately positioned, 2 feet 6 inches below the surface, for the formation of a "road under the ground" here, which we have always misunderstood as a subterranean passage. Its last branch which I regard as the Roman course of the road to Northworth Lane. The Wolverhampton road was rediscovered in the eighteenth century, "breaking away on your way to leave Birmingham," for until this discovery was made while the coaching book was in the Press) the road which had been attracted to Birmingham by the iron and its manufactures were actually wont to clamber back to the confines of the coalfield in order to resume their journey through Walsall to Wolverhampton.

*Fortress at Castle Bromwich.*

THE attention which has been given to the Roman roads has, Mr. Benton urges, obscured the significance of the other great roads which are numerous in the upland and salt districts. Speaking in particular of the Ridge Way or Ridge Road, which he is convinced was originally planned in straight lines from Castle Bromwich to Barr Beacon, he pictures as follows the fortress of the former place commanding the crossing of the river:—"Everyone has been impressed by the commanding position of the church at Castle Bromwich—the castrum of (Wido de) Brame-wic. I wonder how many of the river have felt in ascending the hill that they were entering the main gate of a fortress. The ancient road of the Tame by the Chester Road seems to have been the mill, or by way of the island which the weirs form. The river itself in ancient times flowed uniformly at the foot of the hill, itself a notable ridge, extending from Wood End to the little island dun of Water Orton, forming one of the most remarkable series of natural moats to be found in the country. Arrived at the further bank, the wayfarer was compelled to turn back, being imprisoned between the water and a precipitous bank on his right; if he were an enemy he thus exposed his side to the weapons of the garrison above. This position was continued until the present course of the high road was reached, and here he found himself at the left clavicle of the gate, about where a

bench now stands, while to his left was a slight expanse of level ground with the Gate Well, now the Well of Saint Catherine. Turning in to the right the course of the highway is still dominated by ramparts until near the church access was gained to the interior of the fortress. If we now go right through the camp and turn to the left through the village, we find a lane on our left descending to the river. For some distance it is but little below the ground level, until near where a lateral gate of the fort should be it turns slightly to the left, and approximating more nearly to its ancient depth, it descends from 9 to 15 feet into the hillside. We are now in the ditch, which continues to get deeper until the ground opens above the river; here the road, emerging upon the surface, turns to the right and finishes the descent as a traverse; but the cutting itself turns sharply to the left and fashions the steep hill face into a tree-encumbered precipice with the river gurgling at its base. Now if we climb that dangerous bank we find ourselves in the ditch below the ancient rampart of the water-front. We may follow this rampart till it is broken by a coomb, which possibly formed another gate opening upon a meadow below; then below the tumulus we continue along the sandy bank until we again find ourselves at the clavicle of the gate. The great mistake which has hitherto been made by archæologists who have examined these works has been to regard this half as the whole of the camp. If we now follow the roadway again for about 100 yards, a line of trees will be perceived in a meadow on the right below the church. These occupy a low mound of soil claimed as a road by the peasantry. It occurred to me at once that this was a ditch which had been filled with rubbish. Its slight curve out toward the river suggested the right clavicle of the camp gate. I proceeded to follow it with increasing confidence until it suddenly lay open at my feet—a great cutting through the clay, some hundred yards in length, 10 or 15 feet deep—and beyond again the filling and planting scarcely disguise the continuation to a low lying moat or pit which occupies the north-western salient. From here a ditch, now filled in over drain pipes, conducts the drainage to a moat upon the river. This ditch must once have served to prevent an enemy from running in from the west, between the front and the water. The road approaching the mill from the west was squeezed between this moat and the river bank. The south-western face of the camp proper is represented near the high road by a broad sunk ditch, but between this point and the river angle time and dismantlement have done their work so well that little remains which would catch the eye of a casual observer."

*British Bricks and Roman Mortar.*

REFERENCE is made in Mr. Benton's paper to numerous traces of earthworks in the neighbourhood of King's Standing and Welchman's Hill, where the Ryknield Street crosses the Ridge Way. He mentions an inquiry which was addressed to him by a small farmer in the neighbourhood as to "when folk made bricks very thin—call 'em bricks; they were more like kitchen quarries for shape, but awfully badly made; slapped together anyhow, warped and curved like." "It seems," says Mr. Benton, "that in the gardens of the old Bell House cottages, where he once lived, he discovered a wall 2 or 3 feet below the surface. It was built of these British bricks in hard white mortar. On my suggesting that I had seen such bricks bearing the marks of boots and hooves, he exclaimed, 'Men and children had run on what I found with no shoes on; lots on 'em.' He at a later date enlarged this statement and called his wife to corroborate the footprints. It seems that the Roman mortar broke his tools, and he gave up all attempt to remove the wall." It is interesting to note that this spot is exactly midway between the pretorian site of the fortress of Castle Bromwich and the Castle Field of Welchman's Hill, and is also midway between the ancient camp of Salford Hill and the Manor Hill at Sutton.

*Passages of the Tame—Perry Barr.*

AFTER pointing out that "every ancient passage of the Tame proves upon close inspection to have been commanded by works, the construction of which leaves no doubt that they were made by the legions," Mr. Benton dwells in some detail upon the indications of a line of dykes and pits connected with a static camp near the Holdford farm (now absorbed in Kynoch's estate), "large enough to contain one of those great consular armies which assembled when all the legions in Britain raised to double strength, with their auxiliaries, were mustered for some great enterprise." "To form this castrum a new bed was cut for the



Tame, which was thus constrained to form a broad and deep moat at least 2,230 feet in length, the original camp being a square of this measurement facing north. Within this moat, and parallel with it, were constructed two long pits, about equidistant from the centre and a furlong apart. Each pit was upwards of 130 feet long and perhaps 40 feet wide. At these points the broad cross-roads of the castrum are distinctly seen 60 feet wide. The bridges crossed the moat to the tongues of land isolated by these pits to which the water was admitted. By a clever arrangement of weirs, water from the moat was let down into the original bed of the stream, which was thus most cunningly made to form an advanced work covering the approaches to the gates and to the exposed north-eastern salient; it was thus rendered impossible for an enemy to attack this face on a broad front. The eastern moat had a length of 1,410 feet to the mill, which I consider was the fabricum; the rectangular pool had cunningly protected approaches, while pits without and a re-entering ditch within covered the road from Witton Ford (still traceable under the ammunition cabins). It is only part and parcel of the profound romance of archæology to note that, all unnoticed, this re-entering ditch drawn by Romans to protect a forge which armed their legions has dictated the curious position of a factory which supplies millions of cartridges to British troops after the lapse of 1,600 years. The south ditch of the static camp was a hollow lane now filled up (it is by this road that the mill is still approached); the gatepits on its north side are still faintly traceable. The pretorium occupied its normal position in the centre. Its foundations possibly lie under half of the existing house, and extend thence eastward to the ditch which divides the camp north and south. It has been stated by high authorities that even such important cities as Anderida were not walled on their water front, but perhaps we should not trust this theory unless it were proved by excavations carried to great depth that the whole of the accumulation of silt on these lower sides had been probed. However that may be, there seems to have been a wall of great breadth within the north moat at Perry. Some of the farm buildings contain much stone dressed with Roman scappling, and one shows faintly a letter or two of inscription."

"It has been the custom for some considerable time to speak of the (Perry) bridge as Roman. Against this," says Mr. Benton, "I felt originally the strongest prejudice, but I now have not any doubt that the deviation of the high road was made under the Empire, and that the bridge was permanently built in its present position at a time when a magnificent station was set up in the north-west angle of the works; the ruins of this establishment choke the gardens of Perry Pont House with thousands of tons of stone, while all the materials common in the hypocausts and other works of such mansions as Woodchesters have been utilised in the vinery and other parts of the buildings. There are, too, inserted in the numerous grottoes more than a dozen grotesque heads carved in stone, and exhibiting the characteristics of some of the best Roman work of this character found in the provinces. I saw also one small head of a portrait type with beard and whiskers of the Antonine period."

The author of the paper hopes that his research may stimulate further inquiry, and may cause archæologists to pause before consigning to the doubtful "Early Norman period" all fragments of Romanesque workmanship which from time to time come to light.

#### SCOTS COLLEGE IN PARIS.

NO one would have thought that Scotland would be drawn into the *engrenage* of the struggle now going on in France between Church and State. The struggle is, of course, nominally over, as the separation has been decreed. But it will go on for many a long year still, says a correspondent of the *Glasgow Herald*, about the property of the Church confiscated by the Government, and it is by this seizure of Church property that Scotland has been drawn into the matter.

The French Government, with the other Church property, seized the Scots College in the Rue Cardinal Lemoine. Against this the British Government has entered protest, and negotiations for its surrender are being conducted by the British Ambassador and M. Briand, Minister of Public Instruction. To this department the former Ministère des Cultes, or Ministry of Ecclesiastical Affairs, belonged, and it is M. Briand who is entrusted with the difficult task of carrying out the liquidation. The seizure of the Scots

College was to many people the first revelation of its existence. I confess that though I had heard vaguely that there was such an institution I had never seen it and did not know where it was situated.

The history of how it came to be seized by the Government is a somewhat curious one. The Scots College was founded by King Robert the Bruce. At the time of its foundation there was a healthy rivalry between John Baliol as to who should do most for education in Scotland. Baliol favoured English influence and founded the College at Oxford. Robert the Bruce declared in favour of French education, France being the ally against the enemy, England. He accordingly founded the Collège des Ecossois in Paris. The year of its foundation was 1362.

The first building was in the Rue des Amandiers, which was in the vicinity of the quarter where the Scots lived in the Rue des Ecossois. But in the latter half of the seventeenth century the then Principal had the college moved to the existing building in the Rue Cardinal Lemoine. This lies on the eastern slope of the hill on which the Panthéon stands, a stone throw from the beautiful church of St. Etienne du Mont.

It is not a particularly striking building from the exterior. A large barrack-like erection, five storeys high, it stands on the eastern side of the street. Over the main entrance is the keystone of the arch, are the words "Collegium Ecossois," the old spelling of the word "ecossais" being preserved. The windows on the lower floor are barred, as the college was used as a prison during the Revolution and Terror.

The college is still used for educational purposes, known as the Institut Chevalier, a school of the high grade which prepares young Frenchmen for the *baccalauréat*, the French degree of Bachelor of Arts. But if the exterior is plain, even to ugliness, the interior is all the more interesting. A handsome oak staircase of monumental proportions, black with age, conducts to the first floor. It is lighted by large diamond-paned windows with a border of blue glass.

On the first floor is the chapel, which has happily been respected and left exactly as it was 300 hundred years ago. Above the entrance door is the inscription "Hic habitavit Sanctus Dei cum Hominibus." It is not very large, but able to seat from 150 to 200 worshippers. It is oblong, and except at midday, when the sun's rays stream in by the four windows, is but dimly lighted. The windows, like those on the staircase, are diamond-paned and lighted with ancient stained glass. On them and above them is the monogram of King Robert the Bruce, surmounted by the Scottish Crown. The altar is plain, almost to the point of being tasteless, but the effect of the chapel is impressive and artistic in the highest degree.

On the walls are marble tablets with time-worn inscriptions, mostly to the memory of Scottish soldiers who fell in continental wars. The only thing missing from the whole chapel is a large marble tablet on which are inscribed the names of the students of the Institut Chevalier who fell in the war of 1870.

The chapel is preceded by an ante-room, which is less interesting than the chapel itself. It has hanging from the roof a large lustre in gilded bronze, a fine example of the metalwork of the seventeenth century. But the most interesting thing in the ante-room is the sarcophagus of dark marble set into the wall near the entrance to the chapel. Here, in a silver casket, reposes the body of James II., the last of the Stuart kings. On it is an inscription "Memoriae Augustissimi Principis Jacobi Magnae Britanniae, &c., Regis, 17 October, M.D.C.C. the opposite side of the room is a large tablet in black marble to the memory of Frances Jennings, Duchess of Tyrconnell.

In this room formerly hung two portraits of the Pretender and his father. These have, however, been removed to a small room, which the Principal of the Institut Chevalier uses as a study. This is somewhat to be regretted, as the light is not particularly good for the pictures are not seen to the best advantage. The Pretender is represented at half length, but the portrait of the Young Pretender is a full length one. He is shown bareheaded on a promontory in gold-chased armour, with plate, greaves and arm-pieces. The broad blue ribbon of the Order of St. Louis stretches across his chest. Below him a fleet is seen riding at anchor. Toward his right arm is pointing as if giving orders for the engagement.

The Scots College at one time possessed a large collection of historical records, viz. the cypher correspondences of the Pretender and his father.



d between the two Pretenders and the Jacobite leaders England and Scotland. These were in the college at outbreak of the French Revolution, but since then no of them has been found. One story states that they removed to a convent in Normandy, another that they sold as waste paper. In any case they are hopelessly unless some clue to their whereabouts exists in the res of the Vatican. They were first deposited at the e in 1701, when Lewis Innis was principal. Hume hem when he visited Paris in 1748.

I this, however, does not explain how a Scottish insti- like the college should have got involved in the ut conflict between the French Government and the h. It came about in this wise. Though, according to iginal charter, if the college was founded "for the al education of Scotsmen with a view to increasing the ctual influence of France in Scotland," the greater er of students were students of theology, and perhaps time were exclusively so. The result was that when, g the French Revolution, the property of the Church was cated, the Scots College was also seized. When eon I. established the Concordat with Rome the Scots ge was set free with the rest, that is to say, the French nment still claimed it as its property, but allowed the es to be devoted to their original purpose, as they then (erroneously) supposed to be, that is the educa- of young Scottish priests. The management of the ge was handed over to the *économé* of the Catholic nary of St. Sulpice, and all the existing archives were rferred to his keeping. The college itself was let, and nds derived from this and other sources was devoted e education of young Scottish priests, chosen by the ate of Scotland. The other source of income of the College is derived from the rent of a farm at Grisy, Paris, which is the property of the foundation.

en came the present conflict between the French nment and the Church, which ended in the denuncia- of the Concordat. The property of which, under the rd, the Church had the use again came back to the nment. In consequence of the original error made g the French Revolution, the Scots College shared the of the rest. The Seminary of St. Sulpice was closed he students expelled, the Scottish students with the

is against this that the British Ambassador has entered st. It declares that the original purpose of the college general and not exclusively religious. That it became s a mere accident, which in no way affects the original er. The application of the revenues of the college to y theological—and Roman Catholic—teaching is uned- edly contrary to the intentions of its founders. In rt of this contention much evidence has been collected. the Reformation in Scotland the principal and pros- were laymen, and many famous heretics studied , including Buchanan, the Freethinker; Mair, a revola- ry Protestant; and Barclay, the Quaker.

the middle of the eighteenth century the Papal Nuncio, ng to the Pope, denounced the Scots College as a hot- f Jansenism. This deplorable state of things, he de- d, was due to the teaching of one Thomas Innis, who een prefect of the studies at the end of the seventeenth ry. There is, therefore, no doubt that in being devoted sively to the teaching of Roman Catholic students enues of the college had been "side-tracked" from original purpose.

. Briand, the Minister of Public Instruction, has met British Ambassador in the most friendly spirit, and asks proof to be given him that the foundation was not ely Roman Catholic one to surrender the revenues to original purpose, that is to say, the general education ng Scotsmen in the French capital.

ie matter has been taken up by Sir Thomas Barclay, ell-known international lawyer in Paris. He proposes money should be raised in Scotland to purchase the e from the French Government. It is valued at 400,000 francs). As, however, the French Govern- only holds the property in trust, and has hitherto ed the revenues derived from the letting of the college e farm at Grisy to the purposes (as they conceived of the foundation, this sum of 16,000l. when paid to would still be held in trust for the purposes of the e. The purchase would merely give the purchasers ee disposal of the building, while the amount paid by to the French Government, and held in trust by the, would form the nucleus of an endowment fund. The e would therefore be free of debt and have a revenue

of 480l. (the interest at 3 per cent. on 400,000 francs worth of French Government Rentes), plus the revenues of the farm at Grisy.

Sir Thomas Barclay proposes that the building should be restored to its original use, and that the Scottish students should be lodged there as formerly. He thinks that the matter should be taken up by the four Scottish Universities, whose principals should *ex officio* be trustees of the college. Students of all kinds would be admitted, art students, students of music, &c., as well as those studying for the liberal professions. It would be a new link in that *entente cordiale* between France and Scotland, an *entente* that dates back nearly seven centuries.

## SUSSEX ARCHÆOLOGICAL SOCIETY.

THE sixty-first autumn meeting of the Sussex Archæological Society, held on Monday, will be remembered as one of the most enjoyable outings that that body has ever organised. The district visited—Eastbourne and Pevensey—says the *Sussex Daily News*, is peculiarly rich in relics of the past, and apart from the archæological interest of the excursion there was the pleasure of the long drive through quiet country lanes with the rolling Downs never long out of the picture. When it is added that most glorious summer weather prevailed, it will be seen that nothing was lacking to complete the success of the day. The party was an unusually large one, numbering no less than 230, nearly double last year's record. The large party was drawn from all parts of the county, and assembled at Eastbourne railway-station a little after ten o'clock. Brakes and char-a-bancs were in waiting, and in these the party were conveyed to the first object of interest, the ancient parish church of St. Mary.

### St. Mary's Church.

When this building was reached, Mr. P. M. Johnston, architect, who had undertaken to describe its features, had not arrived, and accordingly the Rev. W. Budgen stepped into the breach and gave an interesting sketch of its early history from the day when in 1054 King Edward the Confessor made a grant of a church and its endowment to the abbot of Fécamp, in Normandy.

Mr. Johnston arrived shortly afterwards and continued the story, explaining that in 1160 the work of rebuilding the church was undertaken—an operation which lasted some twenty-five years. The earliest feature of the church as it now stands is the chancel arch. Mr. Johnston drew attention to the remarkable suite of mouldings on the arch—the nebulé ornament of the outer order, and the chevron or zigzag of the inner. The nebulé ornament, he explained, is not very often met with, and this is, indeed, the only instance of its occurrence in Sussex. Other peculiarities noted by the speaker were the remarkable deviation to the north of the axis of the chancel and the step down into the chancel—the latter owing, no doubt, to the fall of the ground towards the north-east. A great number of fish markings in the stone on the arches of the south side of the chancel suggested that they were built with the proceeds of a toll on fish. The nave was of later date, and the style became fully developed Early English, whereas in the chancel it was the earlier, simpler and far more beautiful work of the transitional Norman period. The occurrence of a clerestory was unusual at this early date. Mr. Johnston also drew attention to the almost unrivalled early screen-work between the arches of the chancel, the Flamboyant window in the east wall of the chapel, which he had the pleasure of restoring from a very mutilated state a few years ago, the perfect rood-stair turret on the north of the nave, the second rood-stair in the south-west pier of the chancel, the Decorated font, the Easter sepulchre, on the north and the range of piscinas and sedilia on the south of the chancel.

A hurried visit was paid to the quaint old parsonage house near by, and also to the crypt under the Lamb Inn, presumed to be part of the original thirteenth-century inn. With respect to the former Mr. Johnston stated that steps had been taken to acquire it for use as a sort of church house, but owing to lack of agreement between the parties concerned these had come to nothing.

### Langney and Westham.

The drive was then continued to Langney. The object of interest here was a building which was originally a grange of Lewes Priory and was occupied by a succession



of well-to-do tenants till the Reformation, but is now a farmhouse. The fourteenth-century chapel still remains, and this was inspected with much interest. Another short drive brought the party to Westham Church. Mr. Johnston pointed out three perfect Norman windows in the south wall of the nave, and also drew attention to the transept with its Norman arch—probably one of two, the other having been destroyed when the church was widened. The roof, he said, was of quite exceptional width for a Sussex church—no less than 24 feet. There was a very fine rood-screen, the remains of which are now to be seen at the west of the church. Three piscinas are distributed about the church, each with its little credence shelf. At the conclusion of his paper Mr. Johnston made the sad announcement that the Bishop of Chichester had passed away that morning.

#### *Pevensey Castle.*

At Pevensey Castle the rôle of guide devolved on Mr. L. F. Salzmänn, who described in detail the excavations which are now in progress and the results achieved so far. After an interval for lunch at the Royal Oak, the party returned to the castle, where Mr. Salzmänn dealt with the later history of the building from the time of the Conquest, when it came into the hands of Robert, half-brother of the Conqueror, who threw up the keep mound, probably dug a moat and also repaired the Roman walls.

In 1250 the property came into the hands of Peter of Savoy, who seemed to have built the present castle, so that in 1264, when it was held for six months by the Royal against the Baronial forces, it was comparatively new. Mr. Salzmänn pointed out the design of the building, and explained that the garrison would be a very small one from the modern point of view. The professional troops did not seem to have numbered more than twenty or thirty men at any time, besides which there would have been various tenants of lands in the neighbourhood who owed knight's service, probably commuted for a money payment after the thirteenth century. The towers were for the most part covered with lead, which protected them for some time, but in the end was the cause of their ruin, because it was

the most valuable thing in the castle, and the royal ov decided to strip it off and sell it. In 1573 when the castle was getting ruinous the lead was valued at 253*l.*, while the woodwork was only worth 60*s.*, the iron 5*s.*, and there was no glass left in any of the windows. In 1541, 5*l.* was for 600 loads of the square facing stones, which were used to build Priesthaus. Nothing but the difficulty of getting the stones at a higher level seemed to have preserved the castle. Canon Cooper expressed the thanks of the party to Mr. Salzmänn and Mr. Johnston for their papers, and also appealed for support to the fund which is being raised to secure the Barbican House, Lewes, as the home of the Society. The purchase price is 2,000*l.*, of which 900*l.* has been raised.

#### *"Priestholes" at Glynleigh.*

A hurried visit was paid to Pevensey Church, where Mr. Johnston pointed out the many features of interest, and also expressed the regret of Archdeacon Sutton that, owing to the death of a relative which called him away, he was unable to conduct the party over the church. The party drove to Priesthaus, where, in the absence of Mr. Alexander Campbell, Mrs. Campbell with the assistance of Mr. Norman Innes and Mr. Edwards, entertained a number of the visitors to tea, the remainder being similarly entertained at Glynleigh by Mr. and Mrs. Cunliffe Smith. Mr. Johnston gave a brief address on the latter house which, he said, dated back from the sixteenth century, the only unusual feature being the turrets, the upper parts of which, it was suggested, may have been used as "priestholes" in the days of Queen Elizabeth and the Stuarts. The last object which attracted the attention of the party was an apparently dilapidated outbuilding of a farm at Otham which, however, proved to be the remains of a chapel of the period 1290-1310. It was built, Mr. Johnston explained, by the Premonstratensian canons, who decided to found a house in Sussex, but found the place so unhealthy that they decided to abandon it and moved to Bayham, where they built the well-known abbey. From Otham the party drove to Polegate station, where they took train to their various destinations.

### CARNEGIE LIBRARY, BIRKENHEAD.



SOUTH BRANCH CARNEGIE LIBRARY (ROCK FERRY), BIRKENHEAD.

[J. R. Newton, Architect.]

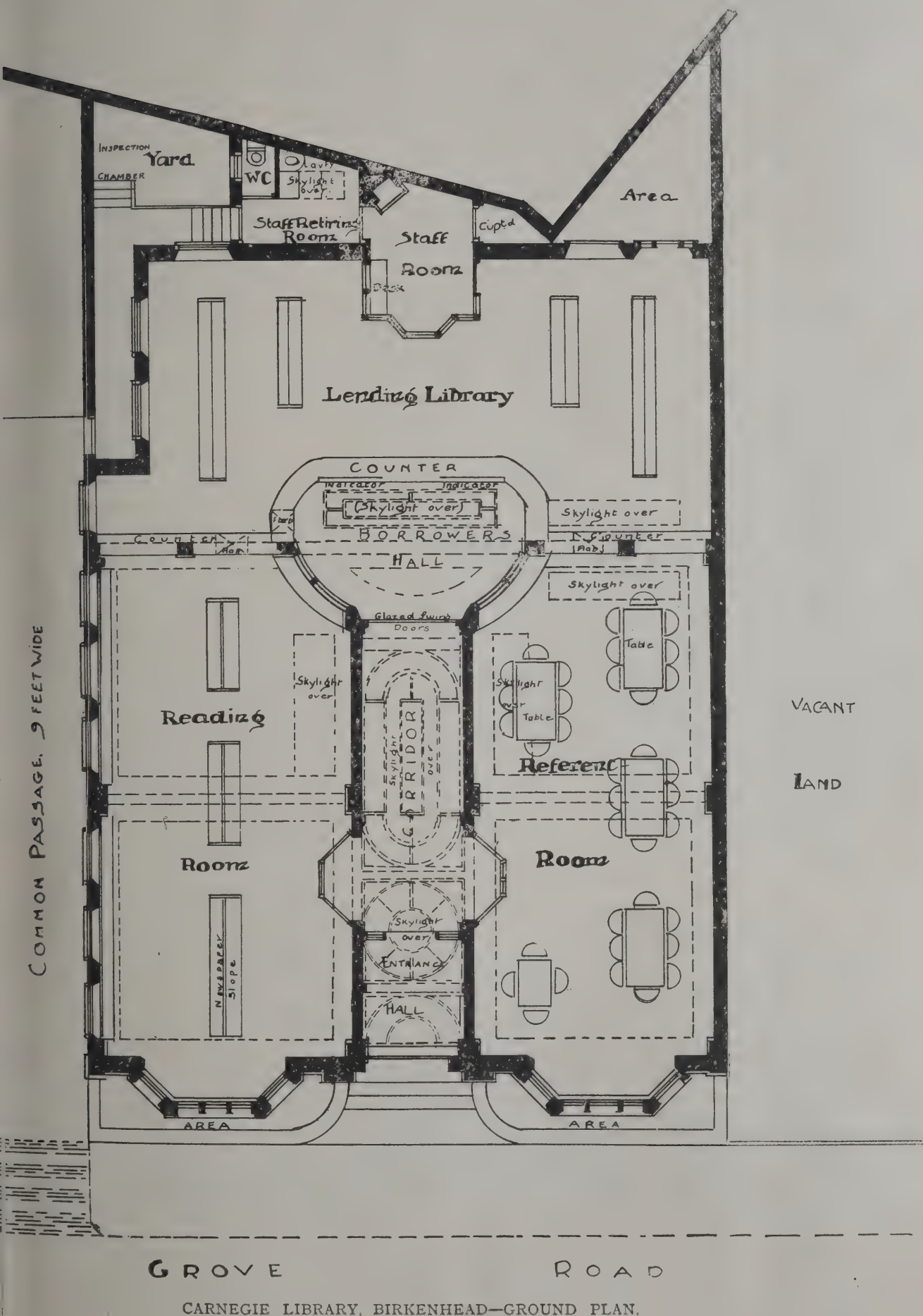
THIS building is to be erected on the site of the present library in Grove Road, but the area of the site will be as large again, additional land having been purchased for this purpose. The entrance is to be in the centre of the Grove Road front. It will be observed from the plan that there is no light upon one side, and only such as can be obtained from a passage on the other side. The two rooms—reading and reference—are therefore arranged at each side of the central corridor, with bay windows, so as to obtain the maximum amount of diffused light from the front.

The light thus obtained would not be sufficient to light the whole room, and roof lights have therefore been employed. Another consideration of great importance is the supervision of the entire building by one assistant; the lending department is consequently placed at the rear, while the staff-room is in the centre. A glance at the plan will show that the assistant at the counter or his desk can have the fullest supervision of each room without leaving his place. The reading standards and tables are placed longitudinally, to facilitate this supervision.



the borrowers' hall is to have a domed roof, glazed with leaded lights, and the entrance corridor will have decorated plaster ceiling with leaded lights let in as is. The whole of the joinery will be of hardwood stained and polished, and the floors will be laid with maple in pattern. The exterior of the building will be built with white stone and red Ruabon brick, with West-

morland green slates for the roof. The style chosen is French Renaissance, bay windows being used in the reading and reference-rooms so as to obtain the maximum amount of light from all directions. The entire building will be heated with hot water on the low-pressure system, and each room is to be separately ventilated. The architect is Mr. J. R. Mewton, 59 Hamilton Square, Birkenhead.





## BURNTISLAND CHURCH.

ON Sunday next the parish church of Burntisland, in Fife, will be reopened after renovation and decoration. Historically and architecturally the building is interesting. It was built in 1592-4, as the successor of the Catholic church at Kirkton, which dated from the year 1234. It is a square building with a four-sided tower and octagonal belfry rising from the converging lines of its roof. The style of its architecture is Dutch, there being in those times considerable intercourse between the Low Countries and the Fife coast. Its design is unique in Scotland, and it is said to be an exact reproduction of a church standing to this day in Amsterdam. Prominent Dutch artists decorated the panels of the gallery with pictures characteristic of Holland. Like many other ancient ecclesiastical edifices its interior has suffered at the hands of ignorant though possibly well-meaning decorators. Its massive masonry pillars, with the stone arches which spring from them to support the roof were treated to successive coats of paper and paint until they looked positively unsightly, and the beautiful panel paintings were hidden beneath layers of paint. Recently a movement was started to restore the interior to something like its original aspect. The pillars and arches have now been cleaned and the masonry laid bare. Under the direction of Sir Rowand Anderson a scheme of decorative panelling in Italian style has been applied to the ceiling, which bears in the four largest panels an epitome of the church's history, thus:—1234, Erection of old church at Kirkton; 1592-4, erection of present Burgh Church; 1601, Bible translation proposed at Assembly presided over by James VI.; 1907, Burgh Church renovated. One of the panels in the front of the gallery has been cleaned, showing a picture of a Dutch galley, from whose broadsides cannon are seen protruding. It is believed that with care the whole of the pictures could be restored to their original beauty, but there are no funds with which to carry on the work, which is to be left in abeyance meantime.

In 1601 there was held in the church a General Assembly of the Scottish Reformed Church. At that assembly King James VI. was present, along with all the leaders of the church, including Andrew Melville. King James VI.'s seat, built of oak, with diamond-shaped panelling, and partly encircling one of the pillars, still stands. It is now used as the seat for the town councillors when they are "kirked." At the same assembly there was introduced the first public proposal for the translation of the Bible. The translation was agreed to. Eighteen months later King James went to England, where he got the English bishops to make the translation, instead of the Scottish churchmen. Ten years afterwards, as the result of that assembly decree, the Authorised Version as we now have it was published. Charles I., born in Dunfermline Palace, has also visited the church, which has seated Oliver Cromwell, Archbishop Laud and other dignitaries of Church and State. Mr. T. A. Wallace, town clerk of Burntisland, is defraying the cost of restoring the pillars and arches, the congregation being at the expense of the decorative work, the total outlay being fully 600*l*.

## GENERAL.

The Rev. Canon Rupert H. Morris, D.D., F.S.A., has been appointed editor of "The Archæologia Cambrensis," in place of the late Mr. Romilly Allen.

Mr. Atholl Macgregor, Ardchoyle, has given a sum of money, amounting to nearly 2,000*l*., towards the building of a lady chapel at the east end of Perth Cathedral, to be designed by Mr. Pearson. Some further offers of money are announced, to be used towards the completion of the west end. A sub-committee of the Chapter has been appointed to consider and report upon the whole question.

The Late Mr. George Allen, who during several years was the publisher of Ruskin's books, was originally a carpenter. But as he showed some skill in drawing at the Working Men's College he was taught by Ruskin to etch and engrave. He helped to catalogue the Turner drawings. Afterwards it was settled that all the business arrangements for the production and disposal of Ruskin's books should be entrusted to him.

A Maison de Retraite for French artists (painters and sculptors) is in course of erection at Montlignon, from the designs of M. Nénot. The whole of the cost is borne by Madame Jules Comte. There will be not only residences, but ateliers for the use of the inmates.

Mr. W. Laurier has published a comely volume, "The Cathedrals and Churches of Northern Italy," by Mr. T. Francis Bumpus. The book contains eighty plates, many of them in colour, and a coloured frontispiece by Griggs. Among the numerous cathedrals and churches described are those of Verona, Vicenza, Padua, Ferrara, Bologna, Ravenna, Modena, Piacenza, Bergamo, Milan, Pavia, Asti, Vercelli, Novara and Turin.

The Petition "to erect halls, &c., at Saughton Place" for the Scottish National Exhibition of Industry, Science and Art came up at Edinburgh Dean of Guild Court on Tuesday inst. Lord Dean of Guild Wilson, who presided, said the Court were prepared to grant a warrant, but they did not like to see that all the "principals" were bolted and nailed. This undertaking was given, and the plan passed.

The Restoration of Holyrood Chapel remains undecided. It is understood that the St. Andrew Society have been moving in the matter, and that a committee of a certain nature have taken certain steps. A memorial, it is believed, has been forwarded to the trustees, Sir John S. Maxwell and Lord Balcarras, enjoining them to advise His Majesty on the subject; and this request is supported by the opinion of architects and builders in Edinburgh. They do not accept the ruling of the gentleman called in as trustees. The memorial is signed by the Earl of St. Andrews, honorary president of the Society. It is possible the question may become a legal one.

The Rev. J. Still, rector of Ketteringham, asked the Norwich Consistory Court on Tuesday, for a faculty to allow somewhat extensive repairs to his church. "The rector said, 'was in a bad condition, and a new one must be provided; the walls would have to be underpinned, the large buttresses at the east end would have to be taken down and rebuilt, and other work would have to be done.' The court would involve the removal of a monument to Sir William Peach, to which the family raise no objection. The entire cost (about 1,500*l*.) would be defrayed by the heirs of the Boileau family. Citation was issued.

The Dundee Presbytery have adopted the following resolution:—"That in view of the Town Council's request, the clerk be instructed to communicate to the Kirk Session Mr. Chalmers's report and the correspondence between the Presbytery and the Town Council, with the recommendation (1) to accept the Town Council's offer to restore the church in the manner proposed by them, believing that what might be preferable to have the Steeple Church rebuilt suggested by Mr. Chalmers, it is at present inexpedient to press for such a scheme, and that the repairs proposed be made upon that church would be sufficient for many years to come; and (2) to satisfy themselves as to the cost and specification of the whole work, and to see to its being carried through with all convenient speed."

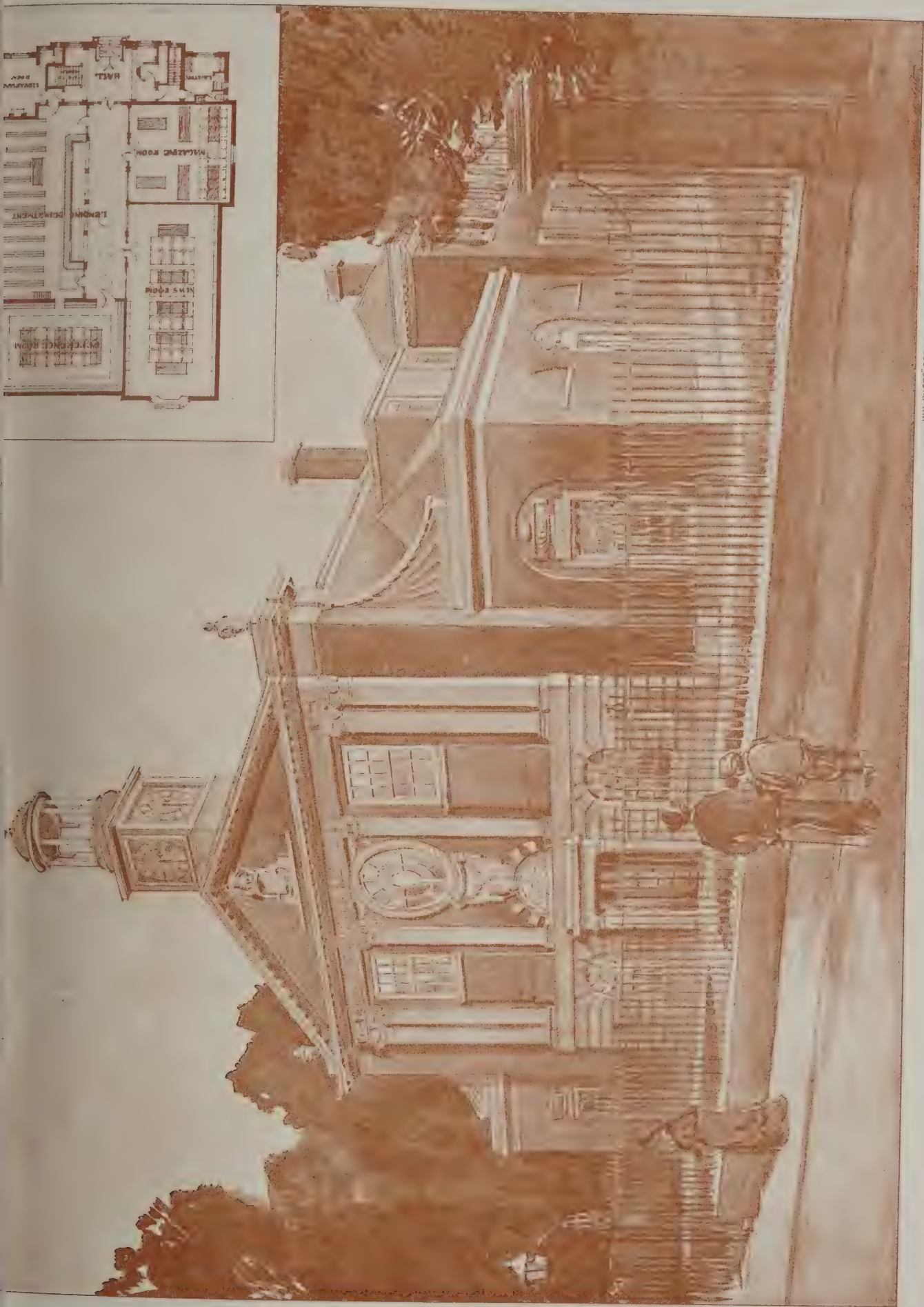
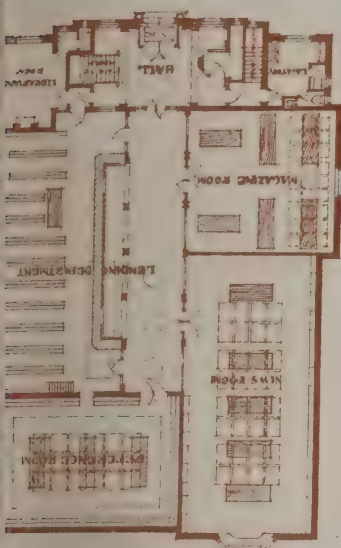
At a Special Meeting of Lockerbie Town Council on Saturday, Mr. W. Cuthbertson, Lauriston Place, Edinburgh, was appointed burgh surveyor in room of Mr. W. Stewart, who has received a similar appointment at Ayr. There were seventy-five applications.

A Manchester Merchant who died recently has bequeathed to the Northern Counties Supplementary Hospital for Chronic and Incurable Diseases all his water-colour drawings, pen-and-ink sketches, etchings and engravings, with the request that they be hung around the wards so that they may give some pleasure to the inmates.

An Edinburgh Sculptor is of opinion that a good likeness of Mr. Carnegie, which he is in a position to supply, should be welcomed by library directors "who wish to give Mr. Carnegie the recognition he is so justly entitled to for his generous gifts to their respective cities, and thus to preserve the present and future generations that will visit the Carnegie libraries 'to store their minds with noble thoughts by looking upon a correct likeness of the great philanthropist.'" Dunfermline Town Council has established a precedent by declining to take action in the matter.

The Stockport Town Council have appointed a sub-committee to deal with the question of unhealthy areas, and to carry into effect the powers obtained under the Housing of the Working Classes Acts. The medical officer of health of the borough recently reported that there were over 100 closed-in courts in the town. Dr. Smeeth, the chairman of the health committee, said that the infant mortality in Stockport was 186 per 1,000, as compared with 144 in London, 144 in Bradford and 155 in Birmingham.





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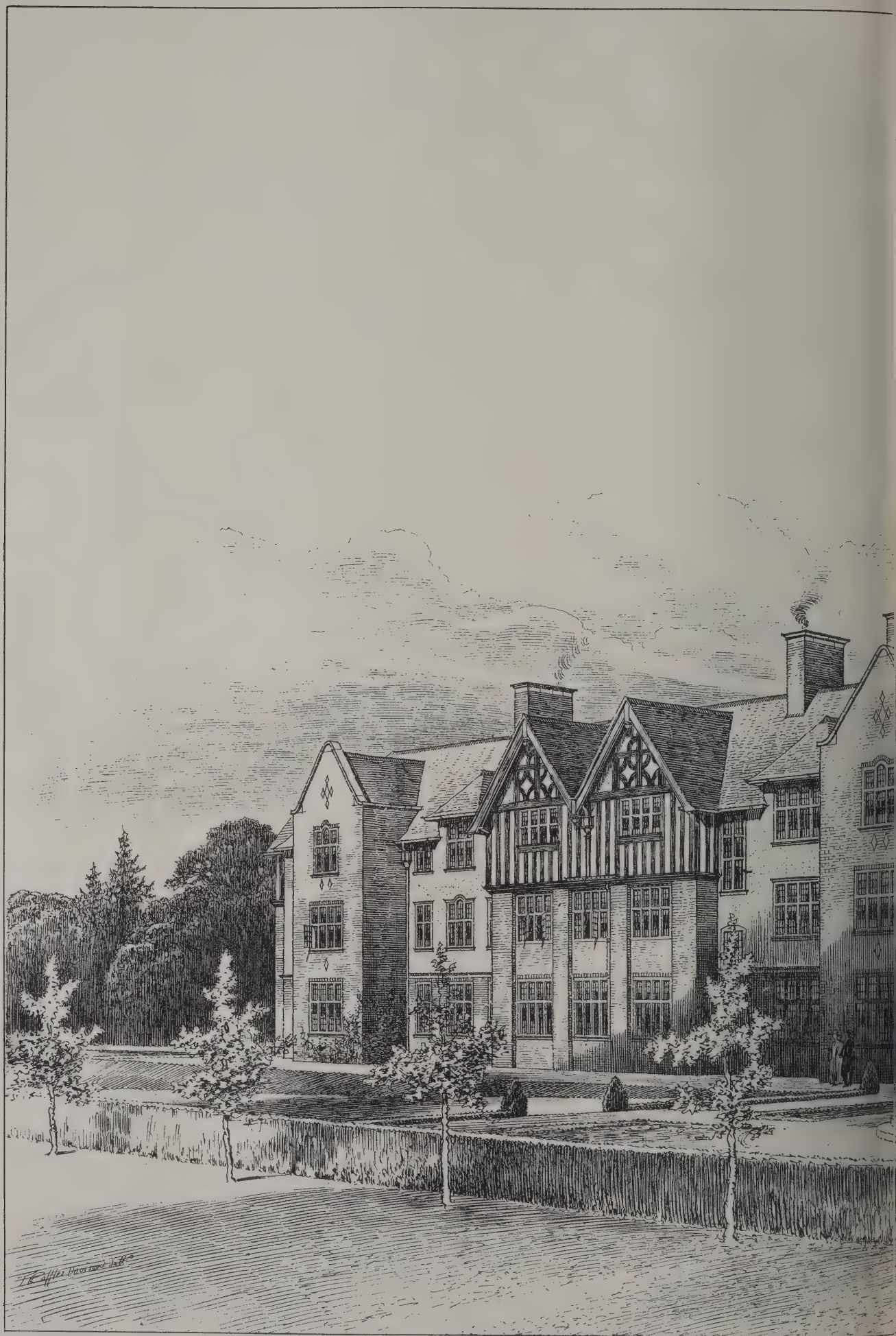






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The Architect, Sept. 13th 1907.







"INK" PHOTO: SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

THE MAPPIN ART GALLERY, SHEFFIELD.

Messrs. GIBBS & FLOCKTON, Architects.



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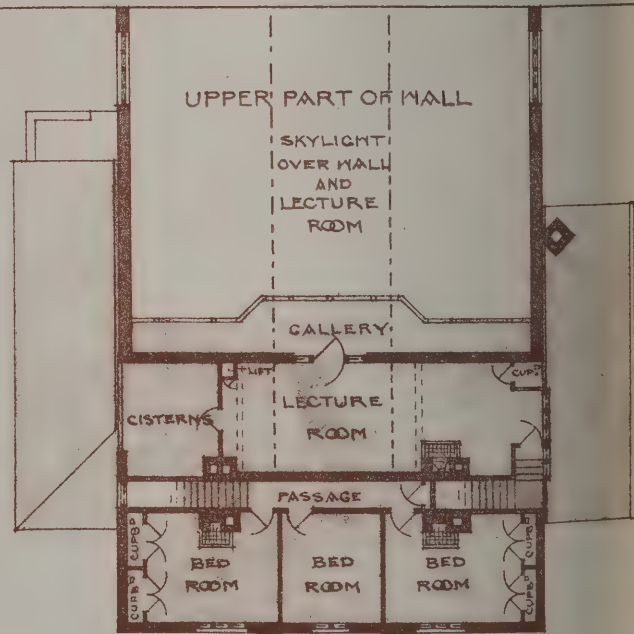
VOLUNTEER  
DRILL HALL  
DARTFORD  
KENT



ELEVATION TO SIDE ROAD FROM LOWFIELD STREET



SECTION THROUGH WALL



SCALE OF FEET.

10 5 0 10 20 30 40 50 100

GROUND FLOOR

FIRST FLOOR

PLANS

ROBERT MARCHANT A.R.B.A.



A PAIR OF COTTAGES FOR R. E. MARCHANT ESQ  
AT LAMBERHURST SUSSEX



SIDE ELEVATION



BACK ELEVATION



ELEVATION TO VILLAGE STREET



GROUND FLOOR | FIRST FLOOR | ATTIC | ROOF  
PLANS



LIBRARY  
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# The Architect.

## THE WEEK.

has lately been made known through documentary evidence that BUFFON, the author of the Natural History, during a period of twelve years an amateur iron-master. On his estate he found iron, and in 1768 he commenced to erect works. The furnaces and other works were made of slag-bricks. His principal forge was circular on plan, although the experience of that time was in favour of a square building. The Government inspector of the time reported that BUFFON had produced malleable iron of excellent quality and some also. The ironworks were not profitable to the proprietor. He expended 300,000 livres upon them and conducted the works during twelve years, but he had to abandon them in order to avoid increasing his loss. His experience enabled him to write a chapter on iron. He had received any encouragement from the Government but it is not unlikely that many modern improvements would have been anticipated. But he found, on the contrary, that the State derived more benefit from his ironworks than the owner.

It appears that in the offices of the Ministers in Paris there are numerous pieces of furniture which possess unusual historic or artistic interest. Ministers come and go so quickly in France, there is the risk that those works will not receive uniform treatment. The Société des Amis du Louvre, of which several wealthy and generous amateurs are members, consider that the furniture should be deposited in the museum. For that purpose they have offered a large sum of money to enable the pieces to be reproduced—originals afterwards being placed in the Louvre. As large as is the building, it will be difficult to find room for the additions, and it may be necessary to remove objects of inferior importance or which have become too familiar to be interesting. It may be mentioned in connection with the Louvre that *POUSSIN'S Deluge* has been satisfactorily restored by M. DENIZARD, and that the trace of the lacerations is to be discerned.

If the forthcoming Franco-British Exhibition in London, from which so much is anticipated on both sides of the Channel, is to be a success there must be harmony among those who have voices in the arrangement. It is therefore to be regretted that M. RODIN, sculptor, should have already resigned his membership of the committee. Of late years he has often visited London and taken part in various exhibitions, but it may consequently be supposed in France that his presence in this country is unlimited. Various speculations have arisen about the cause of the resignation. It is allowable for men to imagine that because M. RODIN is an innovator he cannot approve of the importance of works which were produced according to traditional methods. The committee desire that all types of French art should be exhibited, and that national as well as independent ideas should be brought under the eyes of visitors to the exhibition. It is only in England that French art has to be displayed, and the committee of which M. RODIN was a member intend in course of time to realise that vast task.

Among the 1,381 students at the evening classes of the Sheffield Technical School there are 163 who are counted as "architects and building trades." Next to engineers, turners, fitters and pattern-makers form the largest section. Among the students who have passed through the civil engineering courses are registered as "architects' assistants." It has been found that several of the students attending the classes are drawn from the ranks of assistant engineers, and pupils on railways and waterworks, assistant

engineers and assistant surveyors to corporations, urban and rural district councils, building and sanitary inspectors, &c. Formerly such students had to rely for their professional equipment on what they could learn during their articles, and from the practice of a single principal. In Sheffield metallurgy occupies the foremost place on account of its connection with the industries of the city. It has now been practically conceded that in connection with the Imperial College of Science at South Kensington, Sheffield is to be taken as the national centre for the study of steel metallurgy.

THE Eiffel Tower in Paris seems to be destined to serve for experiments in colour. Originally it was painted in orange. Four years afterwards red was preferred and endured for six years. In 1899 it received a coating of golden yellow. The law about painting exterior works every three years is not applicable to structures in the clear air of Paris, for the appearance of the structure has remained unchanged during eight years. For the first time it has been resolved to try the effect of two colours. From the base to the third platform ferro-brun will be applied. It consists of an oxide of iron with chrome yellow. From the third platform and upwards silver white will be employed. The painting is expected to occupy three months and will cost 3,000*l*.

THE late Professor L. F. VERNON-HARCOURT, who died on Saturday in his sixty-eighth year, had a wide reputation as a consulting engineer. A glance at his book, "Achievements in Engineering during the last Half-Century," is almost enough to suggest the wide range of his knowledge and interest in all branches of his profession. After an University education he became a pupil of the late Sir JOHN HAWKSHAW. In his office there was a possibility of acquiring a knowledge of every kind of engineering construction; and Mr. VERNON-HARCOURT by accident, or preference, became connected with harbour and dock works. In 1882 he received the appointment of Professor of Civil Engineering at University College, London, which he held for over twenty years. He wrote books on harbours and docks, rivers and canals, water supply and other subjects. He was a member of the Suez Canal Works Commission, represented this country at the Navigation Congress at Milan, and served upon the international jury upon canal lifts. He was proud of his profession, and he said that "if engineers in the future continue, as in the last half-century, increasing and extending the benefits resulting from their works, they will justly be regarded as ranking among the greatest benefactors of mankind."

THE auditors of the Local Government Boards of England and Ireland now appear to scrutinise the accounts of the local authorities in a more microscopic fashion than formerly. The Dublin Corporation will have to submit to several surcharges. Under the Libraries Act the amount is 1,767*l*. One of the building surveyors of the Corporation was suspended for negligence without pay, but he received 144*l*, which is another surcharge. The waterworks committee had an outing, and the expense connected with it has been surcharged. An association acted as an examining body, but under the Libraries Act teaching only is recognised, and the amount was disallowed. The question is, "How are the surcharges to be met?" Some of the members of corporations and borough authorities are working men, and their tenure of office often involves loss to them. If responsibility for outlay about which opinions differ is to fall on individual members very few will be ambitious of the office. In Dublin it appears the salary and allowances made to the Lord Mayor, amounting to 2,455*l*, are illegal. Works committees have in most places control of the largest proportion of the expenditure, and it becomes a serious consideration should any of their acts be questioned by an auditor.



## GHEERAERTISING BRUGES.

By JOHN A. RANDOLPH.

WHAT may be called the Gheeraertising of Bruges is going on apace in that fascinating city. We have deliberately coined the word, as it explains fully the objects of the "powers that be" in Bruges and of private residents fortunate enough to own ancient houses there of any pretensions, whether of Gothic or Renaissance style, for the restorations—at least those of public buildings—are based on the old "Bird's-Eye View Map of Bruges," by MARC GHEERAERT, discovered at Lübeck (above all places) some years back by Mr. WEALE.

The new front of the Governor's residence on the Grand' Place, though fine in its unfinished state, with the Post Office alongside, is probably not based on the plan above referred to, and we think the Post Office building loses somewhat in character by the too uniform and deep colour of its brick and by the blue limestone employed for the windows and dressings, the more so as it contrasts rather unfavourably with the white stone building of the Palace; but perhaps when the whole of that front is at length finished—evidently not in this generation—the other corner will be constructed to match. Tenders were issued last month for the reconstruction of the Rue Breydel portion towards the Bourg, and it was about time, for the shallow houses and shops there had been pulled down about five years, and nothing done to make the place presentable. The prospect of visitors from all parts for the "historic week" and the exhibition of the Golden Fleece evidently roused the authorities, lest they should get a bad reputation for their slowness in carrying out much-needed public work. If they had simply taken the pains to erect a tidy and high hoarding in front of the "venerable ruins" in that thoroughfare, and paid attention to the completion of the Grand' Place front during those five years, there would have been "no complaints," but only half that side has been completed since the disastrous fire there in 1878.

In the public works line Ghent can give Bruges a very long start—and a handsome beating into the bargain.

Among the restorations of public buildings, though the intention is good, we regret to see history wiped out by the restorer with a view to bringing them into line with MARC GHEERAERT. Alongside the church of Notre-Dame, for instance, is the Gruythuis, once a charming town residence of a great Bruges family, with a triangular roof till the restorer came on the scene and erected over it, on shafts, another roof—a little more pointed—with a pierced parapet round its base and a diminutive staircase turret, to bring it back to its incongruous aspect of 1562. The main building, too, has been somewhat meddled with to secure uniformity, and the structure is now seen from the roadway, some wretched little hovels having been swept away that hid it from view; but they had nice little gables, and made a picturesque bottle-neck approach to the Dijver.

On the Dijver, nearly facing the Nepomucene bridge, a curious excrescence on a corner house front has been stuck on, and it is supported, over the pavement, by a couple of columns *en guise d'arcade*. The effect is more quaint than pleasing.

The west front of Notre-Dame Church is being rebuilt entirely (and set back a few feet), they say, from the original design. The entrance to the Rue Ste Cathérine and the approaches of the Hôpital St. Jean will gain a few feet in consequence. A railing has been put alongside the north aisle of the church between awful examples of stone columns.

At the hospital some very good restoration work has recently been effected, but the work was not quite complete in July, and apparently it is intended to wait some time before finishing the undertaking.

The pictures have been removed from the Académie to the Musée des Beaux-Arts at the École Bogaerde, and the space available seems inadequate; but the Académie has been practically rebuilt during the last few years, and is only half its former width on the Place Jean Van Eyck. In the last year or two, likewise, the elegant slightly curved equilateral roof to the delightful turret has given place to a pierced parapet and a disappointing two-stage flèche with apparently heavy detail. We must confess to unmixed disgust at this uncalled-for spoiling of such a (formerly) charming structure, whether it has been Gheeraerted or not. The Académie is totally unrecognisable from what it was before it was touched by the restorer. In the Rue de l'Académie alongside, the huge brick gable, practically a modern affair, will shortly give way to an extension of the building, as the whole of its interior has been demolished.

St. Jacques's Church front has been restored and the parvis opened out, partly at the expense of the garden of the Hôtel du Commerce, and St. Giles's Church sacristy has been pulled down and a Gothic brick one erected. The fine central shaft and vaulting of the old sacristy disappeared with the rest. That church, too, has been "restored."

Of the houses now being refronted in many places in the town we can speak with greater satisfaction, and we congratulate the authorities on their decision to insist on the preservation of the old bricks from demolished old houses for use in the new fronts, as their durability is undoubted and their colouring of the beautiful half-pink half-yellow tint; and white stone dressings are being more used than formerly, to greater artistic advantage.

Equally destructive as to the Académie has been the unfortunate transformation of the once charming Gildes Arquebusiers of St. Sébastien, near the Rampart. The long building, with stepped gables at the ends and a delightful turret, has been completely transformed—its detriment—with the addition of a "pavilion" style body stuck on one of its fronts, a toy corner turret at each end of the main body, and the singularly happy main turret uncharacterised and rendered finikin and thin—altogether a most miserable and mischievous transformation, which ought not to have been tolerated by the most ardent admirer of MARC GHEERAERT and the artistically inclined Brugeois.

It is devoutly to be hoped no sacrilegious hands will be laid on the glorious belfry—the noblest tower of its kind; but really, after what we have seen here in the way of history-destroying restorations, one fears the worst may yet come to pass.

Of the new Bruges that is arising, we are optimistic though some Ostendish houses disfigure the neighbourhood of the entrance to the Rue d'Ostende. However, a very fine Bruges-style house has been erected at the corner of that entrance, facing the Rue d'Ostende, chiefly of old bricks.

Some of the buildings of the new Installation Maritimes are also in the old style, but there is, unfortunately, a sprinkling of the very reverse among them.

Passing, favourable mention may be made of a new turreted house by the Minne-Water, and of the model Béguinage, while the restoration of the "Potéris" chapel front and adjacent seven gables is pleasing.

Mr. T. E. Collett has been appointed consulting architect to the Manchester Corporation on the subject of the possibility of adapting the old Infirmary buildings for uses as a reference library, art gallery and municipal offices. The special committee had previously passed the following resolution:—"That the consideration of the reports of the special committee *re* Royal Infirmary site be deferred, while the object of securing an opinion from an absolutely disinterested architect free from local circumstances, who is to be commissioned to report upon the possible adaptability of the Royal Infirmary buildings to the purposes of a reference library, art gallery and municipal offices."



# THE GOTHIC OF NORTHERN ITALY.\*

THE volume on Italian churches by Mr. FRANCIS BUMPUS represents seven weeks of travel. As readers are aware, he already has written about abbeys and churches in England and Wales, France and Germany, all of which are allied in different ways. From his acquaintance with Gothic he was cognisant of the majority of examples of the style in Italy and a little of that inspiration which created the Norman buildings, and he therefore hesitated before accepting the publisher's offer to write about Italian churches.

The volume displays the characteristics of the author. English painters who took subjects from architecture, and are now almost extinct as a race—WYKE BAYLISS was the last of them—in representing foreign churches have felt that architecture by itself can appear to be more than the men who created it, and accordingly took care to introduce worshippers in various poses, as if to suggest the subserviency of the great arts to other interests. They were not always successful in recording ceremonies; DAVID ROBERTS, especially, followed a ritual of his own, which was very grandiose. Mr. BUMPUS in his treatment is suggestive of ROBERTS, PROUT, WILD, READ, HAIG and other painters than of the ordinary architectural draftsman. He does not care for empty churches. He has a fellow-feeling for mortals in their endeavour to worship; and his churches are therefore not the mere skeletons of the guide-books or the skeletons of architectural anatomists, but the shrines in which humanity is at once most humble and most exalted. His sense of scale is not determined by the proportion of the part to the whole, but by the relative importance of the parts. There is consequently an expression of sympathy when he has to describe a building which suggests infinity by its greatness as compared with the men who bend in devotion within it. For instance, describing Milan Cathedral, he says:—

There was an immense concourse of people present, there was no impression of a crowd. The church was so long, not even full; there still seemed room for a multitude to come in. In ordinary buildings when they are filled to their utmost capacity the architecture disappears, the mind and eye are occupied only with the men and the architecture. "But the Duomo at Milan can never be thus put to rest. Fill it full of human life, it would still be some-thing greater than them all. Men, however numerous they may be, would be but appendages to its mountainous mass. As the sky is more than the stars, and the wooded hills more than the trees, so is Milan Cathedral more than the amount of humanity that can be gathered within its walls."

Mr. BUMPUS was rewarded for his sympathy by being able to witness a greater variety of ceremonies than fall in the way of ordinary travellers during a longer period. At Ratisbon he was present at the ordination, the ceremonies commencing at eight o'clock in the morning. The hymns were sung in a style which suggested a combination of mediævalism and modernity. The impression made on him is expressed in his own words, and they deserve to be recorded not only as indicating the power of sound, but as enabling us to understand the spirit in which Mr. Bumpus sets about describing church buildings. He is not a critic who like an Indian after scalps seeks out faults in order to demonstrate his superiority, but a man who is not ashamed of his emotions, for he knows that the touch of nature or art can make us all akin:—

The conclusion of every piece a silence like that of a bell upon the church, as if some celestial vision had been before the living eyes and hushed into stillness the pulse of human feeling. The effect of this invisible was beyond anything I have ever heard or ever

expect to hear. The air seemed stirred with the trembling of angelic wings, or as if the gates of heaven had been opened and a wandering breath from the songs of seraphs had been borne to earth. A few sounds which, under ordinary circumstances, would have been merely a passing luxury to the ear, heard on this solemn occasion and beneath a noble vault, were like a purifying wave, which, for an instant, swept over the soul, bearing away with it all the soil and stains of earth, and leaving it pure as infancy. There was, it is true, a reflux tide; and the world, displaced by the solemn strain, came back with the echo; but, though we cannot keep the heights we are competent to gain, we are the better for the too brief exaltation.

Professor FREEMAN considered it was wise for the student of architecture to enter Italy from Germany, and to begin with Trent. It may be said that Mr. BUMPUS follows that route, although he has some remarks on churches at Vagara, Bergamo and others of the north. He felt the surprise of most architects when, on entering the Trent Duomo, he found before his eyes a building which recalled some of those he had seen in Germany and France. It is wonderfully suggestive of Norman work, and at the same time the piers appear to be lighter than was usual in that style. It is no wonder Mr. BUMPUS says he was fascinated by it. At Verona it was not long before he visited the Campanile. He offers some interesting remarks on those structures. Only under special circumstances would he recommend the adoption of the tower in England. He says:—"Let the portraiture of the campanile be by all means transferred to the sketch-book, but do not let the more substantial image of it be attempted elsewhere in England than in a town. With what success this has been achieved those who know the early pointed campanile of St. James the Less in Upper Garden Street and the neighbouring Byzantine one of the Roman Cathedral at Westminster are able to judge." He was attracted by the fine limestone of Verona, which has been called *bronzino* from its metallic sound when struck. He also refers to some of the architects which the city produced. One was FRA GIACONDO, who was once described as an old and new library of all that was good in science. Like other clever men, he seems to have wandered from city to city, and appears to have been royal architect in Paris. SAN MICHELE was likewise a native of Verona, and it is believed his portrait was introduced by TITIAN in *The Assumption*. Mr. BUMPUS witnessed the ceremony of confirmation in the cathedral, which differed from the customary practice, for instead of the children being arranged at the altar rails they were placed in files along the nave, and the bishop confirmed them all standing. Besides the cathedral he finds much to admire in the churches of Sta Anastasia, St. Peter and St. Zeno. The last he considers to be the grandest specimen of the Lombardo-Romanesque basilica in existence. Concerning the brickwork of North Italy, Mr. BUMPUS remarks:—

Important as is the brickwork of Northern Germany, upon which I have dwelt at some length in my volume on the architecture of that country ("The Cathedrals and Churches of the Rhine and North Germany"), it cannot be compared in general artistic interest with that of the North of Italy. Much as there is to find fault with in the construction and general system of design of the Italian buildings of the Middle Ages, it would be idle to deny to them those highest merits which mark the work of civilised, delicate and refined artists. German architecture, after the end of the thirteenth century, was uninteresting and unrefined beyond that of any other country, and the ascending scale would take us from it through England and Spain and the North of France, on to the greatest perfection which was reached in some of their works by the best Italian artists. In saying this I by no means give the palm to the Italian artist, far from it. But his work has certain tender graces, especially in its detail, which has never been surpassed; though at the same time no English architect is wise who proceeds, as so many have done, to study it without first of all having studied, to such an extent as to be thoroughly penetrated with, the spirit of the inimitable old

*The Cathedrals and Churches of Northern Italy.* By Francis Bumpus. With eighty-one illustrations (nine of which in colour). (London: T. Werner Laurie.)



churches of his own country. There is some charming brickwork in the fourteenth-century Gothic church of St. Fermo Maggiore, close to the Ponto Navi, but it displays one of those features of sham construction to which I have drawn attention both in Italy and in Germany, *i.e.* the screen wall carried up high above the roofs, but of no possible use.

It is not to be expected that an enthusiast for Gothic can enjoy the work of PALLADIO, which for most architects is the chief attraction of Vicenza. Mr. BUMPUS, however, avoids sneering at what appears to be mere flimsiness of construction, better adapted for stage purposes than for ordinary use. But he considers that "every candid critic must admit how inferior in interest and association are his artificial compositions to the sometimes less artistic but genuine and durable erections which the Italian Mediæval architects, supplying the wants of their day with the materials nearest to hand, have left as illustrations of brick and marble in the Middle Ages." He finds metal more attractive in the severe old cathedral and in the church of St. Lorenzo. In Padua the paintings of GIORIO and other early artists allure many visitors from bestowing attention on the architecture. Yet there is no place which is more of a demonstration of the failure of an excess of wall decoration than Padua. Mr. BUMPUS, like other travellers, was subjected to the reaction which seems to be inevitable when eyes are wearied with pictures without intervening spaces, for he cannot conceal his admiration for the interior of Sta Giustina, although it is of an almost commonplace type of Italian Renaissance. The building might easily be considered as especially favoured, for time seems to have little effect upon it.

The first impression which Venice makes on a traveller is one of those exquisite pleasures which, unfortunately, are not to be repeated. It is very difficult to avoid echoing what many others have said when one is endeavouring to describe such an interior as St. Mark's. "The first impression conveyed," says Mr. BUMPUS, "is that of a cavern of gold encrusted with precious stones which are at once splendid and sombre, sparkling and mysterious. Cupolas, vaults, architraves and walls are carved with little cubes of gilt capitals of unique form, among which the rays of light sparkle like the scales of a fish. Where the gold ground terminates at the height of the columns, commences a clothing of the most precious varied marbles, porphyries and alabaster, relieved by pure white marble, sculptured in panels, string-courses and the like. The various marbles are arranged in broad upright bands, alternating so that one colour enhances the effect of the one next to it." The majority of the churches of Venice are examples of Renaissance architecture, and have been often described. Mr. BUMPUS therefore is content to allow St. Mark's to be the sole representative of Venice in his pages.

The cathedral of Ferrara was an early victim of restoration, and the contrast between the west front and the interior is almost suggestive of two different buildings. From examination of an old engraving Mr. BUMPUS arrived at the conclusion that in the seventeenth century the cathedral "had its several great vaulting bays subdivided into two lesser ones supporting a triforium, comprising two triple arcades under semi-circular arches, and a clerestory curiously lighted by two tiers of very small round-headed windows." Now it presents quite another appearance. But as long as the west front is respected the cathedral must be considered as one of the few satisfactory examples of Italian Gothic. In describing Bologna Mr. BUMPUS offers remarks on the planning of Dominican churches with their wide naves. He also gives a photograph of the restored reredos of St. Francesco. The church was suppressed and used as a Custom-house; in 1866 it was again secularised, but once more it serves as a church. The great church of St. Petronio, which at one time took precedence of the cathedral, has been for several years a subject of litigation. In 1857 the POPE, to

whom Bologna was subject, offered 13,560*l.* to completing one of the façades. The money was paid. When the Italian Government took possession of the old city the Government refused to receive any obligation to realise the papal offer. After spent at law it has been decided that the Government is liable not only for the 13,560*l.*, but for interest. The result suggests the independence of the judges. Considering the modern price for such work such a sum is inadequate. MICHELANGELO in his young days willingly accepted twelve hundred ducats for one of the kneeling angels on the tomb of St. DOMINIC, and for the statue which surmounts it was paid only eighteen ducats. But able sculptors are no longer to be found in Italy who are ready to work on similar terms.

Ravenna is described at some length, for although it may not present many Gothic buildings, those of the date are remarkable, especially to lovers of rhythm. It is rich in basilicas. Thus to Mr. BUMPUS the memory of Sta Agatha recalls BUTTERFIELD'S porch in St. Matthias, Stoke Newington, and at St. Andrew's Holborn. From Ravenna Mr. BUMPUS passed to Lombardy, where architecture of a different form awaits the traveller. At the present time England appears ripe for a change in the style of church building. Mr. BUMPUS, like a great many other students in England, is eager to see experiments in Italian Romanesque variety which the late Professor E. A. FREEMAN first to recommend. But Mr. BUMPUS admits that Romanesque churches are not faultless. "The walls," he says, "are frequently monotonous, interiors are but ill-lighted, in some places others flooded with a glaring light; the distribution of the decorative element is not always happy, pillars and capitals being overcrowded with various patterns, intermingled with empty, unadorned spaces. They impress us too powerfully with the unsettled character of the minds of those who designed them. The character of the religious and the heavy armour of the warrior are to be traced in them." The cathedral of Modena is the first example he describes and it is most remarkable. "La Ghirlandina" he considers to be the loveliest of the campaniles of Northern Italy. The cathedral of Modena is one of the noblest examples of its class, but the architects could not have realised the characteristics of the style when they allowed CORREGGIO to paint the cupola with figures which the Lombards would certainly not tolerate. Modern inquiry has, however, exploded the legend about the payment of the artist in copper, and his death from the effort to carry the starving family; indeed, the character of his work is suggestive of the "Fawn of the Renaissance" having been a happy man. The view of the cathedral of Modena proves that the cathedral authority has not been realised that unadorned Romanesque becomes more effective. Another fine example is St. Michael, Ferrara, in which the sculpture of the west front is unlike anything found in a Christian church. Most of the figures are doubtful orthodoxy, and probably the sculptors were under the influence of a different belief. Less remarkable is the so-called shrine of St. Augustin, which stands in the cathedral, but which is now once more the church of St. Peter. VASARI says it was executed by two Siennese sculptors in the fourteenth century. They must have had a weakness for forgery or a sort of versatility which enabled them to work in a style accepted three centuries earlier, for the number of the figures have a surprising air of belonging to a time preceding that of NICOLAS PISANO. The interior of the cathedral of Pavia reminded Mr. BUMPUS of WREN'S St. Paul's; but WREN was never supposed to have visited Italy. Milan Cathedral forms the contrast to the volume, and to Mr. BUMPUS it becomes much more than a vast building constructed of marble. He says that

While awaiting the commencement of the Divine service within the dusky choir of the Duomo on this beaut



turning, the angels of architecture had many lovely and precious things to tell, and unfolded the inner meanings of arches and arches, roof and windows, lights and shadows. As I listened, every now and then it seemed as if they were telling things that I had always known before, and I felt that the whole building was, as it were, a Sacrament, that every outward and visible form had an inward and spiritual meaning which gave new dignity and power. And when a solemn introductory piece was played upon the organ, I felt that the angels of music too were there as witnesses to the consecration of the beauty of melody and harmony to the service of the temple, and by their presence giving a solemnity and pathos which would not be found in such a degree without them.

From the extracts we have given it will, we hope, be evident that Mr. BUMPUS's book has the great merit of sincerity, for most of his chapters are records of the impressions he received in or before the buildings. It is therefore, unlike the majority of books in which the same subject has been treated, and the pages can be read with pleasure, both by those familiar with Northern Ireland and by those who have yet to make acquaintance with that delightful region. There are a great many photographic illustrations which are very clear, and taken from good points of view. There are also some sketches in colour and a few among them seem suggestive.

### BALTINGLASS ABBEY.

A PAPER on the history of the Cistercian abbey of Baltinglass, co. Wicklow, was read by Lord Walter Russell at the visit to the ruins of the members of the Kildare Archæological Society. His Lordship stated that the original name of Baltinglass was Bealach-dubhthaire, meaning Dubhthaire's road or pass, its present name being a corrupted form of "Bealach Chonglais," or "Cunglass Road," a name which it obtained from a hunting master, which, according to an ancient manuscript called *Dinn-Seanchus*, occurred during the reign of Conary-Mor, monarch of Ireland from B.C. 109 till his death in 140. Cuglass, who was the son of Donn-Des, a king of Leinster, held the position of Master of the Hounds to the monarch Conary-Mor, and on one occasion he proceeded to Tara with the hounds, and seeing a wild boar he set in pursuit of it. The boar, taking a southerly course, was hunted to Bealach-Dubhthaire, where, being hard pressed, it sought refuge in a cave, and with the intention of driving it out, Cuglass and the hounds followed it, but not one of them issued forth again . . . until the year 1140, when the abbey of Baltinglass (or Baltynglass, as the documents more correctly write it) was founded. The mother house in Ireland of the Cistercian Order was the Monastery of Fontenay, which was founded in 1142 by Donough, Chief of Uriel, in Louth, who died in the year 1151. A daughter of Mellifont was Baltinglass Abbey, founded either in 1148 or 1151 by Dermot-na-Gall MacMorris, king of Leinster, whose death occurred at Ferns in 1171. From Baltinglass Abbey sprung four other monasteries—Jerpoint, in co. Kilkenny; Abbeymahon, in co. Cork; Kesh, in co. Kildare; and Abbeyleix, in Queen's County. In 1163 Maelisa O'Laighnain, who had been Abbot of Baltinglass, died Bishop of Emlly. In 1324 Thomas, second Earl of Kildare, received a grant from the Crown of 20% in payment of his expenses for placing a son at Baltinglass and at Dunlavin to resist the inroads of the O'Byrnes, of Ranelagh. In 1375 the Abbot of Baltinglass petitioned the King's Council in Ireland that he should be excused from having to attend Parliaments, explaining that his abbey was dependent upon the Abbot of Kesh, who was accustomed to attend Parliaments and to answer for those abbots dependent upon him. By a Statute of Kilkenny, October 28, he was exonerated from future attendance. In 1380 writs were sent to the Abbot of Baltinglass and to other monasteries enforcing a decree that no Irishmen should be admitted into religious houses situated in the Pale. On June 30, 1541, as Eustace (or FitzEustace), of Harristown, co. Kildare, was granted the site of the abbey of Baltinglass and all its lands and possessions, being at the same time created Lord of Baltinglass. The abbey and its Wicklow possessions eventually came into possession of an officer who rendered much active service under the Crown—Sir Henry Bagenal, Kt. About the year 1617 the abbey posses-

sions passed into the hands of Sir Charles Wilmot, Kt., by a grant of James I. In 1624 they were leased for a thousand years to Sir Thomas Roper in consideration of a sum of 3,000*l.* paid by him to Sir Jas. Carroll. The town of Baltinglass was created a borough in 1663. The castle of Baltinglass stood in a small field adjoining the abbey burial-ground on the south-east side. It was demolished about the year 1882 by the Rev. John Usher, rector of Baltinglass, to supply materials for the building of a glebe-house and new church. During the course of its destruction a cannon ball and the seal of a Papal bull were discovered within the walls, the latter having engraved on it on one side two bearded heads, and over them the initials "S.P.A.," "S.P.E.," and on the other side "Alexander P.P. III." These articles are now in the possession of Mr. J. R. Dagg, of Holdenstown, near Baltinglass.

### WELSH SCHOOLS.

**B**UILDING regulations have been issued by the Board of Education, being the principles to be observed in planning and fitting up new buildings for public elementary schools in Wales. There are some differences from the regulations for English and Scottish schools already issued. The following are extracts:—

#### Section 1.—General.

Before an architect is instructed to prepare plans for a new building for use as a public elementary school, careful consideration should have been given to various points which have an important bearing on the character of the building which is required in the particular case.

The principal factors to be considered are the respective numbers of boys and girls for whom it has been determined that provision is necessary. The distribution of these scholars in respect of age is also very important in its bearing on organisation and consequently on planning; the type of building required will probably depend to some extent on the manner in which the local education authority have exercised their discretion as to the exclusion of children who are under five years of age, and the nature of the accommodation required in the upper departments of ordinary public elementary schools will be affected if higher elementary schools are provided in the locality.

It must be remembered that a head teacher can seldom undertake effectively the responsibility for more than five to six hundred scholars, including the supervision of the teaching staff required for that number. This, therefore, is the greatest number of scholars for whom provision can wisely be made in one and the same department, remembering that each department must have its own head teacher, who is responsible for the general control and supervision of the instruction and discipline of that department (article 8 of the Code).

The number of departments on any one site will depend upon the total number of scholars for whom provision is required, but it will be very seldom that more than three departments (or four, if one of them is for boys and girls of seven to nine or ten years of age) could properly occupy parts of one and the same building. When a school comprising departments for boys, girls and infants is attended by all the children of the area for which it is available, it is not unusual to find that the average attendance in each department is much the same; and this fact will be a guide in planning a building for these conditions. But it is desirable to have a certain margin of places in the infants' department in order to meet the greater variability of the attendance at different seasons.

All these considerations should be kept in mind in deciding how many places should be provided in the several departments of a large school. But in every case the local circumstances must be carefully considered, and if children under five years of age are excluded, or if many of those who reach the age of twelve years are transferred to schools of a higher grade, or if other special circumstances exist, the proportions above suggested must be considerably modified.

The number and circumstances of the scholars who will attend in each department (if more than one be contemplated) and the number and qualifications of the teaching staff to be employed in each, will determine approximately the grouping of the scholars for teaching, the number of rooms which should be provided in the building and the number of places in the several rooms. The rooms must be grouped compactly and conveniently so as to secure proper organisation and supervision; every building in-



tended for use as a public elementary school, must be planned so that the children who will attend can be seated in the best manner for being taught. It is important to remember that the number of places provided in any room depends not merely on its area, but also on the lighting, the shape of the room (especially in relation to the kind of desk proposed), and the position of the doors and fire-places, which should be arranged so as to allow the whole of one side of any room to be left free for the groups of desks.

For large departments containing from 350 to 600 places the most suitable plan is that of a central hall with the classrooms grouped round it; as a rule, such a department would require from seven to ten classrooms. Smaller departments may be planned conveniently with the classrooms opening from a corridor, and a similar plan may be adopted even for larger departments. For small schools a schoolroom with one or more classrooms will be sufficient. There should always be at least one classroom, except in special cases.

Where the site is sufficiently large, open and fairly level, the most economical plan is that in which all the rooms are on the ground floor, and this arrangement is preferable on educational grounds. It is desirable that a building for use as a public elementary school should be on not more than two floors. A building on three floors is open to many objections, though it may be necessary in special circumstances, as, for example, on a site where land is very costly, or where it is otherwise impossible to get adequate area for playgrounds.

#### Section 2.—Central Halls.

When there is a central hall it should have a floor-space of not more than 4 square feet for each scholar for whom the school is recognised; about  $3\frac{1}{2}$  square feet for each scholar will be sufficient. The hall must be fully lighted, warmed and ventilated.

(a) A single central hall may be provided for the joint use at separate times of two departments, provided that it is so placed as to be readily accessible from the classrooms of each department.

(b) Where outdoor space is not available physical training should be given in the central hall or corridor. This purpose should be taken into consideration at the time when the building is planned. Since fixed gymnastic apparatus is unsuitable for children under fourteen years of age, a separate gymnasium is not required and cannot be approved.

#### Section 3.—Corridors.

Large schools not built with a central hall must be provided with a wide corridor giving access to the rooms; and two or three of the rooms ought to be divided from one another by movable partitions only, so that on occasions one large room may be available.

A corridor should be fully and directly lighted and ventilated, and from 8 to 12 feet wide, according to the size of the school.

#### Section 4.—Schoolrooms.

Where a schoolroom is the principal room in a school which has neither central hall nor corridor it should never be designed for more than 100 children, and a room of even smaller size is desirable. The width should vary according to the kind and arrangement of the desks.

No schoolroom lighted from one side only can be approved. The gable end should be fully utilised for windows, and there should be no superfluous windows opposite the teacher.

When a school consists of a single room, that room should not contain more than 600 square feet of floor-space.

#### Section 5.—Classrooms.

The number of classrooms should be sufficient for the size and circumstances of the school.

(a) The classrooms should not be passage-rooms from one part of the building to another, nor from the schoolrooms to the playground or yard. Both schoolrooms and classrooms must have independent entrances. The rooms should be arranged so that each can be easily cleared without disturbing the work proceeding in any other room.

(b) A classroom should not be planned to accommodate more than from fifty to sixty children, but in special cases somewhat larger rooms may be approved. In the absence of supplementary light the measurement from the window-wall in a room 14 feet high should not exceed 24 feet 8 inches. Except in very small schools classrooms should not be planned for less than twenty-four scholars.

(c) The proportions of classrooms should vary with kind and arrangement of the desks; but a long and narrow room should always be avoided, and a room approximating to a square is most satisfactory.

#### Section 6.—Desks.

Seats and desks should be provided for all the children, graduated according to their ages and placed at right angles to the window-wall. The seats should be fitted with writing-tables.

An allowance of 18 inches per scholar at each desk seat will suffice except in the case of the dual desk, the length of each group should therefore be some 18 feet of 18 inches, with gangways of 18 inches between groups and at the walls. In the case of the dual desk the usual length is 3 feet 4 inches and the gangways 4 inches.

(a) In an ordinary classroom five rows of long desks or six rows of dual desks are best, but in a schoolroom providing for more than 60 children there should be more than four rows of long desks or five rows of dual desks.

If a schoolroom is 18 feet wide, three rows of long desks or four of dual desks may be used; if the width is 22 feet the rows may be four and five respectively.

Long desks should be so arranged that the teacher can pass between the rows. Where dual desks are used this is not necessary, as the gangways give sufficient access. The teacher should be able to pass behind the back row of desks.

(b) The desks should be very slightly inclined to the angle of 15 degs. is sufficient. The objection to dual desks is that it has a tendency to make the children look at the teacher. A raised ledge in front of a desk interferes with the writing. The edge of the desk when used for writing should be vertically over the edge of the seat.

(c) Single desks are not necessary in an ordinary elementary school.

#### Section 7.—Accommodation.

The accommodation of the school, i.e. the number of places for which the school is finally recognised, should depend in part on the arrangement of the desks, and must be approved by the Board.

No central hall or corridor, and no classroom, kitchen, laundrywork, handicraft, drawing or science room, should be counted towards the accommodation.

When the building to be erected is for the use of a school, the plans of the schoolroom (if any) and of the other rooms must show an average of not less than 100 square feet of floor-space for each place proposed to be provided.

### COLOUR IN ARCHITECTURE.

FROM the beginning of the world there has never been a true or fine school of art in which colour was despised. It has often been imperfectly attained and judiciously applied; but it is one of the essential elements of life in a school of art that it loves colour, and one of the first signs of death in the Renaissance schools that it despised colour. Observe, it is not now the question whether our northern cathedrals are better with colour or without. Perhaps the monotone grey of nature and time is a better colour than any that the human mind can give. The simple fact is, that the builders of those cathedrals laid upon them the brightest colours they could obtain, and that there is not in Europe any monument of a true school which has not been either painted all over or vigorously touched with paint, mosaic and gilding in the prominent parts. Thus far Egyptians, Greeks, Arabs and Mediaeval Christians all agree; none of them when in their right senses, ever think of doing without paint. The Venetians thoroughly sympathised with the Arabs in this respect, for their intense love of colour led them to lavish the most expensive decorations on their dwelling-houses; and secondly, that perfection of the instinct in them enabled them to render whatever they painted in this kind as just in principle as it was gorgeous in appliance.

Messrs. William Collins, Sons & Co., Ltd., of 71, Abchurch Lane, London, E.C., are publishing a series of novels by the best authors. The issue of this new right series makes it possible for every one to obtain for a small sum a real library of the best books by the authors of modern times. Each volume is clearly printed in bold type, nicely bound in cloth with gilt back, and sold at the price of 7d. net.



## SOUTHWELL MINSTER.

as long been known to the watchful eye of the guardians of this venerable structure that a settlement was taking place in the walls of the north and south transepts. Some fifty years ago the south transept gable was stiffened with heavy iron braces, but this was not considered necessary in the case of the north transept. The cracks caused by this settlement have been filled up with cement and kept under observation, and it was found that this pointing has become loose and in some places has fallen out, and further that a crack has appeared in a window-sill which was only inserted during the reconstruction of 1851, clearly shows that further movement is taking place, which might at any time develop into a danger. Some of the alarmist reports which have been current as to the safety of the fabric are, however, exaggerated. It has, nevertheless, been considered prudent, in view of what has occurred at Winchester and elsewhere, to take immediate steps to strengthen the foundations and render the superstructure secure. The south transept has been shored up with massive baulks of timber, and the old Norman foundations are being removed in sections and replaced by a solid mass of cement concrete, some 6 feet deep and 12 feet wide, resting on the ground on which the minster is built, and directly supporting the ancient superstructure. The south transept is now prepared for the shores, but it will not be proceeded with until the work on the north transept has been completed. When this is accomplished there should be no danger to the safety of these parts of the ancient edifice. Work is being carried out by Messrs. Cornish & Co., of North Walsham, under the direction of Mr. J. Caroe, the architect to the Ecclesiastical Commission, who are responsible for keeping the fabric in

two men can be employed at a time. But arrangements are being made for a night shift. The pit in No. 2 pier is down 24 feet from the road level. There are twenty-four men employed on the bridge and the expenditure to this date has been 772*l.*—(Signed) W. S. WILSON.

## COTTAGE, BURNHAM BEECHES.

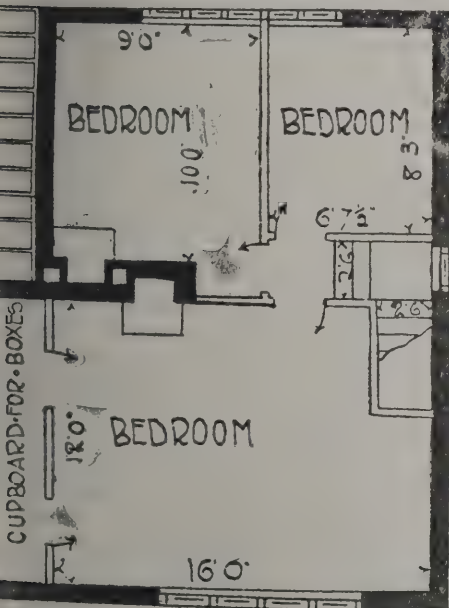
THIS cottage has been built at the rear of "Highlands," Farnham Common, and the owner intended it to be used by a gardener or chauffeur. It is rough-cast (whitened) outside, with wood and ironwork finished with "indestructible" green paint; the roof is covered with Somerset Trading Company's Bridgwater patent red tiles. The architect is Mr. Jno. Wornell, of Farnham Common, Slough, Bucks, and the builders Messrs. Burfoot & Butler, Slough.



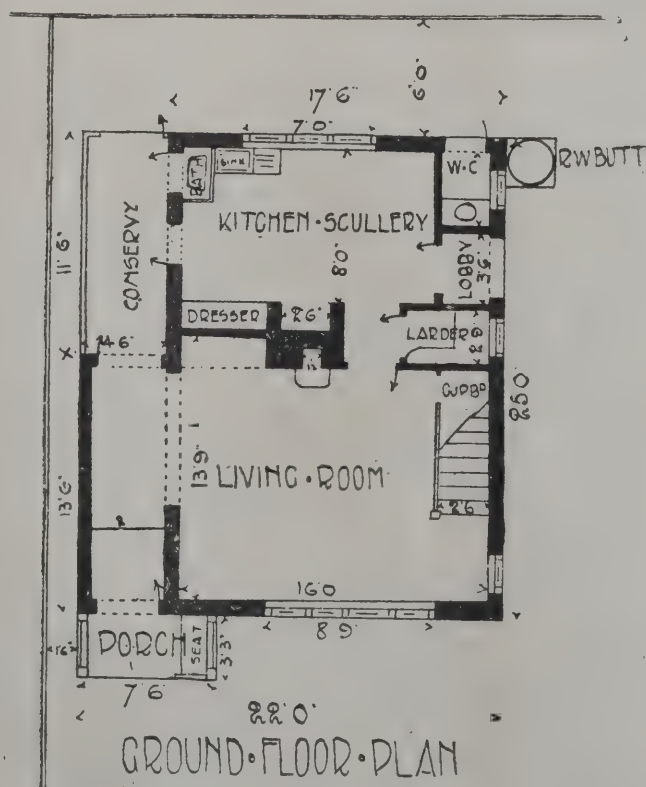
COTTAGE, BURNHAM BEECHES. (John Wornell, Architect.)

## AYR AULD BRIG.

Report to Messrs. Shaw and Welsh, hon. secretaries, Ayr Auld Brig preservation committee, dated September 11, 1907. S. Wilson, the engineer, states:—The pointing of the arches and three piers is completed; the roadway the length of the bridge has been removed and the four piers have been repaired and strengthened with a covering of concrete as formerly described. The cross walls at the ends and the central spandril walls are all finished. The motor has proved satisfactory, and the grouting of the piers 1 and 2 is done. The pit in the No. 1 pier is to the full depth of 39½ feet from the road level, the concrete has been laid, and the excavation for underpinning is going on. This is necessarily slow work, as only



FIRST FLOOR PLAN



GROUND FLOOR PLAN



## NOTES AND COMMENTS.

A CONFERENCE of members of the municipal corporations of London and the home counties will be held at Letchworth to-day on "The Housing Lessons of Garden City," over which the Lord Mayor of London will preside. Dr. T. J. MACNAMARA, M.P. (parliamentary secretary to the Local Government Board), is to speak with reference to the Government's promised Housing and Town Planning Bill, to be introduced next session. Mr. PERCY ALDEN, M.P., will move a resolution dealing with the practical lessons of the Garden City experiment with regard to housing and town planning. The Lord Mayor will be supported by the aldermen and sheriffs of the City Corporation and others.

THE credit of designing the earliest cloud-piercing office building is not to be given to the late W. L. JENNEY, of Chicago, unchallenged. Already there are several RICHMONDS in the field, and in a country which is prolific of new ideas, and when almost every second man has his stock of notions, that is not surprising. It is now said there is no question but that Mr. JENNEY actually built the first tall building in Chicago, the Home Insurance Building, but others claim that Messrs. BURNHAM & ROOT had planned, though not erected, that mode of construction at a prior time. Other candidates for the honour have presented their claims. In one case Mr. BUFFINGTON, of Minneapolis, seems to have the best foundation for his contention, as he is the only possessor of a United States patent for that mode of construction, and has actually filed suits against owners of some tall buildings for having infringed his idea. Latest developments, however, bring out that his claims are combated by Mr. F. W. FITZPATRICK, of Washington, who asserts that the BUFFINGTON patent is invalid because it was not that gentleman's own conception, he having "absorbed" it from Mr. FITZPATRICK, who was then, in 1883, his chief assistant, and who had elaborated the scheme of tall construction with an engineer named STROM. Whether the scheme of construction was the invention of any one individual, or, as contended by some, a natural evolution, a logical solution of the problems before them, a conclusion arrived at by many architects and engineers simultaneously, it seems that the architectural profession deserves the greater praise, though the matter is so essentially an engineering one, for its introduction and perfection.

THE third divisional volume of "The Modern Plumber and Sanitary Engineer," edited by Mr. G. LISTER SUTCLIFFE (The Gresham Publishing Company), has appeared. It contains three sections, viz. "Hot-water Services," by Mr. A. HERRING SHAW; "Warm Air and Ventilation," by Mr. HAROLD GRIFFITHS; and "Sanitary Plumbing and Drainage" (incomplete), by Mr. E. THOMAS SWINSON. In addition to plates, there are about 140 illustrations, all drawn in a style which practical men can appreciate. The following extract from Mr. SHAW's treatise if generally known might save some apprehension among nervous tenants:—"Unpleasant noises are occasionally observed in hot-water supply systems, especially when the temperature in the boiler is greatest. Various causes, enumerated below, may be responsible for these:—(1) Boiler too large for the requirements, steam being generated more rapidly than it can quietly escape; it therefore makes its way through the flow-pipe into the cylinder, and thence forces its way through the expansion pipe, driving out large quantities of hot water in 'geyser' form. (2) Escape of air which has been imprisoned in the boiler by the flow-pipe passing into the latter and forming an air space, or by the uneven setting of the boiler, the flow-pipe end being lower than the opposite end. This fault may develop after the fixing of the boiler, owing to insecure setting. (3) Partial stoppage of the circulation pipes (generally due to deposit of lime), which greatly retards the flow of

water to and from the boiler and causes large quantity of steam to be generated. (4) Dips in the circulation pipes, forming air traps, which greatly affect the circulation of water between boiler and cylinder." The extract will suggest the comprehensive system adopted for book and the recognition of what to many may seem trifles.

AN interesting paper on Heraldry, or rather the Arms in relation to books, was read by Mr. C. DAVENPORT, F.S.A., at the Librarians' Conference, Glasgow on Tuesday. He maintained that the English coat-of-arms is the oldest of all, for two golden lions passant on a red ground appeared on a seal of King JOHN in 1180. The third lion, which was derived from Aquitaine, was introduced in the great coat of RICHARD I. The fleur de lys was assumed by EDWARD III. The first royal coat-of-arms used in binding was in the reign of HENRY IV., and it occurred on a loose cover now in the library at Westminster Abbey. HENRY VII. used the same coat, but also as supporters the red dragon of Cadwallader, and the white greyhound of "De Beaufort." The latter was omitted by HENRY VIII. in 1528, and the lion rampant was substituted. With the advent of JAMES VI. of Scotland to the Throne of England, in 1603, he brought the ancient Scottish coat (first used in 1170) into the English coat, as well as the harp of Ireland. The Scottish coat was "Or, a lion rampant with double tressure flory-counter-flory, gules." JAMES VI. bore the English coat in the first quarter, the Scottish in the second and the Irish coat "azure, a harp stringed argent," in the third quarter. The harp had been given to Ireland by HENRY VIII. as a mark of appreciation of the Irish love of music. JAMES also altered the supporters by abolishing the red dragon in favour of the unicorn—one of the ancient Scottish supporters. The supporters (the lion and the unicorn) have remained the same ever since.

## ILLUSTRATIONS.

CARLTON HOUSE, REGENT STREET.

CITY OF MELBOURNE ADMINISTRATION OFFICES.

WE illustrate in this issue the main elevation of Swanston Street and plans of the two principal floors for the new administrative buildings for the Melbourne town hall. It is proposed to commence the erection of these buildings immediately, and Messrs. GRAINGER, KENNEDY & LITTLE, whose design was awarded first prize in the recent competition, are engaged in the preparation of the contract drawings and specification. The building will occupy the site of the old police courts. The existing buildings will be forthwith demolished and all the materials cleared away. The new buildings will be erected on concrete foundations with bluestone (basalt) base, faced generally with Sydney sandstone. The elevations are to follow the general lines of the architecture of the present town hall. The floors and the partitions will be of reinforced concrete, and the construction generally will be of fire-resisting materials. In the main corridors and staircase it is proposed to utilise Australian marble for facings, whilst some of the choicest Australian timbers—cedar and blackwood—will be utilised for joinery and fittings. The building is to be lighted and heated by the elevators worked by electrical energy; a supply of which will be obtained from the City Council's main power station. The plan of the first floor shows the connection between the old and new buildings by means of a bridge. It is estimated that the cost of this portion of the work will be about 50,000/., and upon completion of the drawings tenders will be called forthwith.

ANGLO-EGYPTIAN BANK, PORT SAID.

NEW PREMISES, ALDWYCH.

CATHEDRAL SERIES.—SOUTHWARK: NORTH TRANSEPT.



## THE PALACE OF WESTMINSTER.

the report of the committee of the House of Lords, which appeared in *The Architect* of the 6th inst., there references to the reports of the Commissioners of Fine Arts. The most important is the seventh, from its containing the scheme of the committee appointed to select subjects for painting and sculpture for the future decoration of the Palace of Westminster. The members were Prince Albert, Marquis of Lansdowne, Lord John Russell, Lord Lytton, Lord Mahon, Mr. T. B. Macaulay and Mr. Henry James, the historians, Sir Robert Harry Inglis, a distinguished member of the House of Commons, with Mr. Thomas Wyse, also a member, and who was believed to be familiar with art as applied to the decoration of buildings. As the report of the committee is now to be printed with difficulty, we have been advised to reprint it without it the Lords' report becomes less clear:—

Your committee have first to observe that the general plan on which subjects were proposed to be selected has been defined by the Commissioners in their Sixth Report to Her Majesty in the following words:—"In accordance with the principles which have already guided us in deciding on the plan of decoration in the House of Lords, viz. with reference to fresco-paintings, stained windows and statues proposed for that locality; and also in the selection of subjects proposed for St. Stephen's Porch, St. Stephen's Hall and the royal approaches: we conceive it to be the duty of this Commission, for the better guidance of present and future artists, and in order to maintain a character of unity and harmony worthy of such a building, to determine a complete scheme for the future decoration of the Palace. We are of opinion that, in determining such a scheme, the special destination of each portion of the building should be attended to; that, in the selection of subjects, the chief object to be regarded should be the expression of some specific idea: and the second, its illustration, by means of the well-known historic or poetic incident adapted for representation in painting."

The duty which has devolved on your committee being thus defined, their labours have been directed to the selection of subjects in accordance with the principle above explained. They have, for the present, given their attention to subjects for painting; a considerable number of names of distinguished persons to whom statues might with propriety be erected having been before proposed, and of these we have been selected by former committees for particular localities.

St. Stephen's Porch, containing two compartments, one measuring 26 feet high to the point of the Gothic arch, by 12 feet 8 inches wide; the other measuring 18 feet 3 inches high to the point of the arch, by 11 feet 4 inches wide.

In this porch will be four pedestals, on two of which it has been recommended to place the statues of Marlborough and Nelson; and your committee were of opinion that the subjects of "Peace" and "War" would be appropriate in the two compartments intended for painting.

St. Stephen's Hall, containing on the side wall eight compartments, each measuring 14 feet 5 inches wide by 8 feet 8 inches high; and two end compartments, one measuring 20 feet 9 inches high to the point of the arch, by 12 feet 6 inches wide; the other measuring 17 feet 6 inches high to the point of the arch, by 11 feet 3 inches wide.

An opinion has before been expressed, by the Commission generally, that as St. Stephen's Hall stands on the spot where the House of Commons was, during many centuries, the habit of assembling, it should be adorned with statues of men who rose to eminence by the eloquence and abilities which they displayed in that House. Twelve personages selected on this principle were accordingly named in the report of the Commission to Her Majesty.

Your committee conceived that the walls might properly be decorated with paintings illustrating some of the greatest events in our constitutional, social and ecclesiastical history, from the time when the Anglo-Saxon nation embraced Christianity to the accession of the House of Stuart; and the following subjects would be well adapted for this purpose:—

1. In the State (for the side compartments).—"A Sitting of the Wittenagemot," "The Feudal System—the Homage of the Barons to William the Conqueror," "The Origin of the House of Commons—the first Writ brought down to the City of London," "The Termination of the Baronial Wars at Stanley and Oxford crowning Henry VII. over the dead body of Richard III.," "An Early Trial by Jury," "The

Signing of Magna Charta," "The Abolition of Villeinage"—a Lord on his Deathbed, attended by the Clergy, manumitting his Villeins," "The Privileges of the Commons asserted by Sir Thomas More against Cardinal Wolsey."

II. In the Church (for the end compartments).—West end: "The Conversion of the Anglo-Saxons to Christianity—the Preaching of St. Augustine." East end: The Reformation—Queen Elizabeth receiving the Bible in Cheap-side."

The central hall, containing four compartments, each measuring 17 feet 7 inches high to the point of the Gothic arch, by 12 feet 7 inches wide, and three small panels underneath three of the large compartments, each measuring 5 feet 5 inches high to the point of the arch, by about 4 feet 6 inches wide.

Your committee, bearing in mind that this hall is the central point of the whole building, were of opinion that the nationality of the component parts of the United Kingdom should be the idea here illustrated, and would be appropriately expressed by representations of the four patron saints, St. George, St. Andrew, St. Patrick and St. David, in the four compartments intended for painting, and that in the three small spaces underneath three of the compartments the heraldic emblazonings of the Orders of the Garter, of the Thistle and of St. Patrick might be introduced.

Corridors from the central hall, consisting of the Peers' corridor, the Commons' corridor and the central or public corridor.

Your committee were of opinion that the corridors which join the two Houses might properly be decorated with paintings illustrative of that great contest which commenced with the meeting of the Long Parliament and terminated in 1689. It will be seen that the subjects have been selected on the principle of parallelism, and that an attempt has been made to do justice to the heroic virtues which were displayed on both sides.

The Peers' Corridor, containing eight compartments intended for painting, each measuring 9 feet 6 inches wide by 7 feet high:—"Charles I. erecting his Standard at Nottingham," "Basing House defended by the Cavaliers against the Parliamentary Army," "The Expulsion of the Fellows of a College at Oxford for refusing to sign the Covenant," "The Burial of Charles I.," "Speaker Lenthall asserting the Privileges of the Commons against Charles I., when the Attempt was made to seize the Five Members," "The setting out of the Train Bands from London to raise the Siege of Gloucester," "The Embarkation of a Puritan Family for New England," "The Parting of Lord and Lady Russell."

The Commons' Corridor, containing eight compartments intended for painting, each measuring 7 feet 9½ inches wide by 6 feet 6 inches high:—"Charles II. assisted in his Escape by Jane Lane," "The Executioner tying Wishart's Book round the Neck of Montrose," "Monk declaring for a Free Parliament," "The Landing of Charles II.," "Alice Lisle concealing the Fugitives after the Battle of Sedgemoor," "The Sleep of Argyll," "The Acquittal of the Seven Bishops," "The Lords and Commons presenting the Crown to William and Mary in the Banqueting House."

The central corridor, containing six compartments each measuring 8 feet 9 inches high by 7 feet wide.

The paintings in St. Stephen's Hall, and in the corridors which join the two Houses, illustrate the gradual progress of our institutions during the interval which elapsed between the introduction of Christianity and the Revolution. It has been thought that the central corridor might with advantage be adorned with paintings exhibiting in strong contrast the extremes which are separated by that interval. With this view, six subjects have been selected: in three Britain appears sunk in ignorance, heathen superstition and slavery; in the other three she appears instructing the savage, abolishing barbarous rites and liberating the slave.

"The Phœnicians in Cornwall," "A Druidical Sacrifice," "Anglo-Saxon Captives exposed for sale in the Market Place of Rome," "Cook in Otaheite," "English Authorities stopping the Sacrifice of a Suttee," "The Emancipation of Negro Slaves."

The Upper Waiting-hall.—The subjects for six (out of

\* "The holy fathers, monks and friars, in their confession, and specially in their extreme and deadly sicknesses, burdened the consciences of them whom they had under their hands: so that temporal men, by little and little, by reason of that terror in their conscience, were glad to manumit all their villeins."—Sir Thomas Smith, *Commonwealth*, book iii. c. 10.

† See Woodrow, *Church History*, book iii. c. 9, s. 9.



eight) compartments in this locality have been before proposed to be selected from the following poets:—Chaucer, Spenser, Shakespeare, Milton, Dryden and Pope. The choice of such subjects being left to the artists appointed, or to be appointed, to execute them after they shall have been approved by the Commissioners.

The House of Peers.—The subjects for the six compartments intended for painting and the selection of historical personages proposed for statues to be placed in the eighteen niches, as well as the decorations for the stained windows, have been determined by former committees.

The Peers' Robing-room, containing three large compartments, two measuring 20 feet wide by 10 feet 6 inches high, the third measuring 22 feet wide by 10 feet 6 inches high, and six smaller compartments, each measuring 7 feet by 10 feet 6 inches high.

Your committee being desirous to vary the proposed decorations, and conceiving that Scripture subjects—as affording scope for the highest style of design, and as being especially eligible on other grounds, should by no means be excluded—considered that the above-named locality, in which the principal compartments intended for painting are of considerable magnitude, would be well adapted for such subjects. Your committee were of opinion that the illustrations should have reference to the idea of justice on earth and its development in law and judgment, and that the following subjects would be appropriate.

In the single large compartment on the west side. (1) "Moses bringing down the Tables of the Law to the Israelites."

In the two small compartments on the east side (2) "The Fall of Man," and (3) "His Condemnation to Labour."

On the south side, in the larger compartment (4), "The Judgment of Solomon," and in the two smaller (5) "The Visit of the Queen of Sheba," and (6) "The Building of the Temple."

On the north side in the larger compartment (7), "The Judgment of Daniel," and in the two smaller (8) "Daniel in the Lions' Den," and (9) "The Vision of Daniel."

The Royal Ante-chamber, containing in the upper part of two of the walls six large compartments (three on each side), measuring 13 feet wide by 10 feet 9 inches high. Twenty-eight upright narrow compartments, measuring 5 feet 7 inches high by about 2 feet 6 inches wide, and twelve panels for carved work, four measuring 6 feet 9 inches wide by 2 feet 9 inches high, and eight measuring 2 feet 2 inches square.

Your committee considered that the six large compartments in this locality, being at a considerable height, might be filled with copies in tapestry of the defeat of the Spanish Armada; taken either in part or altogether from the designs of the tapestry originally existing in the House of Lords, which your committee conceived it is of great importance to preserve as far as possible to the nation.

That the twenty-eight upright compartments might be appropriately filled with portraits relating to the Tudor family:—(1) "Henry VII.," (2) "Elizabeth of York," (3) "Arthur, Prince of Wales," (4) "Catharine of Aragon," (5) "Henry VIII.," (6) "Anne Boleyn," (7) "Jane Seymour," (8) "Katharine Howard," (9) "Anne of Cleves," (10) "Katharine Parr," (11) "Edward VI.," (12) "Queen Mary," (13) "Philip II.," (14) "Queen Elizabeth," (15) "Louis XII.," (16) "Princess Mary, Queen of France, Duchess of Suffolk," (17) "Charles Brandon, Duke of Suffolk," (18) "The Marchioness of Dorset," (19) "Lady Jane Grey," (20) "Lord Guildford Dudley," (21) "Princess Margaret, Queen of Scotland, Countess of Angus," (22) "James IV.," (23) "Douglas, Earl of Angus," (24) "James V.," (25) "Mary of Guise," (26) "Mary, Queen of Scots," (27) "Francis II.," (28) "Lord Darnley."

That the twelve panels might be filled with the following subjects in carved work:—

1, 2. "The Field of the Cloth of Gold" and "The Visit of Charles V. to Henry VIII.," in the two compartments on the east and west sides.

3, 4, 5. "The Escape of Mary Queen of Scots," "The Murder of Rizzio," and "Mary looking back on France," in the three compartments on the south side, west of the door, "The Escape of Mary Queen of Scots" occupying the centre panel.

6, 7, 8. "Queen Elizabeth knighting Drake," "Raleigh spreading his Cloak as a Carpet for the Queen" and "Raleigh landing in Virginia," in the three compartments on the south side, east of the door, the subject of the knighting of Drake occupying the centre panel.

9, 10, 11, 12. On the north side, "Edward VI. granting

a Charter to Christ's Hospital," "Lady Jane Grey at Studies," "Sebastian Cabot before Henry VII.," "Catharine of Aragon pleading."

The Royal Gallery.—A considerable space on each wall, measuring 77 feet 6 inches wide, not being subdivided into compartments, your committee were of opinion that such space should be occupied by one large and two smaller subjects, the smaller corresponding in width with the width of one window and measuring 12 feet 6 inches wide by 11 feet 6 inches high, the larger comprehending the width of three windows and measuring 45 feet wide by 11 feet 6 inches high. Of the remaining compartments defined by the architect two on the side walls measure each 13 feet 3 inches wide by 11 feet 6 inches high, four on the same length in the end walls measure 12 feet 2 inches wide by 11 feet 6 inches high; the six remaining compartments, three on each end in the upper part of the walls, measure 12 feet 2 inches wide by 19 feet 7 inches high. The compartments would therefore be eighteen in number.

Your committee were of opinion that the subjects for the Royal Gallery should relate to the military history and glory of the country, and that the following subjects would be appropriate.

In the three upper compartments in the south wall (1) "Boadicea inciting her Army," (2) "Alfred in the Camp of the Danes," (3) "Brian Boromhe overcoming the Danes at the Bridge of Clontarf."

In the three upper compartments in the north wall (4) "Edith finding the dead Body of Harold," (5) "Richard Cœur de Lion coming in sight of the Holy City," (6) "Eleanor saving the Life of her Husband, afterwar Edward I., by sucking the poison from the wound in his arm."

In the compartments next the proposed large compartment on the west wall:—(7) "Bruce, during a Retreat before the English, protecting a Woman borne on a Litt and checking the Pursuers," (8) "Philippa interceding for the Lives of the Citizens of Calais."

In the lower compartments on the north wall:—(9) "Edward the Black Prince entering London by the side of King John of France," (10) "The Marriage of Henry at Troyes, with the Princess Katharine of France."

In the compartments next the proposed large compartment on the east wall:—(11) "Elizabeth at Tilbury," (12) "Blake at Tunis."

In the remaining compartment on the east wall:—(13) "Marlborough at Blenheim."

In the lower compartments on the north wall:—(14) "The Death of Wolfe," (15) "The Death of Abercrombie."

In the remaining compartment on the west wall:—(16) "Lord Cornwallis receiving the Sons of Tippoo as Hostages."

In the large compartment on the west wall:—(17) "The fall of the Bastille—the Death of Nelson."

In the corresponding compartment on the east wall:—(18) "Waterloo—the Meeting of Wellington and Blücher."

The Queen's Robing-room, containing compartments of various dimensions, adapted for painting and other decorations.

Your committee, influenced by the considerations before expressed as to the expediency of varying the character of the decorations proposed, were of opinion that a series of paintings and other works of art, illustrating the legend of King Arthur, would be appropriate in this locality; and your committee unanimously agreed to recommend to the Commission that the execution and entire superintendence of such decorations should be entrusted to Mr. Dyce, who has already executed a fresco in the House of Lords.

The Guard-room, containing two compartments, each measuring 12 feet wide by 8 feet high.

Your committee conceived that these compartments might be filled with the following subjects:—(1) "Your Talbot defending his Father in Battle," (2) "Isabel Douglas barring the Door with her Arm to protect James of Scotland."

The Lobby of the Guard-room, containing one compartment, measuring 14 feet 5 inches high to the point of the Gothic arch, by 10 feet wide. For this locality your committee selected the subject of "St. Edmund the Martyr slain by the Danes."

The Norman porch, containing two compartments, each measuring 18 feet 2 inches high to the point of the Gothic arch, by 10 feet 10 inches wide.

It was the opinion of your committee that these compartments would be appropriately filled with the two



Following subjects:—(1) "Canute reproving his Courtiers."  
(2) "Queen Elizabeth on the Seaside after the Defeat of the Spanish Armada."

Your committee conceived that the subjects in all the localities mentioned should be accompanied with inscriptions, and, in some instances, with appropriate mottoes; that in the last-named subject the motto might be "Afflavit Deus et dissipantur," and in the subject of Canute, "Nemo dominus nisi Deus."

The Peers and Commons' refreshment-rooms.—The compartments in the two rooms belonging to the Peers might be appropriated to views of places of the chief importance within the United Kingdom. The compartments of the other rooms to views of the most remarkable places in India and the Colonial possessions of the Crown. Space might also be found for subjects connected with rural industry, the harvest, the chase, &c.

The Painted Chamber, being the hall of conference between the two Houses, contains thirteen compartments adapted for painting, two on the east side, measuring 10 feet 4 inches high by 7 feet 4 inches wide; five on the west side, the centre compartment measuring 10 feet 4 inches high by 16 feet 4 inches wide; two compartments next the corners measuring 10 feet 4 inches high by 9 feet wide, and two over the doors, measuring 4 feet 6 inches high by 6 feet 4 inches wide; three on the north side, the centre compartment measuring 10 feet 4 inches high by 14 feet 3 inches wide, and two smaller compartments, each measuring 10 feet 10 inches high by 4 feet 8 inches wide; and three on the south side, corresponding with those on the north side.

Your committee conceived that the subjects for painting in this locality might have reference to the acquisition of the countries, colonies and important places constituting the British Empire; and that the following subjects would be appropriate:—

In the centre compartment on the west side:—(1) "The Marriage of Strongbow and Eva, daughter of Dermot, King of Leinster."

In the centre compartment on the south side:—(2) "Edward I. presenting his infant Son to the Welsh as their Prince."

In the centre compartment on the north side:—(3) "James VI. of Scotland receiving the News of the Death of Queen Elizabeth; or, Setting out for England as James I."

In the two compartments next the corners, on the west side:—(4) "Lord Clive in the Battle of Plassy." (5) "Penn's Treaty with the American Indians."

In the two compartments on the east side:—(6) "The Colonisation of Australia." (7) "The Treaty of Nankin."

In the two compartments over the doors, on the west side:—(8, 9) "Incidents illustrating the Voyages to the North and South Poles."

In the small compartments on the south side:—(10, 11) "Incidents relating to the Acquisition of Mauritius and the Cape of Good Hope."

In the two small compartments on the north side:—(12) "Sir George Rooke planting the Standard of England in Gibraltar." (13) "The Surrender of Malta."

The entrance from Old Palace Yard is also intended to contain some compartments for painting, but your committee conceived that it would be proper to postpone the consideration of subjects for this locality, as it is not yet certain whether paintings can be seen in it to sufficient advantage.

With regard to the technical method in which the paintings proposed should be executed, your committee, although not prepared to offer a general recommendation on this subject, were of opinion that the pictures in the three corridors leading from the central hall and the pictures in the refreshment-rooms should be painted in oils, and that the Queen's Robing-room, St. Stephen's Hall and the Royal Gallery should be painted in fresco. The representations of the four patron saints from their size and situation might be advantageously executed in mosaic (like the four evangelists in the pendentives of the cupola of St. Peter's), thus giving an opportunity for the introduction into England of an art highly valued in other times and countries.

Your committee have further to observe that movable oil-paintings, not coming within the general plan proposed, might be placed in committee-rooms and in other parts of the building.

A Painting by Rubens known as "La Bacchanale d'Enfante," which was stolen from the collection of the Comte d'Hasselt in Brussels, has been discovered and the thief is in prison.

## EXCAVATIONS AT CORSTOPITUM.

MEMBERS of the Newcastle Society of Antiquaries on Friday last visited Corbridge, where for many months there has been a centre of attraction in the Corstopitum excavations, carried on under the supervision of Mr. C. L. Woolley, B.A., of the Ashmolean Museum, Oxford. When the Roman wall was built, from Wallsend to the Solway, there were stations set upon it for the accommodation of the soldiers. Corstopitum was not a fort like Housesteads or Chesters, but was a town, and there is no vestige of the like north of York and Aldborough save at Carlisle, where the site is over-built. Corstopitum is in the open fields and is being readily excavated, thanks to the acquiescence and support of the owner, Captain J. H. Cuthbert, and the tenant, Mr. Reed.

The site of the excavations, says the *Newcastle Journal*, is a little to the west of the town of Corbridge. Corbridge was one of the most interesting places in connection with the Roman occupation. Though not on the line of the Roman wall the town of Corstopitum was used as a sort of base for sending supplies to the soldiers who garrisoned the wall at the various stations. The Antonine itinerary supplies a list of headquarters from Dover to Bremenium in Northumberland. There was a series of roadways running right north through the country, and one of these was Watling Street—or more properly Dere Street—which passed through Corbridge. The road crossed the river Tyne by a bridge obliquely, and reached the wall at Stagshaw Bank, where now is Portgate. Corstopitum was a city in the old days, full of life and activity, and it was one of the most important places in the Antonine itinerary. In those days, it is said, a Roman legate could travel more quickly from the Tyne to the Continent than ever a man was able to journey afterwards until the provision of stage coaches once again demanded the making of passable roads.

The excavators did not start out with the expectation of finding buildings in other than a "plundered" condition, for Corbridge had been used from very early times as a quarry, and much of the hewn stone had been carried away to serve as building material. Wilfrid's church at Hexham is believed to have been constructed entirely from the material obtained from Corstopitum, and much of the church of St. Andrew at Corbridge was similarly constructed. Corstopitum occupied an area of about 25 acres, and stood on the slope immediately above the river, and its suburb was probably very extensive. The extent of the excavations was in the beginning limited by lack of funds, but subsequent subscriptions enabled the work to be extended, and it has progressed indefatigably under the direction of Mr. Woolley. Several trenches were cut in the beginning, and the ancient ramparts of the city were discovered. Most interesting also was the discovery of the basements of several buildings and very heavy foundations of concrete. The remains were found of rooms heated by hypocausts or furnaces, and the walls of one of these houses remained to a height of 12 inches above the floor. These were covered with plaster, upon which frescoes were painted, but the paintings perished on exposure to the air. There were several subsidiary finds, such as are not uncommon in Roman stations, including pottery, ornaments and domestic implements. There were found also lying in a cistern, into which they had been thrown, a carving in stone of a lion devouring a stag, this having evidently been used for a fountain.

Mr. Woolley met the visitors at a table upon which the more portable "finds" had been set out, and explained them in detail. There were styli, a bronze plaque, flint arrow-heads, bones, ornaments, a curious draughts-board, with pieces and a die; a beautiful intaglio and many fragments of pottery. The examples of ware, he said, occupied a very large part of a potter's shop found close by, the shop-keeper having evidently had extensive dealings in these things. There were fragmentary inscriptions of the Sixth Legion, which were of interest as showing the part played by that legion in the building of Corbridge, particularly in the later period. The draughts-board was made of stone, the squares being roughly cut upon the surface. There was a fine example of a bronze ring-brooch or safety-pin, which might almost be described as Celtic rather than Roman; and the same statement applied to the bronze plaque, enamelled. There was a perfect example of Roman glass, supported by a bronze chain, which had evidently been a lady's scent-bottle. Mr. Woolley displayed what he called a "comic decanter," in ware, and several examples of potters' marks, one being on the rim, which was unusual.



A bundle of copper coins—"minimi"—were exhibited, these having been found lying in the gutter at the roadway, where they had apparently been left in a bag or box. A bronze eagle had probably come from the top of a helmet, and there was a bronze signet. A beautifully engraved intaglio had a snail cut upon it; and there were flint remains which, taken from beneath the Roman strata, seemed to give confirmation of the theory that there had been a settlement there in the neolithic age.

The inspection of the explorations was begun at the south end, where the excavators had exposed the approach to the bridge that crossed the Tyne there at a time when its course was straighter than it is to-day. The abutment had disappeared, but the road that was carried across the river—incorrectly named Watling Street, and more properly Dere Street—had been laid bare at its varying levels, and Mr. Woolley said it was intended to trace the line of the road northwards with the object of seeing whether it ran through the town or, as he believed, skirted its western edge. There were three road levels formed at different periods.

The inspection progressed to the magnificent foundations of the southern house, with its concrete corridor, its door-step and its apartments, and its finely preserved hypocaust. Near at hand was the cistern that had contained the sculptured lion and stag. Mr. Woolley explained the difficulty of assigning a date to the buildings, the floors having been built and overbuilt, each floor being less skilfully made than that which preceded it—a sign of degeneracy. The lion and the stag had been thrown into the cistern with other material to bear a floor that had been built above it. Between two floors a coin of Carausius had been found. The terracing of the town upon the slope was illustrated, and then the visitors were conducted to the higher ground, where the potter's shop had been unearthed. The different kinds of ware had been found in the very positions in which they had been when exposed for sale; and the money found in the till showed that the Samian pottery was manufactured 200 years later than had generally been supposed. The lock and key of the shop door were found, where they had fallen when the place was destroyed by fire. Near at hand was the spot where the hoard of copper "minimi" had been found; and the circumstance that they were found in the gutter led to the assumption that they must have been dropped there at the time of the abandonment of Corstopitum; otherwise, Mr. Woolley submitted, they would not have lain there long. They were mostly coins of the fourth century—of Constantine and his successors. The ground plan of the buildings, so far as the foundations have been exposed, was explained in a lucid, interesting way by Mr. Woolley.

The work, of course, is just beginning, and the excavators have before them a task which will last five years. It is being carried out by the Corbridge Excavation Committee, whose president is the Duke of Northumberland, the secretary being Mr. W. H. Knowles, F.S.A., of Gosforth. A sum of £1,700 has been given in donations and a further sum of 300l. is required. Mr. Woolley has been assisted by Mr. R. H. Forster, and Mr. Knowles is frequently upon the site of the excavations.

#### ARTHURET AND SCALEBY.

A PARTY of members of the Cumberland and Westmorland Antiquarian and Archaeological Society last week visited the Arthuret and Scaleby districts. On arriving at Arthuret Church, says the *Carlisle Journal*, the party inspected the building and the graves of the Grahams of Netherby.

Canon Bower, in a paper on the church, said the parish of Arthuret contained part of what was once known as the debateable land. The church goods therefore in such a neighbourhood would be likely to be scarce and mean. The church itself was in such poor condition in 1609 that it had to be rebuilt by the help of a charity brief granted by James I. In 1868 a faculty was granted to make certain alterations and amendments, including the repair of the windows. The east window, which was dilapidated, was replaced by a new window, and the old one was now standing in the garden at Whoof House and could be seen from the Warwick Road, it having been given to the late Mr. Hope. The bowl of the font in the church was peculiar, being lopsided with a quadrangular base. In conclusion, Canon Bower described the church plate and the monuments, including those of the Grahams of Netherby.

Dr. Barnes contributed a paper on "The Battle of Ardderyd," in which he described the two tumuli near church. These tumuli were separated by the main road from Carlisle. Their position was important as being the road from Scotland to England. On the summit of one adjoining the church was a small camp, which was important having regard to the history of the parish. Dr. Barnes did not think they were sepulchral in origin. They were not mentioned in the Society's Transactions nor in its history. Probably they marked the site of an early battle between the forces of decaying Paganism and of advancing Christianity—the battle of Ardderyd.

Leaving Arthuret, the journey was resumed through Longtown, past Hallburn, and on to Beaconhill Tower, the residence of Mr. Makant, of Bolton.

Mr. J. H. Martindale, in describing the tower, said its probable date was 1584. It was in the possession of the Grahams until 1752, when it was sold to Rowland Stephenson, probably a nephew of Governor Stephenson, who bought Scaleby Castle in 1741. It was still the property of the Stephensons, now Standishs. Proceeding he said, "We are here on an ancient site. In 1890 a double stave was discovered in the field near the entrance gate, which contained the remains of two skeletons and fragments of pottery, which Lord Northesk declared to be early British. There is a short description of the find in our Transactions. The late Chancellor Ferguson says, 'The remains are in the exact state as found, but I am not sure if we can tell them to-day.' The tower before us is one of the latest types of pele towers. It was built by a Richard Graham. There is a date on the wall, 1586, which agrees with architectural details, and I think we may be satisfied the building is of sixteenth-century work. The tower is originally isolated and detached. It is an unusual type in Cumberland and has a good deal of Scottish feeling in its details. The circular gargoyles of the parapet are common in Scotland, but I think the only similar example in this country is in the building of this kind which we have in Newbiggin Hall, Westmorland. The whole treatment of the parapet, with corbels and moulded string in place of the simple oversailing course, is late and Scotch in character. The roof is slated with gables inside the parapet, leaving a walk or pathway entirely round the top. This is not common in Cumberland, although it is frequently found in Northumberland and Scotland."

Later in the afternoon the party arrived at Scaleby Castle, where they were received by Mr. Claude Lowther and Miss Aimée Lowther.

Mr. J. H. Martindale, in a paper on the castle, said this castle is of quite a different type from Breconhill, more extensive and interesting. Mr. Hodgson has told us the site was granted by Henry I. to the influential family of De Tilliols. This family held the important fortresses of Flint and Rhuddlan in North Wales. Mr. T. G. Clark, a great authority on castles, says, "It is not of the eleventh century, though an early castle, and it is treble moated. The county historians give it only two moats. The site is on a level plain with no natural fortification to take advantage of. One moat is perfect, some 500 feet in diameter, and the buildings are placed in the centre of the contained area. I do not think we have any masonry of the earlier De Tilliols remaining. The license to crenellate, dated at the very beginning of the fourteenth century, nearly 30 years earlier than Naworth, does not necessarily imply that the buildings are of the same date; it may only mean the completion of the work or even a legal sanction for confirmation of work done long before. The buildings form a rough square about 100 feet by 85 feet, the south-west angle being slightly depressed, and consists of a long and strong curtain enclosing an area some 70 feet by 80 feet with a tower or keep at the north-west angle. The east curtain had three mural turrets or re-entrant angle bastions projecting beyond the face, and there is one at the south-west angle. The entrance was by a rather narrow gateway in the depressed portion of the west curtain defended by a portcullis. The passage is some 12 feet long. To the north entered from the passage is a guard chamber with loop in external wall. On the south side is another chamber, with entrance from courtyard. The western curtain probably continued in a straight line to the south end of the keep and formed a 'fore building' or entrance to the keep. There remains the jamb and part of the arch of a door from the courtyard which has had a portcullis. In the upper part of the western curtain are several small chambers, the first tier consisting chiefly of garderobes. The second is a fine portcullis-room, 21 feet by 6 feet 7 inches, with arched and ribbed roof, and opening off at



two smaller chambers, the doors to which have the shoulder or Carnarvon arch. This feature may be derived from the Filiols Welsh connection, and gives some clue to the date, say the end of the thirteenth century. This portion of the curtain and a return to the south remains probably its full height, and has a broad parapet wall. Turning now to the tower, it quite deserves the designation of keep in preference to pele. It has always been associated with a curtain wall, is higher and stronger than most pele towers. It has been four storeys in height, and this detail alone indicates early date; the later peles have usually only three storeys. The lowest floor (now divided into two) was a single room lighted by narrow loops, high up, one in the west and one in the north wall. It has a fine barrel vault in stone and the walls are about 8 feet thick. The present door and window to the north are modern. The ancient entrance has been entirely obliterated, but was probably at the south end from the fore buildings I have mentioned. At this end you will see one or two steps *in situ* of the original circular stair which was the means of access to the upper part of the tower. The north and west walls are the only remains of the upper part, and show corbels to support the wood floors. The windows remain in the north wall and have had stone seats. The south end of the tower has been almost entirely destroyed, and any part remaining is covered by modern erections, which if cleared away might reveal the plan. The so-called bastion addition of the late fifteenth century is an octagonal projection in the angle formed by the west curtain and keep. It seems to have been two storeys in height, the lower one being vaulted. The single windows have arched heads, and I think the remains of a fireplace exist in west wall. The second door with portullis before mentioned opens into this building and the upper part seems to have given the only access to room over gateway, &c. A building at right angles on the east wall of keep and inside curtain is a very fine vaulted room 35 feet by 22 feet, now subdivided and ceiled below vault. I think this building is later than the keep, although the vault is very similar in character, but the external walls are much thinner. The upper part was either raised or entirely rebuilt in the sixteenth century by the Gilpins. Large and spacious dungeons were said in the eighteenth century to exist under this hall, and the line of the screens indicated by corbels at west end. The east curtain exists in the outline of the present buildings, and probably the wall is covered by the nineteenth-century casing. It had three mural towers, now altered in various ways, and with windows broken out. This block of buildings was originally built inside the curtain, with windows facing the courtyard, in the fifteenth century by the Musgraves. They consisted of three storeys, the old windows now blocked up. The height has clearly been settled by the curtain wall, so that they did not appear above the parapet. So much for the plan. The external masonry is very fine ashlar, but there are very few heraldic features to assist in fixing dates.

The Bishop of Barrow at the close of the paper proposed a vote of thanks to Mr. and Miss Lowther.

#### ADDITIONS TO EDINBURGH GALLERIES.

THE following pictures and portraits have been added recently to the National and National Portrait Galleries of Edinburgh:—

##### *National Gallery.*

"Scene in Wales," oil-picture by John Crome, painted in 1803 when Crome visited Wales with Mr. Gurney, the Norwich banker, to whose daughter he was then teaching drawing. It is a picture of the same type as "The Slate Quarries," in the National Gallery, London, and was at one time in Mr. Gurney's possession. Purchased.

"Gil Blas and the Archbishop of Granada," oil-picture by W. E. Lockhart, R.S.A., dated 1878, in which year it was exhibited in the Royal Scottish Academy. It was also shown at the Edinburgh International Exhibition, 1886, at the New Gallery, and again at the R.S.A. the year after the artist died. Purchased.

##### *Scottish National Portrait Gallery.*

"William, 9th Earl of Glencairn" (1610?-1664), oil-portrait by an unknown Dutch artist. Glencairn was Lord Chancellor and a very prominent figure in Scottish affairs after the Restoration. The picture was engraved for Pinkerton's well-known book on Scottish portraits. Purchased at the sale of the Duff House collection.

"Robert Stevenson" (1772-1850), oil-portrait by John

Syme, R.S.A.; the famous lighthouse engineer and grandfather of R. L. Stevenson. Purchased from the Gray Bequest.

"Mrs. Scott" (died 1819), oil-portrait by George Watson, P.S.A.; daughter of Dr. Rutherford and mother of Sir Walter Scott. Purchased from the Gray Bequest.

"Professor Sir John Leslie" (1776-1832), drawing by John Henning, H.R.S.A., mathematician and natural philosopher. Purchased from the Gray Bequest.

"Andrew-Betts Brown" (1839-1906), oil-portrait by R. B. Bell, A.R.S.A.; mechanical engineer and inventor. Presented by his family.

"Allan Cunningham" (1784-1842), drawing by J. J. Penston; poet, critic and biographer. Presented by Mr. W. Skeoch Cumming.

"Sir Walter Scott" (1771-1832), marble bust by Sir Francis Chantrey, R.A.; executed from fresh sittings about 1828, when Chantrey presented the marble he had executed in 1823 to Sir Walter. It was subsequently in Sir Robert Peel's collection. Presented anonymously.

#### THE INFLUENCE OF ART.

AN address was delivered by Mr. D. Y. Cameron, R.I.A., at the opening of the exhibition of the Cumberland and Westmorland Society of Arts and Crafts. He said there was scarcely a branch of human industry that was not concerned with art, and those branches which were not should be, and among the many indications of the cultivation of art and the interest shown in art were the exhibitions, such as this, which had sprung up in different parts of the country, and more especially those which dealt with arts and crafts rather than the pictorial art in which he himself was interested. Such exhibitions were not philanthropic, but had a definite purpose. They had grave dangers if they had great advantages, and if exhibition authorities learned the absolute necessity of the most drastic exclusion of anything but the best which they could lay their hands on, all would be well. The benefits arising from those exhibitions were various. As iron sharpened iron, so competition stimulated interest and brought out qualities which otherwise might have remained dormant. In dealing with what ought to be avoided, he warned them against eccentricity and laid emphasis upon the need for reticence and reserve. He reminded them that shouting was not oratory, and that blazing primary colours did not make for those subtle qualities which were the enchantment and glamour of the finest art. A woman in orange and scarlet and green and diamonds was not an ideal of shy, winsome womanhood. What they should seek for was reticence and quiet, pure beauty, which were the essence of fine art. It was grace and beauty which always won and held their affections; chaste beauty of line, simplicity and austerity of design. They should avoid the very suggestion of prettiness and unnecessary ornament, and seek after complete and expressive workmanship, inside and outside, above and below, for the gods saw everywhere. They should insist upon expressive completeness in all things and avoid finicky finish. Those things, and a noble individualism, must be the pursuit of those who would create beauty. In no department of human activity did individuality count for more. Whatever might be the equality dreamed of by some political dreamers it was quite certain that in the domain of art there could be none. In that domain they must ever have the mountain peaks of genius and the light and shade of varied attainment. Clear, strong individualism could only be acquired after long and patient study, and to produce the greatest there must be a combination of head and heart and hand and passion. The great story of the past must be read in its art and ornaments, and its teachings of war and peace must be fully understood. The restless commercial, what he ventured to call the transitional, features of the present must be accepted and conquered, so that the harvest of beauty might be greater in the days to come. The Church and the world both required a new outpouring of beauty. The Church was once the patron of the arts and gathered all the arts under her protection. This had not been the case for centuries past, but he believed the time was coming again when the arts would be gathered together by the Church. Everywhere there was manifest a desire for beauty in the Church, a desire to restore the fallen pillars and buttress the crumbling walls, and to add beauty to the House of the Lord. They wanted generous hearts to pour forth and renew the early beauty, and might the vessels be the consecrated work of the artists and not produced by the



dozen in the factory. Beauty could never hinder but only quicken, and because of this they hoped the Church would give heed to those things and wield its might and influence for all that was lovely and of good report. It would be well if Governments and corporations recognised that funds devoted to the encouragement of the arts were thrice blessed and yielded fruit a hundredfold. Britain was no longer the workshop of the world, and it was only by superiority in design and quality of manufactures that we could hold our own. Every effort was needed in these days of international competition. There was no room for shoddy. Let other nations manufacture shoddy, but let Britain look to perfect manufactures and perfect design and encourage every school which tended to educate the masses in every branch of art. The pursuit of art in its material forms was essential, for in it was the germ of a brighter and better day for their arts and manufactures. It was a joy to all who took part in the work. All great art must be done under the influence of joy. Sorrow did not produce any art. The artist must be always joyful. Referring to the crafts section, he said they wanted the crafts developed. They had often too much of the pictorial. Their crafts must be inspired by the finest feeling for art if they were to retain their place in the world, and it was the department in which they might see the beginning of a better day. They must insist upon completeness of work, no scamping, no shoddy, but the putting of their whole strength and power and design into it. Everything should be made beautiful, so that the articles in common use might truly be a joy for ever. In conclusion, he expressed a hope that this Society might do much for art in this rich Border region, and in the future produce men who would make the district famous. He hoped this exhibition would be well attended, so that the members of the Society might be encouraged in their future efforts.

### THE MILLTOWN COLLECTION, DUBLIN.

THE whole of the collection of pictures, silver, furniture and bric-à-brac presented by Lady Milltown to the National Gallery of Ireland as a memorial of her late husband, the sixth Earl of Milltown, on condition that the collection should be exhibited as a whole and by itself in a suite of rooms specially set apart for this purpose, is now open to the public. At the time the gift was offered there was no space in the gallery for the housing of such a collection, but with the building of the new wing in 1903 it became possible to comply with the terms of the deed.

Viewed as a whole, says the *Irish Times*, the collection is certain to excite controversy. Many of the works of the late Italian schools, for example, are frankly bad both in feeling and treatment, while it can hardly be denied that a good deal of the furniture is unsuitable for a public museum or gallery. But there is another side to the question, and most lovers of art will rejoice at the acquisition of a number of beautiful things, including a superb Reynolds, some interesting French and Italian pictures, and a really fine collection of silver.

As one enters the Milltown rooms from the anteroom one is conscious of a certain charm that does not belong to the ordinary gallery, with its formal rows of pictures, its bare rooms, its air of cold aloofness. Here, in sharp contrast to the other rooms in the gallery, the pictures, not wholly monopolise the attention. The large Reynolds group in the central room—by far the finest work in the whole collection and worth all the rest of the pictures put together—is flanked by two small statuettes on pedestals, beyond which are two tall mirrors. These things are wholly unimportant in themselves from the point of high art, but they serve to throw into relief the fine flowing canvas on which George, first Marquis of Buckingham—he was Earl Temple when the group was painted—is represented with his wife and son. As one sits on the roomy velvet-covered eighteenth-century sofa opposite the picture, itself a fine splash of crimson lake against the low-toned greys and browns of the walls; as one looks round the room with its corner cupboards filled with shining silver, its console tables with their clocks and candlesticks, its rows of stiff chairs of a bygone pattern—everything, in short, that suggests human relationships and a human environment, one feels that it is thus that the savour of pictures is best extracted rather than in the bare gallery where they jostle one another for elbow room, and where discomfort seems inevitable. Looking thus round the rooms one is conscious of a sense of esthetic pleasure, and one is in the mood to

pardon the gallery authorities for the catholicity of their instincts.

The Reynolds already referred to is a portrait group of four whole-length figures set in a landscape background. In the centre, Lord Temple, in red coat faced with black velvet, stands with his hand on the shoulder of his little son, who is posed on a table. The countess, in white gown and powdered hair, is seated on his left, a notebook and pencil in her hand, and gazing intently at her little boy whose portrait she is evidently about to sketch. On the right of the group a black page half crouches, supporting the boy with his arms. This picture, which was painted when Reynolds was still something of an experimentalist and before his esthetic judgment had led him to the policy of keeping all else subsidiary to the artistic unity of the design, strikes one as being a little overloaded. The illustrative element has been allowed to disturb the harmony of the group, and the canvas is too crowded for pictorial success. The result is a certain artificiality and stiffness in the arrangement of the figures, which have a somewhat detached air.

In the same room with this work are four other canvases by Reynolds of a very different type—the famous caricatures done by him when at Rome, including his parody of Raphael's "School of Athens," in which over a score of notabilities of the time, then residing at Rome, and including several well-known Irishmen, are represented. Amongst the personages who may be recognised in this group of figures are Mr. Henry of Straffan, the first Earl of Milltown, Mr. Maxwell, the Abbé du Bois, Mr. Phelps, the Earls of Charlemont, Mayo and Cassilis, and the painter himself. In another caricature the Earl of Milltown and the first Earl of Mayo are shown. The latter, who was nicknamed "Killjoy Lord Naas," was regarded as a bore by his friends, hence the rhyme:—

For who the devil, I should like to know,  
Would sit and be bored by Lord Mayo;  
And who on earth, except his nurse;  
For Lord Mountcashell cares one curse?

In yet another of these curious jests in paint the ninth Earl of Cassilis, the first Earl of Charlemont, Mr. Ward and Mr. Phelps are shown, each wearing the national emblem of his country. All of these canvases are in almost perfect condition, quite free from any darkening or cracking of the surfaces. They are painted with a frankness and simplicity of treatment which is in marked contrast to the "faded" colour of Sir Joshua's later work, and mark a phase in the development of his art of which few records have come down to us. The portraits of Charles, fifth Earl of Harrington, the friend of Lord Byron, by Powell, after Reynolds, and that of the first Earl of Milltown, by Pompeo Battoni, will also be noticed; in the latter is an excellent example of that painter's work.

More interesting, however, to most visitors will be the series of heads in pastel by Rosalba, and the three French pictures of the Watteau type which hang in the first room. These latter are probably from the brush of Watteau's pupil, Jean Baptiste Pater, who imitated his master in the painting of those fêtes galantes in which so much of the mingled frivolity and sentiment of the prerevolution period is embodied. The difficulty of disentangling the best work of Pater from the weakest of Watteau is easily accounted for by the fact that before his master's death Pater painted daily under his supervision, and was inspired by his intimate contact with Watteau's ideals to something of the charm and grace of the poet-painter. Pater's colour is better than his drawing, which latter lacks the precision and brilliancy of Watteau. The smallest of the three canvases in the Milltown collection—a fête galante in a camp—is a charming little composition full of delicacy and even and brilliant in tone. The other two are hardly such good examples of his work, but all are interesting acquisitions, especially in a gallery in which the French schools are as yet incompletely represented. The most famous series of Pater's paintings is in the Royal Prussian palaces at Potsdam. The Wallace collection also includes a dozen delightful examples of his art, and characteristic Paters are also to be found in the Louvre, Buckingham Palace and the National Gallery of Scotland.

Just over the three Paters in the Milltown collection hang two fine examples of the art of Panini—an Italian painter who worked in the first half of the eighteenth century, and who specially devoted himself to painting the architectural remains of ancient Rome. There are four Paninis in the collection, all of this type and a



mirable of their kind. In one the Coliseum is shown, in other the Forum, and the other two represent ruined buildings, with figures and landscape. The designs are careful and the grouping shows taste and a feeling for balance. On the same wall with the Paninis hangs a small painting by Peters, the seventeenth-century Dutch sea-painter, representing a Dutch war vessel which has just cast anchor, giving a salute and hauling down her mainsail. It is a pleasant little composition, and the colour and chiaroscuro both admirable.

The six heads by Rosalba Carriera in this room are resting and delightful examples of the work of a painter who had few, if any, rivals in her own particular line. Rosalba Carriera was born in Venice in 1675. In 1705 she was elected a member of the Academy of St. Luke, Rome and in 1720 of the Academy of Bologna. In the same year she went to Paris where she painted Louis XV., then a boy of ten, the Regent and many of the nobles and ladies of the Court. Her first portraits were done in oils, but it is her miniatures, and above all her crayon portraits, which have won her fame. A friend of Watteau, Largillière and the other Court painters of the period, the brilliant society of the Regency lives in these delicately-tinted pastel heads, in which the tenderness and delicacy of a feminine temperament found its expression. Rosalba's strength lay in the fact that she did not try to rival the male portrait-painters of her day, but to express herself. We may smile now at these "mannered" heads, whose dainty artificiality of pose and treatment is apparent in every line, but they charm us nevertheless. They are a selection from a past age—an age of studied poses and studied grace. The stateliness of the *ancien régime* is reflected in these faint-toned canvases, and we pardon their faulty posing for their charm and tenderness. Most of Rosalba's works are in the Dresden Gallery, including her *chef d'œuvre*, a head of Metastasio; while in Paris there are five of her works, amongst them the half-length crayon drawing of a woman crowned with laurel, which she presented to the Academy on her election to the Royal Academy of Painters. Attention should be drawn to the two landscapes by Goussier, the contemporary of Reynolds, and to the fine landscape by Smith of Chichester. A charming little *pastel* sketch of a boy, which is apparently by John Russell or Daniel Gardiner, is also worthy of notice. The selection of silver, to many people the most interesting part of the collection, we must leave for another article.

In the two inner rooms but little of interest will be found, and it is to be regretted that it was not possible, under the terms of the gift, to make a selection from the collection, and to exclude those works which are obviously unworthy of the traditions of the gallery.

#### MORE CHURCH LIBRARY.

ACCORDING to the Rev. W. G. Clark-Maxwell, M.A., F.S.A., in the tower of the church of More, near Bishop's Castle, are preserved some 250 volumes presented to the parish in 1680 by Richard More, of Linley, with the object of "teaching the minister sound doctrine." The deed establishing the library is probably still in existence, though its present whereabouts is unknown. Directions were given that the books should be kept in the church and read there, and should not be taken out of the church by anyone except Richard More himself, he reserving to himself the right to lend out any of the books for a period not exceeding a month at a time. Richard More presented not only the books, but the presses in which to keep them, probably the same as still exist for that purpose, though evidently altered and (apparently) broken down. There have been made, at different times, if not more catalogues of the books, fragments of which, once pasted to the inner sides of the press doors, were found at the bottom of the shelves; but one cannot definitely pronounce that even the older of these is as early as 1680. In the catalogue lately printed an attempt was made to reproduce the old classification, but the traces of it were found to be too fragmentary and indistinct to be of any use as a guide, and therefore the arrangement adopted has been a purely chronological, the books being set down in the order of the date of their printing, with notes where required of their former owner, &c.

There do not appear to be any books of special rarity in the collection, but a number of considerable interest, the principal among which may perhaps be reckoned part of the Sarum Breviary, printed at Antwerp in 1525. There are also now on the shelves copies of the 1611 Bible, of

Erasmus's "Paraphrase" and Jewel's "Apology and Answer to Harding," but the first was certainly, and the others probably, part of the necessary outfit of every church. The same remark applies to the 1776 Prayer Book, which cannot, of course, have formed part of the original collection. Amongst the names of the former owners of the volumes, those of most frequent occurrence are Thos. Pierson and Christopher Harvey, the latter in a very beautiful handwriting, and usually in the formula, familiar to us from its use by Grolier, "Chr. Harvey et amicorum." Thomas Pierson was, no doubt, "the famous Mr. Pieron, of Brampton Bryan, the founder of lectures in these parts," as the biographer of Gualter Stephens, incumbent for fifty-three years of Bishop's Castle, styles him. These two clergymen, with Thomas Froyssell, minister of Clun, Sir Robert Harley of Brampton Bryan, Richard More of More (the grandfather of the donor of the library), and in a less degree Humphrey Walcot of Walcot, were staunch upholders of the Puritan way of thinking, and it is easy to understand how some of Pierson's books came into More's possession. Concerning Christopher Harvey, we learn from the article in the "Dictionary of National Biography" that he was a poet and author of "The Synagogue," verses in imitation of George Herbert's "Temple," and printed in some editions of that work. We also find that he published in 1647 an edition of Thomas Pierson's "Excellent Encouragements against Afflictions." It seems a probable conjecture that Harvey acquired some of Pierson's books, and that from him they passed, with some of his own, to Richard More. It is quite possible that some of the earlier printed books formed part of the possessions of the dissolved Augustinian Priory of Chirbury, though direct evidence on this point is not forthcoming. This would apply more specially to the Commentaries of Haymo, which we know were directed to be read during meal times in the houses of Austin canons. The purpose assigned for the donation of the library being "to teach the minister sound doctrine," there is a laudable diversity in the theological position of the authors included; not only Calvin and Beza, but Jerome, Thomas Aquinas, Melchior Cano, Jewel, Arminius and Chillingworth find themselves in company on the shelves, and it argues much for Mr. Richard More's confidence in security of his theological position, as well as in the discretion of the ministers of More, that he should have included controversial works on the Roman side, if indeed he was aware of their contents. The books are now well cared for, but have in some instances suffered formerly from damp.

#### THE ORGAN, LICHFIELD CATHEDRAL.

THREE years ago the Dean and Chapter, having through the liberality of the diocese been enabled to put the fabric of the cathedral in thorough repair, and having largely added to its beauty, without and within, passed a resolution both to move and enlarge the organ, so that nothing may be wanting to make the services musically as perfect as possible. One of the chief reasons for which cathedrals were saved at the Reformation was the maintenance of the highest type of a musical service. It has long been recognised that it would be hopeless to attempt any improvement in the present unsatisfactory position of the organ. To solve the question of what is the best position they have obtained and weighed carefully the opinions of architects and the best musical experts in England who know the cathedral well and have had opportunities of judging, and, further, being pressed by a very urgent petition from the organist and vicars choral that the organ may be placed in proximity to the singers, and in an elevated position, they have decided to proceed in accordance therewith; and the Dean has undertaken by his own personal efforts to raise the funds required beyond what the Dean and Chapter can afford out of their savings.

The reasons for their decisions as given below will, it is believed, be accepted as a complete justification:—

1. To have the present organ entirely reconstructed.
2. To move it from the ground floor to an elevated position in the triforium, and thus bring it near to and above the singers.
3. To enlarge it by the addition of a considerable number of new stops, some of them very important and costly.
4. To have new mechanism throughout, new pedals, blowing apparatus, console and "such other accessories as are found in the best modern instruments."
5. To adapt the construction of two bays of the triforium and clerestory behind the chapter-house for its reception.



No tracery will be removed from the windows in the chancel, only the glass from two and the lower part of the mullions of one for the exit of the sound.

The chief organists of England have been consulted by the Dean and Chapter, and there is absolutely unanimous and overwhelming evidence in favour of the proposal. The organ is now placed in a side chapel of the north transept, round a corner, isolated at a distance from the singers, where the sound is obstructed by some massive stone pillars, and also unevenly and only partially diffused over the cathedral owing to the peculiar position of the pipes.

Sir George Martin, of St. Paul's Cathedral, says:—"The tone of the organ should pervade the whole building, not (as at present) only part of it."

Sir Frederick Bridge, of Westminster Abbey:—"The present position of the organ is very bad. I have played on it myself and also heard it. It is a wretched arrangement."

Dr. Monk, of Truro Cathedral:—"The present position of your organ is really preposterous. I heartily hope it may be moved very soon."

Dr. Sinclair, of Hereford Cathedral:—"The present is almost as bad a position from a musical point of view as it well can be."

Sir G. Martin adopted the new site from Truro Cathedral, chosen by Mr. Pearson, in advising on the position of the fine organ to be put in St. Patrick's Cathedral, Dublin, and himself superintended all the arrangements. He has assured us that "nothing could be better; it is a great success every way."

Sir F. Ouseley and Sir J. Stainer both strongly advocated the same position.

Dr. Monk:—"Without doubt the very best place for it."

Dr. Perrin, of Canterbury Cathedral:—"The new position will be splendid."

At the restoration in 1856 Sir Gilbert Scott, when the old organ was removed from the screen to throw the nave and choir together, proposed to erect it in the triforium, but unfortunately his advice was not accepted, and the organ was stowed away in a vacant chapel on the ground floor which was then unused and seemed ready to hand. The late Mr. Pearson, architect, advocated the triforium as the best position; and Mr. Oldrid Scott, architect to Ely, Lichfield and several other cathedrals, does the same. The triforium or clerestory site is adopted for eleven of our cathedral organs, and most of the others are raised on the screen, *i.e.* above the singers. The Dean and Chapter are assured that if they can raise the funds to carry out these improvements and make the additions, they will have "an instrument in tone, mechanism and position equal to almost any church organ in England." Yet further, the removal of the organ will set free for use a chapel of considerable dimensions and beauty now completely hidden, and make the north transept available for worshippers, instead of being, as it is, practically disused in service owing to the close proximity of the instrument. The Dean has been making private appeals to the wealthier laity of the diocese, whom he knows to be specially interested in the beautiful cathedral, and, as on previous occasions, with considerable success. As yet he has not appealed to the citizens, being anxious not to interfere with local claims now before them, such as the Johnson memorial and St. Mary's organ fund; but if he is obliged to do so later, he has no doubt of their ready help. The cost of the work, which is to be completed in June 1908, is estimated at about 4,000*l.*

### GENERAL.

**The Design** by Mr. H. P. Burke-Downing has been placed first in the competition for the school in Pelham Road, South Wimbledon. A design by Mr. C. Harrison Townsend was placed second and one by Mr. A. H. Ryan-Tenison third. Mr. J. W. Simpson was assessor.

**Mr. John Singer Sargent, R.A.**, of 31 Tate Street, S.W., was struck off the voting lists on the ground that he was an alien at the Chelsea Revision Court. The Conservatives made the objection. It was stated that an old servant had given a canvasser information to the effect that his master was an American and had never been naturalised.

**The Chartered Surveyors' Golfing Society** announce their annual dinner at the Trocadéro Restaurant on Monday, October 21, at 6.30 P.M. The chair will be occupied by Mr. George Langridge, president of the Society. Mr. Sydney

A. Smith, of 22 Chancery Lane, London, W.C., is secretary.

**The Magistrates** at Keswick have inflicted a fine on a vandal who had chipped his surname in 6-inch letters upon one of the stones in the inner ring of the Ducal Circle, Keswick, which is a scheduled "monument" under the Ancient Monuments Protection Act. The name has been effaced.

**The Work** of excavating the large tumulus at near Stoke Courcy, Somerset, has been completed, and it is reported that among the discoveries made were contracted interments of the Early Bronze age, accompanied by typical earthenware drinking vessels in two cases by well-made flint implements. Of a central interment, which should have been found on the clay surrounded by a wall, no traces were discovered but scattered bones, but this absence was fully compensated for by the interesting and hitherto unrecorded history of the disturbance had been due to the Romans, who had an unmistakable record of their presence in a typical interment of pottery and a coin of a later emperor.

**The Campanile of Venice** is emerging from its present state. Substantial progress has been made during the past few months, and the new tower now stands nearly 40 metres high. Construction goes on at the rate of about 48 inches per week, and it is estimated that the work will be completed in two years.

**The Ancient Parish Church** of Blandford St. Mary has been for the first time illuminated with lamps. During the last two or three centuries it has been illuminated by candlelight, and consequently no evening services have been possible during the winter months.

**The Carnegie Physics Laboratory**, in connection with Dundee University College, has been commenced. Sir James Anderson, LL.D., is the architect, and the building will cost 12,500*l.*

**Rochester Corporation** have had an offer from Mr. P. Fitzgerald to present, for erection in the High Street, a statue in bronze of Charles Dickens. The Council has decided that the consideration of the matter must stand over for the present owing to the construction of tramways.

**Mr. Scobie**, architect, Dunfermline, was present at the Lochgelly Town Council meeting and discussed plans for the new municipal buildings. The plans were approved, and Mr. Scobie was instructed to have the specifications prepared as soon as possible to allow of the estimates being sent in and the work gone on with.

**The Sea Defence Committee** of the Lowestoft Town Council in their annual report state that they had expended 867*l.* 19*s.* 9*d.* out of an estimate of 933*l.* 16*s.* 2*d.* The following estimate of amounts required by the committee for the half-year ending March 31, 1908, was considered and approved, and referred to the finance and rating committee:—Groynes, north and south beach 100*l.*; maintenance of outfall, 50*l.*; repairing wall, decking slopes, carting soil and repairs to south slopes, 150*l.*; temporary protective works—south beach, north beach and filling-up beach revetment, 200*l.*; miscellaneous (cost of conference), 10*l.*; excess expenditure on capital accounts over sanctions to be defrayed out of revenue proportions for this period, 300*l.* 81*l.* Less surplus, 65*l.* 16*s.* 5*d.*; amount required, 744*l.* 3*s.* 7*d.* The assistant surveyor reported levels to south beach to August 16, showing the beach in about the same condition as the last report.

**The Holly Lodge Estate**, Highgate, the world-famous summer residence of the late Baroness Burdett-Coutts, which is announced to be sold by auction on the 24th proximo by Mr. Joseph Stower, comprises altogether an area of about sixty acres, including eighteen old-fashioned houses with gardens, nursery ground and other premises. The residence, standing practically on the summit of Highgate Hill, is a substantial structure of the Georgian period, with elevations finished in painted cementwork, three storeys in height above the ground.

**Mr. W. H. Peacock**, manager of the Grand Opera House, Harrogate, and the Opera House, York, has completed arrangements for the purchase of the Scarborough Hippodrome, and it is his intention to remodel the existing building and to provide an up-to-date theatre to accommodate 2,000 persons. The theatre will be one of the best in the town.



NEW PREMISES  
FOR THE  
ANGLO-EGYPTIAN BANK  
ROBERT WILLIAMS  
FRIER, ARCHT



INK PHOTO SPRAGUE & CO. L<sup>Y</sup> 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.









PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

INK-PROCESS PHOTOGRAPHED BY SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

NEW PREMISES, ALDWYCH.

Messrs. NICHOLS, CUBIT, SONS & CHUTTER, Architects.







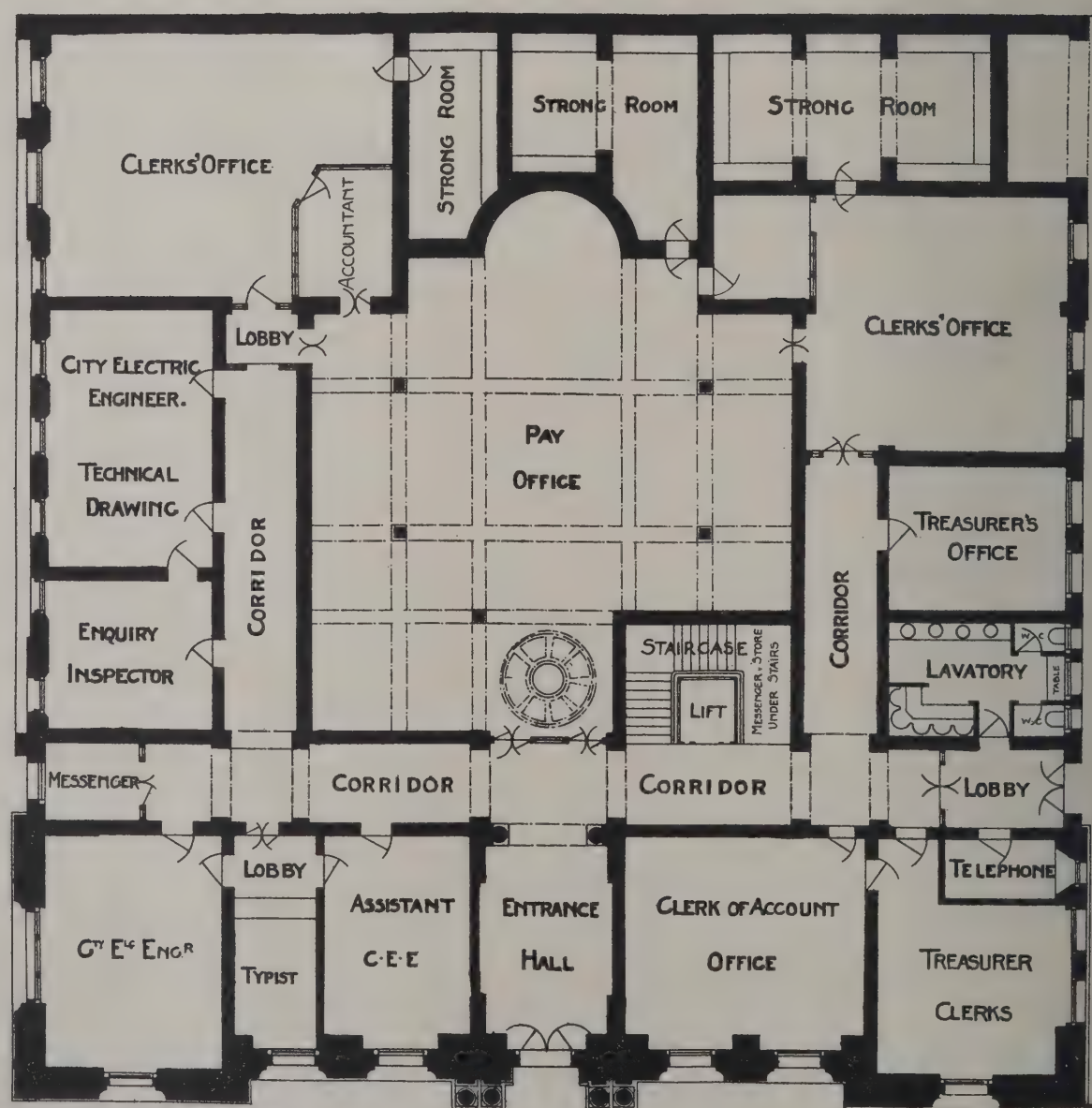




CITY OF  
ADMINISTRATIVE



SCALE OF FEET

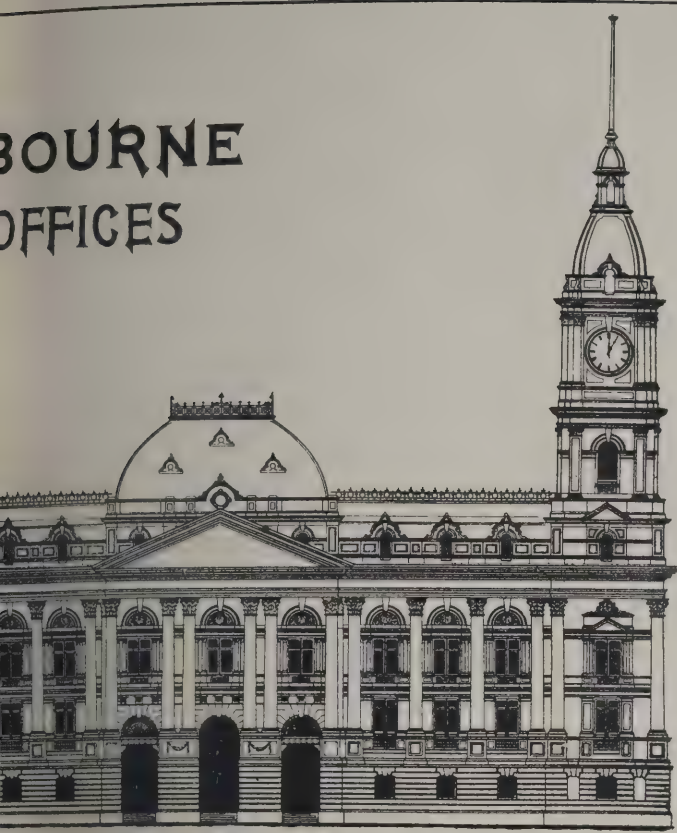


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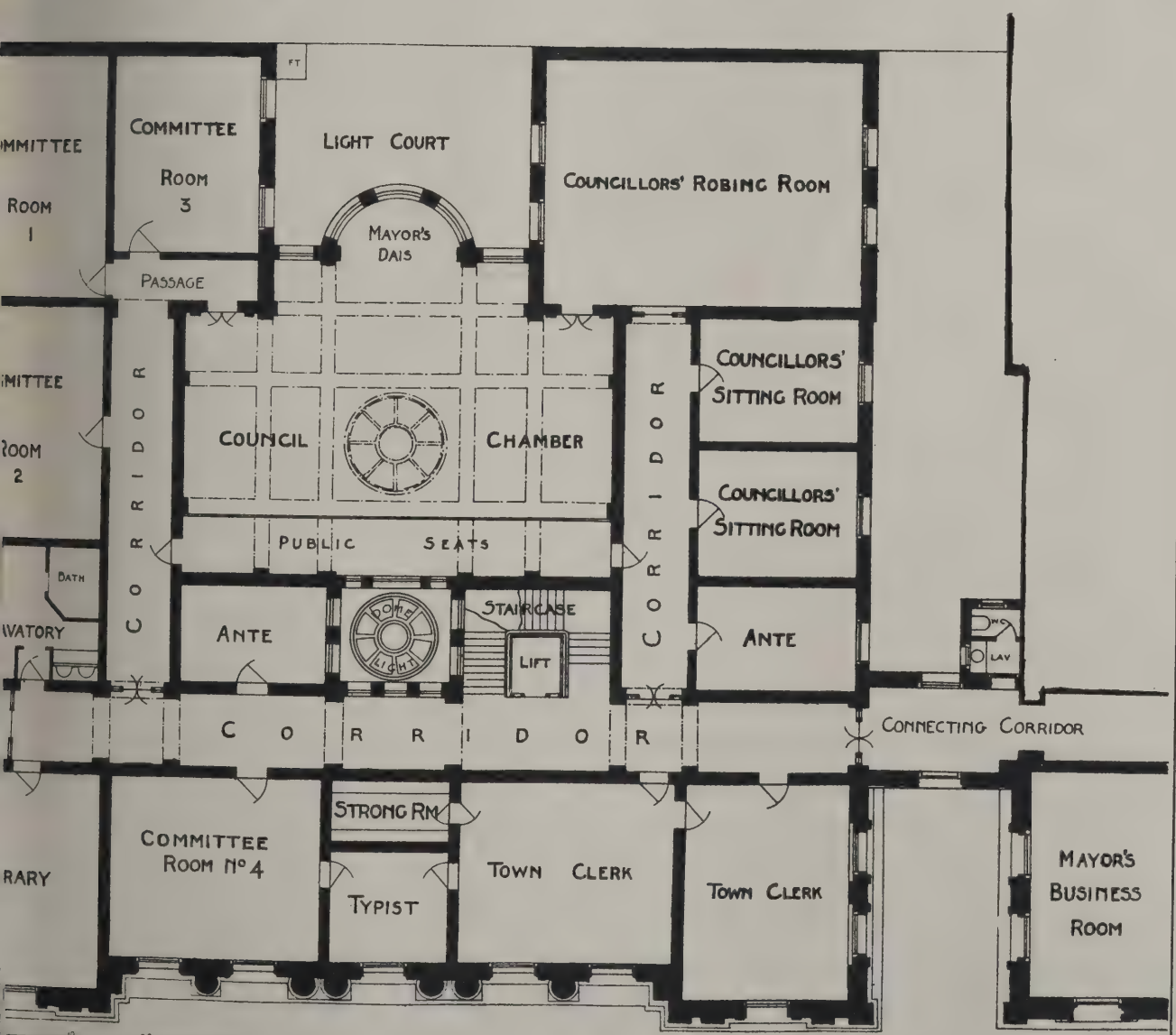
GROUND PLAN



# BOURNE OFFICES



ATION



SCALE OF FEET

FIRST FLOOR

GRAINGER, KENNEDY, & LITTLE  
ARCHITECTS.







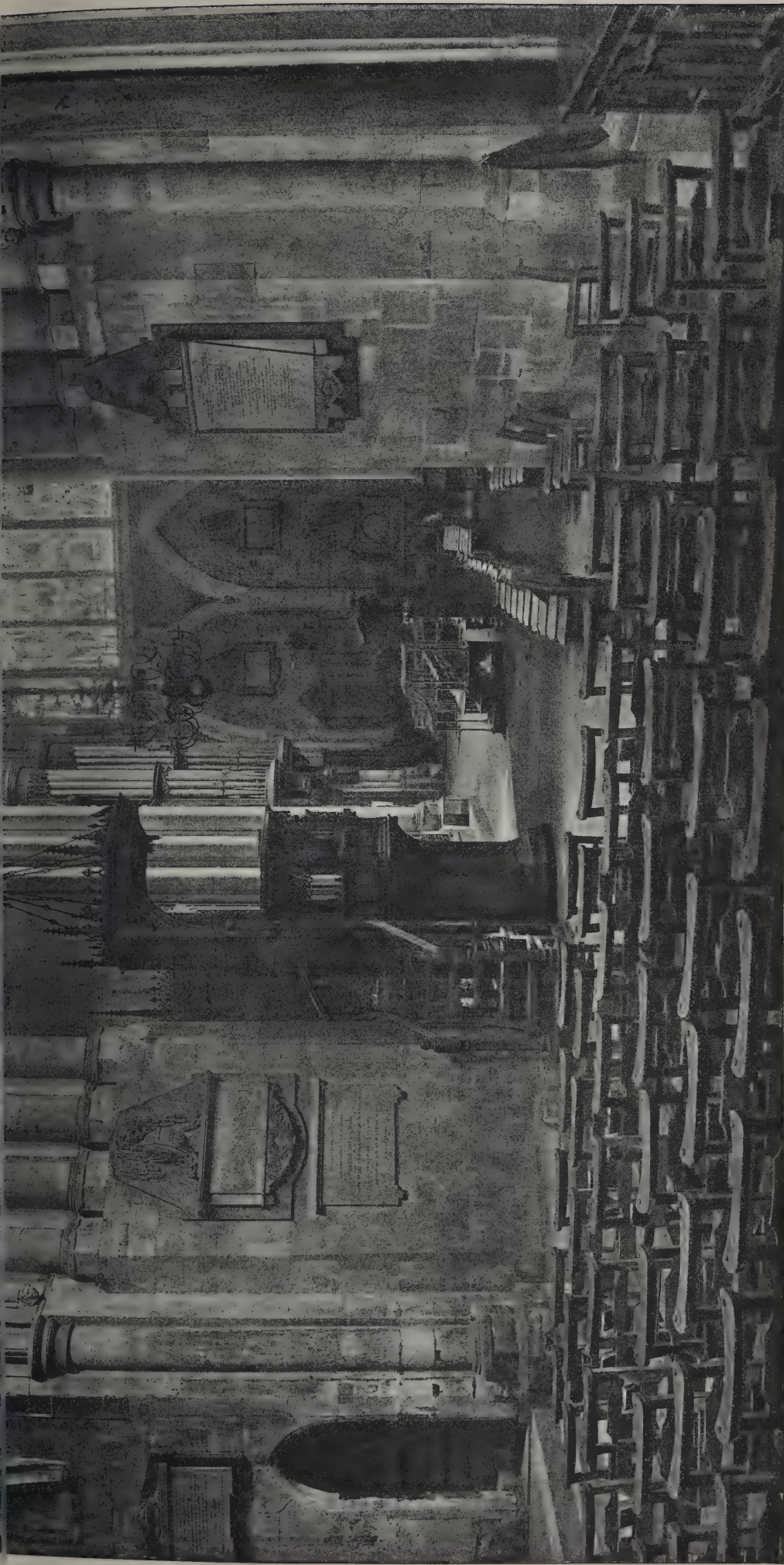




The Architect, Sept 20th 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

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CATHEDRAL SERIES, No. 612.—SOUTHWARK: NORTH TRANSEPT.



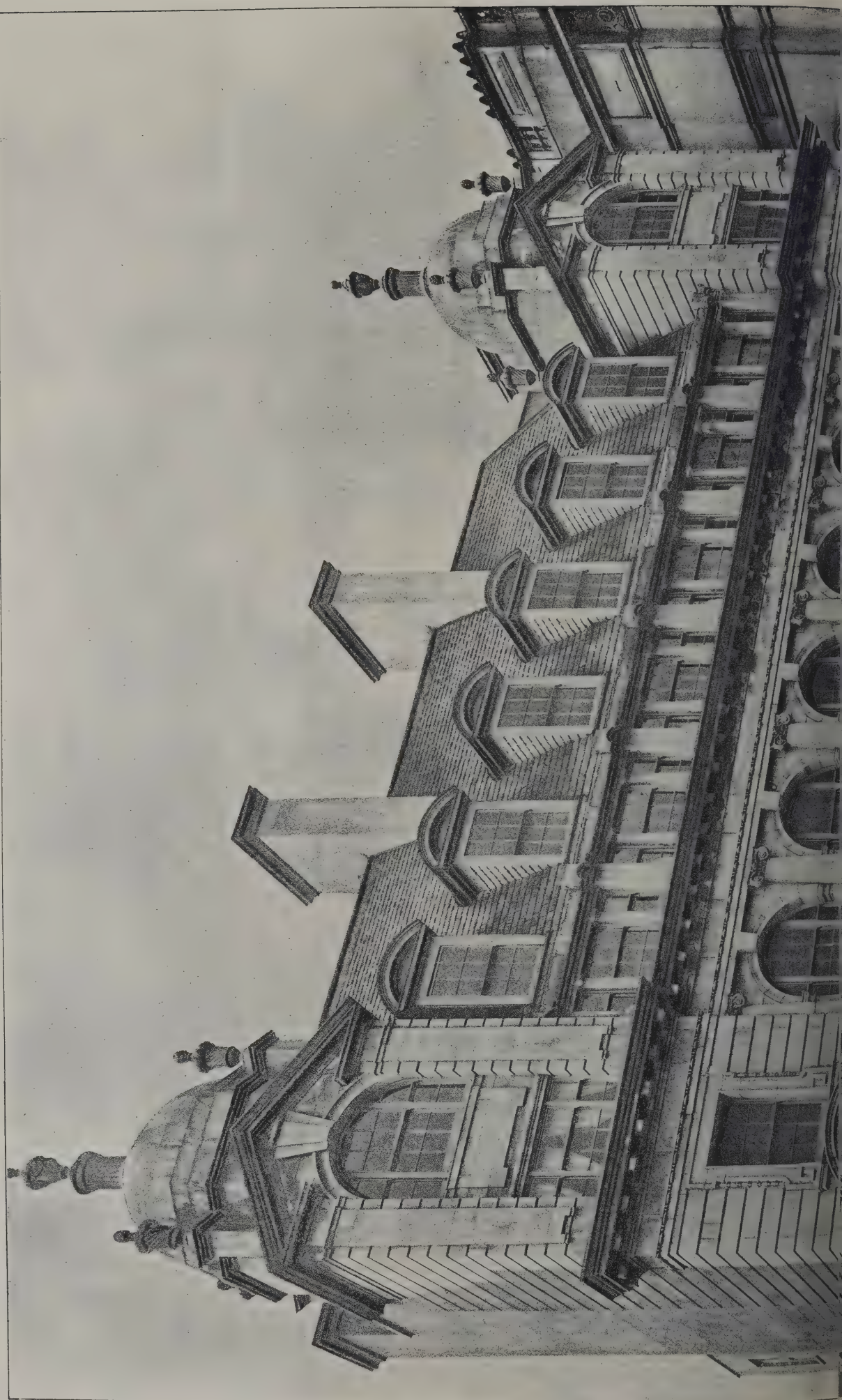




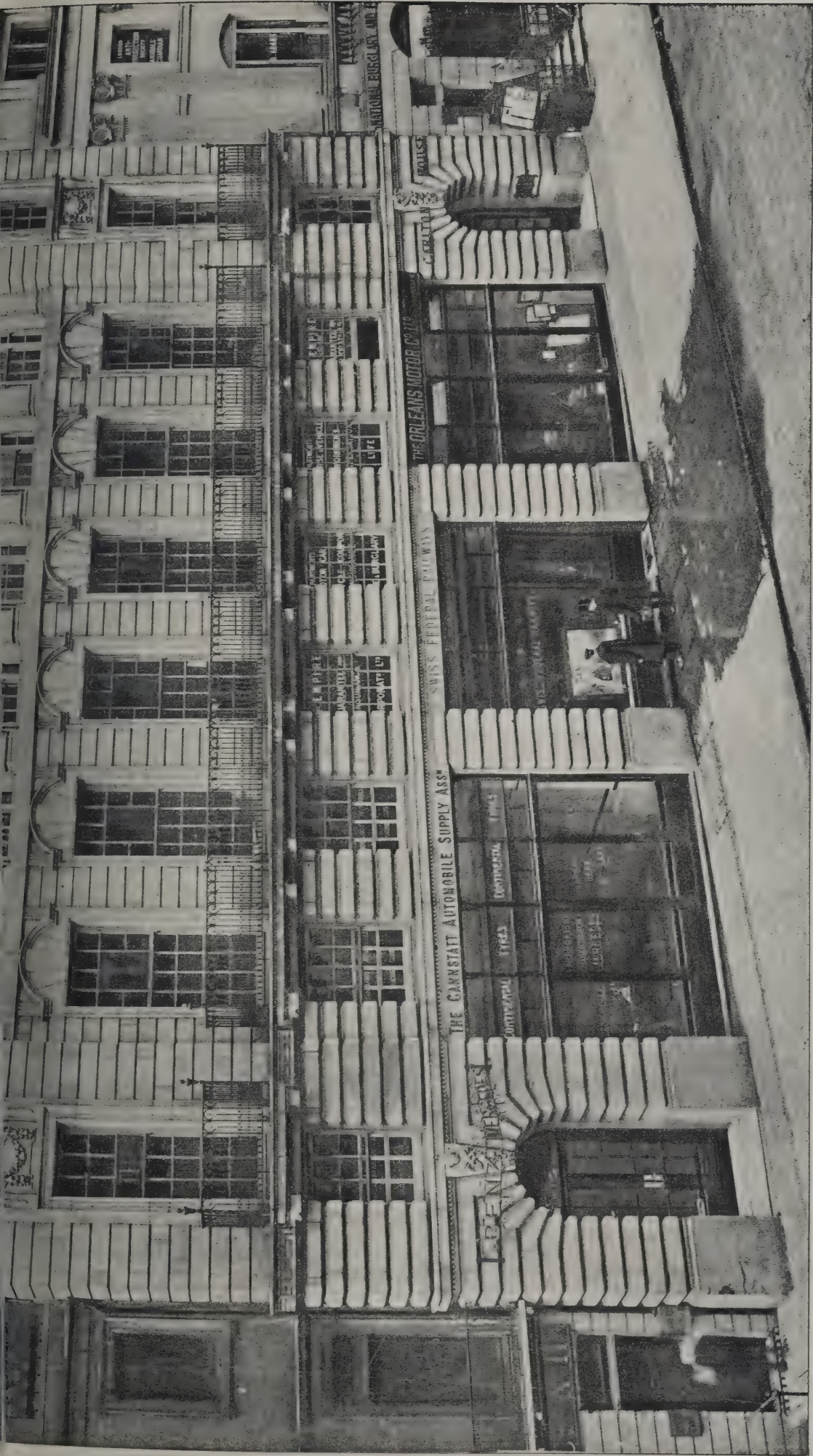




The Architect, Sept 20<sup>th</sup> 1907.







PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

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# CARLTON HOUSE, REGENT STREET.

F. E. WILLIAMS, Architect.







# The Architect.

## THE WEEK.

It was pointed out already that the County Council had arranged to grant leases of parts of the site at which had been purchased solely for the use of the new county hall. The arrangement necessarily affects the designs prepared for the site, and we suggested that information should be fully conveyed to the competitors of any alteration of the Council's views. There are rumours abroad that other modifications will become essential. In view of it is doubtful whether any of the designs are now under the consideration of the assessors for any practical use. The competition will then be more than a mere academical one; although from the character of the designs an effort will be made to choose those which suggest that under more definite plans the authors would have produced a satisfactory design. Another preliminary competition under conditions might be expensive. But it would be better to making competitors suffer loss because the Council did not agree in all things with their proposals.

It was not agreeable for the people of Edinburgh to have an additional twopence in the pound to meet the increased expenditure, but what is less satisfactory is that an increase arises from a cessation of the efforts to the extent of the city. In spite of its interest, its beauty and picturesque, Edinburgh is not a large town. Many among the population consist of the students and relatives of students who are attracted to the city by the reputation of the University, the other schools. But the efforts to provide educational institutions in England must have the effect of keeping families in the south who, under the present conditions, would have temporarily emigrated to the north.

It was pointed out by the treasurer of the County Council that between 1897-8 and 1907-8 the population of the city has gone up 50 per cent., from 1897 to 418,000. In 1907; whereas the rental increased only 24 per cent., from £1,749,000 in 1897 to £2,749,000 in 1907. The increase in rental has been very much smaller in the second period of ten years than in the first. In the first, that is, between 1897 and 1902, it was 16 per cent. In the second half, between 1902 and 1907, it is only 7 per cent.

BUCKINGHAM Burton-on-Trent has gained an universal reputation by its beer and has a history which goes back thousands of years, the town does not appear to be mentioned by the Herald's College, and is without heraldic bearings. The deprivation has not affected the town of Burton, but of late years a grievance has been put out of the subject. In BURKE's "General and in DEBRET's "House of Commons" are given three wavy of six argent and azure, on a chief a pale displayed between two fleur-de-lys or." Corporation note-paper a motto is added, "Honor Alit Artes," but the arms are there "Azure three bars wavy argent" on a chief. This of course is colour upon colour and a heraldic law. The escutcheon is also surmounted by a mural coronet borne after the manner of a duke's rank. This is a piece of absurdity which is highly deprecated. It appears that in a coat of arms of Burton is represented, but is not identical with those of Newark no value to it. There is never much difficulty for an architect or a town in acquiring such an embellishment simply a question of fees. The Burton Council, being unable to realise any connection with the arms and manufactures, have declined to

negotiate with the officers of the red brick building in Queen Victoria Street. But a new spirit has arisen, and it could easily be gratified if some of the wealthy townsmen would undertake to pay the fees which are necessary.

IMPARTIAL travellers who are able to compare English and German towns in Africa give preference to the latter. It is flattering to our national conceit to believe the Germans lack our gift of colonising. But when clean streets and well-designed houses are found in regions which a few years previous were wildernesses, it must be admitted that the Germans can produce results which show an approach to civilisation. The police are well drilled, and it is startling to see a number of dusky musicians on a bandstand attempting German compositions. The new English towns suggest that we believe in developing individuality, and it generally displays itself in patronising shanties where intoxicants are sold at amazing prices. The official report to the Colonial Office from Uganda indicates that the Germans have in those matters a foresight which in English traders is wanting. Germany, we are told, is cutting out Manchester in coloured cloth, and this is due to want of organisation. There is no British wholesale house in Uganda. Orders are in consequence freely given to Germans, and in that way they capture the markets. The absence of a British bank is likewise remarkable. There are demands for British corrugated iron. Nevertheless the stock always appears to be sold out, not only at Uganda, but at Mombasa and Zanzibar. The same state of things presumably prevails in other trades. Probably the German Colonial Office promotes trade in various ways besides issuing documents. However it is accomplished, the success of our rivals is depressing to those among us who are not cosmopolites.

A PAPER on "The Evil and Peril of Cheap Tendering" was read by Mr. W. MAJOR before the convention of Master House Painters and Decorators. He contended that the principle which has resulted in the fair-wage clause for workmen should be recognised when local authorities deal with master painters. Public opinion, he thought, could be utilised for the prevention of tenders which are too cheap, and it was suggested that if lists of tenders were more generally published reputable tradesmen would hesitate about being found in the lowest places. Painting is a complex operation, to which good materials and good workmanship are essential if it is to be successful. It is very possible to deceive people by painting, for at first good and bad work may be easily confounded. The test of time is, however, crucial, and local authorities as well as individuals may be assured that cheap paints, owing to their excessive adulteration, cannot resist the atmospheric effects of this country.

THE French are generally considered to be most accurate in the character of the scenery and properties for every important drama or opera. But one of the professors of the Conservatoire has just pointed out that whenever "Faust" is represented in the Opera House the scenery depicts Renaissance buildings, whereas all the surroundings of FAUST should be in the Gothic style. He is astonished that during all the years in which GOUNOD's work has been performed no architect or archaeologist has protested against the inaccuracy of the scenes. As the Opera House lately changed directors the Professor thinks the time is opportune for a change. GOETHE certainly indicates the character of the scenery. FAUST is first seen in a lofty, vaulted, narrow Gothic chamber. The cathedral is likewise Gothic. But the street scenes should no doubt show signs of the Renaissance, for apparently the time selected was that when Mediævalism was being supplanted by the new learning. In England the buildings are generally suggestive of Gothic.







ved and let in to a new slab of marble, but in way that the shoulders of the goddess appeared horizontal. After several years there was a sus of opinion among sculptors that the figure originally posed in a different way. A slight change de, and we now see that by slightly tilting one e shoulders, the breasts, the drapery have all a ism which is not to be seen in early casts or aphs of the statue.

ther question then arose which, after many discussion, remains unsettled. What kind of was represented? Greek sculptors adhered to types of gods and goddesses. QUATREMÈRE DE maintained that the figure made part of a group VENUS was disarming the war god. Others upposed, Comte DE CLERAC being the earliest them, that the goddess held in her hand the which she received from PARIS; and hence we er that the *Venus* of the Louvre inspired the cent and tinted *Venus* of JOHN GIBSON. It has rthermore concluded that the figure was allied acient VENUS who was represented as inscribing es of heroes or the record of some victory on a which was partly supported by her knee. The ations are very varied. In such a case we y inquire what was the appearance of the statue was discovered.

was to be expected in a time of excitement, when ch officials were afraid that some malicious and d Turk would arise at any moment and deprive treasure trove of marvellous value, it was not e that an accurate account of what they saw be given. TENNYSON introduced one of his ems with a prose note in which he said it was rd to describe a statue in verse, and all who ied will admit the difficulty of suggesting the r of one by a few lines of prose. LOUIS me years after he saw the statue said that st found there was a left arm which was out- d, while the right arm was close to the side and the drapery. BREST'S son said that his father told him that only the left arm remained when the as unearthed, and that it was slightly raised with e in the hand. The son of the finder declared like- at the left arm was outstretched and the hand apple. D'URVILLE, who would appear to be t intelligent of the early witnesses, in a report a year after the discovery, said the left hand was nd held an apple, while the right supported the

A brother officer stated that the left arm was as if to show the apple, while the right was broken bow. In a later account by the last he stated that as were broken. It afterwards came out that an arm and a mutilated hand with an apple was i the niche or enclosure which contained the The fragments were exhibited before a meeting cadémie des Inscriptions, and it was concluded y could not have belonged to the statue in its state. It is also curious that in the early of the scrimmage between the French sailors slanders the arm was said to be lost, and the t is corroborated by MELIARAKES. We may say that the original positions of the arms e ascertained, nor can it be said that they were ted on after the arrival of the statue at the

supposed that an apple was a symbol of Melos. gely the island might be suggested by a woman one. Occasionally on coins there are typical cities, which are appropriate enough for money to pass through the hands of strangers. it is doubtful whether examples are known of hich stood for cities, islands, or countries. a well-known reclining figure known as *The* it is a Romano-Greek work and was pos- ough at the command of some patron who that the boundaries of sculpture should be

The figure found in Melos differs from the

majority of the statues of VENUS, and is suggestive of qualities which that goddess was not supposed to possess. Whether it represents the nymph MELO, as was presumed by EMÉRIC DAVID, or stands for womankind in general, are questions which appear to be impossible to solve. It is evident from the latest account of MELIARAKES that at the time of its discovery no tradition about its meaning had survived, and the peasant who discovered it and sold it to the French was as wise as one of the French Academicians. Perhaps, after all, it is best to consider the statue, like HEINRICH HEINE, as the ever-blessed Goddess of Beauty, the beloved Lady of Melo, who appears to look disconsolately on her devotees as if saying to them, "Do you not see I have no arms and am unable to help you?"

### THE VALUATION OF BUILDING ESTATES.\*

THE Geological Society celebrates its centenary this week. In the history of its early days which was compiled for the occasion a prominent place should be given to what was done towards demonstrating the utility of the science by RICHARD GRIFFITH. WILLIAM SMITH, who was the father of English geology, was able to prepare a geological map of England and Wales from his own observations through the country. GRIFFITH, on the other hand, had the command of a large number of surveyors, and from their observations he produced a map of Ireland on a large scale, or what was thought so at the time. It does not correspond with the later maps of the Geological Survey, but with a science like geology it is almost inevitable to have a difference of opinion with regard to the extent of formations. It is not, however, for his map RICHARD GRIFFITH should be remembered, but for demonstrating that geology can become an aid towards determining the value of land, and in that way could help to solve the terrible rent problem of Ireland.

Every surveyor and land agent knows how closely rent is connected with the various kinds of illegal agitation among the Irish, and with the crimes which are the results. In many parts of the country land was let at a rent which a farmer could not pay unless he supplemented his labour on it by employment of another kind. A tenant who was accepted for a farm soon grew discontented, for he discovered he was less free than an ordinary labourer. And yet his selection created a host of enemies who were envious of his success. As far back as 1824 a Royal Commission decided that it was indispensable to have a fixed and uniform system of valuation throughout Ireland, and that the work should be done under a Government department. The necessity was so obvious there could be little opposition. A valuation department was created, and RICHARD GRIFFITH was placed at the head of it.

It should be remembered that in those days geology was in its infancy. Students were attracted by the great phenomena of the oldest formations, and the most interesting surface of the earth, which was representative of comparatively modern agencies, was neglected. GRIFFITH had, therefore, little help from the SEDGWICKS and MURCHISONS when he arranged soils in four divisions, viz. clayey, sandy, limey, peaty. They were subdivided into other classes, and for the qualities of soils certain terms were fixed which were clearly defined, such as stiff, friable, cold, warm, &c. The colours had also to be described, and other characteristics. In order to arrive at the valuation a scale of prices was fixed for ordinary produce.

At first the valuation applied only to the collection of fields known as townlands. But as the organisation

\* *Tabular Aids to Valuation.* For Ascertaining the Purchase Price of Building Estates; Percentage required to cover Interest and Sinking Fund; Cost of Buildings; Deductions for Maintenance; Comparative Site Values, &c. By G. Tyrrell McCaw, B.A.I., M.A. (Dublin), and F. Oliver Lyons, B.A.I., M.A., General Valuation Office, Ireland. (London: Crosby Lockwood & Son.)



developed the valuation of the different farms or tenements throughout the country was arranged. Owing to the existence of the Ordnance Survey maps, the cost of the valuation department was much less than might be imagined. The results were employed for more purposes than were anticipated. When the Encumbered Estates Act came into operation, the special valuations for which liberal prices were given were generally based on the figures of the Government valuation, or, in other words, a large percentage was added to GRIFFITH'S returns, and that was supposed to represent the true rental value. In many instances investors found that the increased figures were not trustworthy, and the endeavours to obtain rents corresponding with them became a new source of trouble. Every case relating to property which goes before an arbitrator in England demonstrates the difficulty of getting experts to agree upon the value of a building or of a few fields. It is, therefore, not strange that the figures of the Irish Valuation Office should often be disputed. But as the amounts have been ascertained by a scientific system, they are maintained in spite of all opposition, to an extent that is almost incredible with such operations.

It is easy to see in the small work by Messrs. McCaw and Lyons the influence of the Government system in their effort to avoid empiricism as much as possible. In the introductory paragraphs to their tables they say:—

In practically all cases of estimation of value, experience is the only guide. Experience, however, is based on a collection of carefully ascertained facts, and the correct co-ordination of these facts with the new problem to be solved constitutes the skill of the expert. In numerous classes of cases the variations are so great that anything like an actual record of average examples is quite outside the limits of possibility. In other classes, especially where numerous instances occur involving the same principle, a collection of average examples may with advantage be prepared. As a rule, this collection is so multifarious that the mental retention of a sufficient number of common cases is a work of great difficulty. Whenever, therefore, a rough rule cannot be invoked, the records should be epitomised, for from their abridgment it may happen that some scheme can be framed which will prove useful in indicating average values under normal conditions. The tabulation of these empirical data may even lead to the adoption of some general rules; but in any case it must increase the efficiency and expedite the labour of the valuer by suggesting figures which gave good results in circumstances similar to those under review.

With a small book of which one-half consists entirely of tables, and where brevity is observed from beginning to end, it would be impossible in a brief notice to do justice to the authors' system. They prefer squares of 100 feet to cubic feet, which they consider can only supply a rough approximate figure, and they maintain that roofing should be dealt with apart. The system is not to be mastered without careful study. But when it is, the tables will be found to save time, or may be used as a check on tables derived from other authorities. Squares of roofing are worked out according to the ratio between rise and span, and circular and segmental roofs are treated. The tables must have taken a long time to compute, and so far as we have tested them they are accurate. It should be mentioned that the ordinary Irish conditions are ignored. For instance, in dealing with maintenance the authors say:—"Where a heritage contains an extensive garden or curtilage, certain sums for fencing, cleaning, &c., are often disbursed by the landlord in keeping the grounds as well as the buildings up to their full letting value." Now it is a general peculiarity of Ireland that the landlord does nothing in the way of maintenance. Indeed, a witness stated before the Richmond Commission that such an official as an estate carpenter was not to be found in any part of the island.

The publishers have made one of their specialties to consist in books which are adapted to surveyors, agents, valuers and others connected with property in

land and buildings. "The Tabular Aids to Valuation" is a useful addition to their collection, and suggests recognition of modern aids in calculation.

## ST. PAUL'S TO-DAY AND THIRTY YEARS AGO

MR. T. FRANCIS BUMPUS, who on Sunday, September 22, entered upon his thirtieth year as a member of the St. Paul's Cathedral Sunday evening service, writes to us as follows:—

I could not forbear recalling last Sunday evening's changes, spiritual, artistic and ritual, that have taken place at St. Paul's during the three *lustra* that have passed over my head since I became a member of the large choir which leads the simple music that forms so characteristic a feature in the Sunday evening services in our cathedral.

In 1878 Dr. Jackson was Bishop of London, William Church was dean, and Claughton, Great Britain (the present venerable dean), Liddon and Lightfoot were present as residentiary. A "great Chapter" as it has been styled. Shuttleworth (who—that heard it called—his magnificent intoning, particularly in the *Surrexit* and the *Preface* in the Eucharistic Office?), Simpson (the gifted succentor, prince among organists and most courteous of librarians), Povah, Webber, Hall, Milman and Russell (the four last-named were with us, though Mr. Russell has since removed to another sphere of duty) were among the minor canons. Stainer was organist, Sir George Martin sub-organist, the choir, thanks to the indefatigable exertion of the former, ably supported by the Chapter, had been reorganised on its present basis. Penrose was surveyor to the cathedral and under his direction the choral fittings had been replaced as we now see them, in 1872.

The grand peal of bells, whose voices floated over the City for the first time on All Saints Day, 1878, was suspended in the north-west campanile, but the choir regards its flooring and sanctuary arrangements, left in an unfinished state, owing to the hurry with which the preparations had to be made to get it ready for the Thanksgiving Day service of February 27, 1872. The nave and transepts had been denuded of the grey paint with which their stonework was bedaubed centuries before, but the choir still retained this disguise. There was some feeble stained glass of Munich manufacture in the apse and other parts, and a commensally colouring, equally feeble, had been made in the vestments at the east end of the choir. Clayton & Bell had just reset the stained glass in the western window of the choir aisle, and two of the great spandrels in the dome received their complement of mosaic decoration—the one of Isaiah and St. Matthew, by Alfred Stevens and the other of St. Paul, by Watts respectively.

The high altar, though of churchlike aspect, was temporarily apparelled, being surmounted by a canopy of textile fabric and flanked by curtains. It bore no trace of the Edwardian ornaments.

The floor of the choir was merely of boards covered with matting, and gaseliers of the ugliest and commonest type lighted this portion of the building. But the choir was illuminated by four half-circles of gas-jets following the lines of the arches opening into the quarter-dome. On great occasions by the ring just below the western gallery, always looked indescribably beautiful at the arrangement bringing out the grand proportions of the *chef-d'œuvre* to their fullest extent.

The "Decoration Scheme" was in abeyance, and the question "shall St. Paul's be adorned?" was one of the burning questions of the day. Still, while much had to be done, Paul's thirty years ago, the grand old cathedral was coming daily more and more the spiritual home of the living faith of a great people after a long period of stagnation and laxity, while some addition—hardly perceived by the majority—was being constantly made to increase the comfort and convenience of the ever increasing number of worshippers and to augment the dignity and beauty of the services.

To recount all the changes that have taken place at St. Paul's within the past thirty years of my official connection with it would require more of your space than I can encroach upon. I cannot, however, refrain from mentioning the restoration of the crypt and the settling of its eastern portion for devotional purposes.



acing of the white marble pavement in the choir and equipment with the present screen, evolved out of the railings to the sanctuary when it was confined to the ; the cleansing of the walls and pillars of paint, the ion of the reredos and side screens, the improvement e sanctuary generally, the mosaic decoration and ed glass, glorious in *ensemble* if not exactly in accord- with the style of Wren's masterpiece ; the formation e Jesus chapel in the long-disused apse, the completion e mosaic pictures in the eight great spandrels of the ; the installation of the electric light, and the several orations made from time to time in the mode of per- ing Divine service. Could that patriotic lady, Miss Hackett—"the choristers' friend," and whose greatest at was St. Paul's and its services—arise from her grave ehold the cathedral of the present day, how her heart d rejoice.

pon all this I mused last Sunday night while waiting e my place in the surpliced throng which, on the e of seven, and headed by the Cross, streamed (in what ave seemed to those placed at a distance in an end- procession) into the now gorgeously decorated and tuously appointed choir.

## THE SILCHESTER EXPLORATIONS.

VERY large party of members of the Hampshire Field Club and Archæological Society recently visited Sil- cher. The hon. secretary, Mr. W. Dale, F.S.A., at the gate pointed out the length, dimensions of the walls e materials used in their construction. Enormous ers of flints were used, and some persons wondered e they came from, but when the Romans were there e building was going on, and all over the valley the ous flints left by denudation were found in millions. stone used in bands between the flints was a flaggy one from the valley of the Kennett. At the offices e works the visitors were received by Mr. Mill enson, F.S.A., director of the excavations, and who, ale said, had given his valuable services for many e, and had thus saved the Society of Antiquaries a vast use.

t. Dale then read a paper on Silchester, of which the wing summary is given in the *Hampshire Advertiser*:— t varying intervals during the last seventeen or eighteen e, as a club, have visited this spot. We have, how- not kept pace with discoveries as they have been , and on every occasion that I can recall there were amongst us who came for the first time. I should not all surprised if such is the case to-day. Even if it is o I am sure none of you will mind if I remind you as y and tersely as I possibly can what is the interest ed to Silchester, and what light the excavations have n upon the Roman occupation of Britain.

at there was a town in Roman Britain called Calleva batum we know from a mention by Ptolemy and the Antonine Itinerary. That is, Calleva of the bates, a Celtic tribe who occupied these parts, and bly had a town inside the irregular earthwork which round this enclosure and is of pre-Roman age. Of storic remains very few have been found. A few y urns have been unearthed, and a Neolithic cel- y may have been brought in. We shall also see to-day e first time a stag's horn pick, exactly similar to those on Neolithic sites, and which were used for excavating from the chalk. That Calleva was identical with the called, in Mediæval times, Silchester, was evident to isible people, as its position agreed with the distances in the Antonine Itinerary as separating it from other nown places. There were those, however, who dis- even this, but the matter fortunately was set at rest a eeks back by the discovery of part of an inscription ing the words "M. CALLEVÆ," which presently ill see.

e life at Calleva must have been singularly unevent- It is not mentioned in history. No legion was ever ed there. Yet, as Mr. Fox once told us, for more o years there was here a municipality governed very like our own municipalities, the people living in com- ve luxury and refinement, speaking Latin and pro- ing several arts and trades. The plan of the town is ar. Inside the prehistoric earthwork the Romans heir wonderful wall, a mile and three-quarters round, o feet thick and averaging 15 to 18 feet in height. rea thus enclosed, amounting to 102 acres, was marked

out chessboard fashion into streets and squares. In dry seasons these streets and insulæ can be seen in the growing crops, and were noticed by Leland nearly 400 years ago.

What happened after the Romans left we do not know. The city was not sacked or destroyed by fire, for scarcely any human remains have been found. On the other hand, there is distinct evidence that the city became impoverished gradually, for when the west gate was explored it was found that, though originally double, it had been partly blocked up by portions of ruined buildings till it became a mere postern, and on more than one rich piece of tessellated pavement were the marks of fires lighted by some wandering herds- man who had come into camp for the night in the ruins of Calleva. Neither Saxon nor Norman came here. Nor were the walls strengthened and used in Mediæval times as at Winchester and other Roman stations. It has simply been left all through the ages to become the happy hunting ground of the explorer, where we can read the life of the Romano-British without any confusing admixture of the relics of later occupants.

Explorations were begun here in 1864 by Mr. Joyce, vicar of Strathfieldsaye, who uncovered the forum and basilica and some houses, and examined the gates. The foundations thus laid bare were not covered up again, and soon became loose rows of stone. The mounds in the centre are his spoil heaps. The work was continued irregularly by Mr. Hilton Price and others, but it was not till 1890 that the Society of Antiquaries commenced the systematic investigation of the whole of this area, which they have continued every year subsequently, and hope this autumn to bring to a successful termination. Each year an able report of the work has been drawn up, and affords a mine of information to those who will study it. In the Reading museum there is a unique collection of pottery and smaller objects found here, and models of most of the principal buildings of which foundations have been traced, with other details, throwing a flood of light on the domestic life of the Romans in Britain.

I have time only to speak of a few of the more important finds of the last seventeen years. The heathen temple you see to-day is the fourth that has been discovered, and points to the fact that Paganism prevailed. The one small solitary Christian church of the basilican type found in 1892 seems to indicate that Christianity existed in the form of dissent. A good deal was made at the time of the important position of this church in the best part of the town near the forum. But the temple just discovered, apparently dedicated to Mars, was close by on the opposite side of the street. The houses were generally of two kinds. In one the rooms were arranged round a courtyard, in the other principally along a corridor. These houses appear to have been confined to Britain and Northern Gaul, and Dr. Haverfield calls them country houses accommodated to the streets of Silchester. There was a good deal of open ground round each house, in which were often found wells with tubs of wood at the bottom, and rubbish pits used as dustholes. At the bottom of one pit was found more than sixty objects of iron—axes, hammers, gouges, chisels, ploughs, coulter, in fact the whole contents of a blacksmith's shop. The rubbish pits were dust- holes and were fertile sources of objects of interest. Many complete pots were recovered entirely by fitting the broken crocks together, for dust holes and pottery have been associated ever since the day when Job sat down on the ash heap and "took him a potsherd to scrape himself withal." An examination by specialists of these rubbish pits has shown us that the Romans kept dogs and cats and horses, that they apparently indulged in cock fighting, and ate the ox, the sheep, the goat, stag, roe and pig. Botanists have found in these pits not only the seeds of weeds of cultivation, but clippings of the box, seeds of a small medlar, and the stones of the sloe, the bullace, the damson and a plum as large as the Orleans, together with the seeds of the fig and grape, which fruits, it is suggested, were not imported, but grown here. A quantity of uncrushed seeds of the opium poppy gave rise to much speculation, but it is fairly certain they were used for sprinkling on the loaves of bread. Bread thus treated is still prepared by the Jews, and an actual loaf so covered was produced in the rooms of the Society of Antiquaries. Seeds of three poisonous plants, the woody nightshade, the deadly nightshade and the hemlock occur plentifully. It is charitably suggested they were employed for the purpose of making cosmetics.

Of the superstructure of the houses we do not know. It is pretty clear from the thickness of the foundation walls that they were sometimes two-storeyed, and were half- timbered or wattle, and daub plaster was used on the walls



and they had windows and employed glass. Roofing tiles occur plentifully, though the abundance of water-plant remains discovered by the botanists show that sedges and reeds were also used for roofing. The heating arrangements of the winter rooms, by means of hypocausts, were very perfect. The floors of such rooms were made hollow, either by channels or heaps of tiles under which the heat passed and also up the sides of the room by hollow box tiles. The stokehole was outside. Other buildings besides houses have been found. It has not been possible to assign a use to all, but some were evidently used for the purpose of dyeing, which appears to have been the staple industry at Calleva.

Portions of mills for grinding the madder roots were found, and a good many separate hearths evidently made for this trade. There were also the remains of a small silver refinery for the purpose of extracting silver from copper and the removal of copper from impure silver by the process known as cupellation.

Two sets of baths have been discovered. One set evidently belonged to a hospitium or guest house. The others were the public baths of the city. These were of such great interest and so complete that they were left open for two years. They have been most admirably and exhaustively described by Mr. St. John Hope. In the drains of these public baths were found a number of remains. I may mention, among the incidental finds, the tombstone on which is written, in ogham characters, that it was set up to Ebiicatus, the son of Muco, and the fine carved head of Jupiter Serapis. An enormous quantity of coins have been found, one of them the interesting coin bearing the inscription "Judea Capta." I have left far more unsaid than I have said, and can only recommend you to spend a day at the Reading museum. I close by mentioning the tile found here about four years back, on which the maker, probably at the end of his day's work, scrawled the solitary word "Satis." That word I now write at the foot of my remarks, and hope before you leave you will all be abundantly satisfied.

Mr. Mill Stephenson pointed out the work done during the present year, particularly referring to one of the insulae near the middle of the town, where there has been uncovered the remains of a small square temple. The ground plan is quite perfect, and shows a podium about 18 inches high and about 36 feet square outside, with a wide entrance on the east and a cella measuring internally 12 feet by 14 feet. The podium is paved with coarse red mosaic, but the floor of the cella has been destroyed. Against the west wall of the cella is the base of a platform about 3 feet broad for the image of the deity, or for the altar. On and about this were found some of the shattered fragments of the image itself, which was about life-size and of stone. In addition there have turned up considerable fragments of at least three inscriptions, cut on thin slabs of Purbeck marble. One of them has about the beginning the word "Marti," which is suggestive of the dedication of a temple to Mars. Another of the inscriptions is perhaps even more important, since it contains the significant word "Callevae," and so places beyond all doubt the identity (which some have long insisted on) of the Roman town at Silchester with the Calleva or Calleva Atrebatum of the seventh, thirteenth, fourteenth and fifteenth stations of the Antonine Itinerary. He also showed that when a small portion of ground not yet touched had been dealt with, the whole of the area within the walls will have been explored, a work which had occupied eighteen years.

#### CONWAY ABBEY CHURCH.

A PARTY of members of the Llandudno Field Club visited Conway on Saturday and were conducted over the church and castle by the rector of Llandudno. He said that Conway was interesting as the place in which the English and the Welsh influences of the Middle Ages met and mingled. When Edward I. returned from the Crusades he found it was necessary that he should subdue the Welsh, and he sent down an army to Conway. There was at Aberconwy, as the place was then called, a Cistercian abbey and an establishment of the monks of that Order. The Cistercians sprang out of the Order of the Benedictines as a protest against the luxury which the latter, owing to their great prosperity, had begun to enjoy. Austerity was the principle of life of the Cistercians, and they adopted simple vestments and silence was their characteristic. Yet this Order, the Puritans of the Middle Ages, possessed throughout Europe as many as 800 abbeys,

including that at Conway. They introduced the monks known as lay brothers, who worked the fields and became expert agriculturists, their industry in time helping to abolish serfdom from the land. Edward fixed upon Conway as the key to the power in his descent upon Wales he determined that it should be fortified, and his first act was to remove the Cistercian abbey completely away to Maenan, twelve miles from the Vale of Conway. He did this for political reasons. It seemed that he acted from no feeling of dislike or enmity, for he preserved to the monks their property and sent them far away in order that they, being in touch with the common people of the country, should not interfere with his purpose. Edward then raised on the site of the old abbey a parochial church, making use of considerable portions of the original building in the new edifice, and therefore planted in the midst of the country, which hitherto seen only churches of the Celtic character, a complete church of the Latin type. Some changes and additions had been made to this church since Edward's time, but practically the structure is now as it existed at the beginning of the fourteenth century.

The party were guided round the church, and the old Conway exhibited the covers of the old "chain Bible" within which now remains but the fragment of one page of the book that they once protected. In the early years of Queen Victoria's reign, it is said, the parish clerk required pages of the volume to the visitors, and one of the churchwardens confessed to the vicar of fifty years ago that he had bought a leaf of the "chain Bible." The alarmed vicar immediately went to look at the book, and found only one leaf remaining. This is now preserved, with the covers, in a safe.

#### COLOUR ON BUILDINGS.

AT the convention in Liverpool of the National Association of Master House Painters a paper was read by Halsey Ricardo, architect, on "The External Application of Colour to Buildings." He advocated a reversion to medieval methods in civic external decorations. For four hundred years, he said, the element of colour decoration had been fading from our streets, leaving first the buildings, lined with white, and then the men's dresses and in the coloured signs of the streets, but nowadays existing merely in the mayor's coach and the sheriff's liveries. Heraldry, in his opinion, furnished the key towards the external use of colour in our buildings. Municipal and other coats-of-arms should appear on the walls of public buildings, and there should be a considerable amount of lettering, which besides being an almost indispensable form of beautiful decoration, should also serve as a useful local information and the names of illustrious citizens. Apart altogether from the picturesque aspect of the matter, there was the question of preserving the external walls against the destructive attacks of city chimneys, and also the hygienic advantages of periodical cleaning. Washing, white or tinted, was an old and approved method, and it would be an immense step if it became the custom annually to lime-white railway stations, the brick and railway cuttings and wherever the smoky locomotives passed. If people did not care to whitewash the town, they might begin upon the gaol. He suggested some what similar periodical and preservative treatment of buildings like Buckingham Palace and Westminster Abbey. Regarding the educational value of colour, he said that the phase seriously affected the younger generation. The people had grown up amidst the dreary monotone of the buildings, and had, mostly, got the idea that it always must be so and must always be, and that their life, external, must be spent amongst dingy surroundings. But don't let them infect their youngsters with that fatalistic doctrine of Colour—and good colour too—was not difficult to obtain. Their advertisements on the hoardings and walls showed that; and what had been found worth doing for so long a purpose as to puff a proprietary article was surely more worth doing when it meant guiding and educating their children during the most impressionable years of their lives. A school should not be a gaunt, austere building, but made as attractive and gay as colour could do it—inside and out. The strain on the attention of the scholars during the hours of lessons might safely be diverted and rested by having pleasant objects on the walls to look at and making the walls themselves humane and companionable by colour decoration. The children in the East of Europe, and still more so throughout Asia, grew up amidst bright surroundings. Their schools, their mosques,



...ples, wherein they were taught, were the repositories of the finest efforts in colour and coloured ornament, and the result was that the children, under those conditions of healthy eye education—conditions at which they could command in England were they persuaded to do so—grew up more alert and more tractable than ours, and had to struggle with squalor and grim pedantry. There is no sin in bright colour, although it was shunned by any proper people. There was no safety to morals in rooms of drab and mud. Bad taste might be committed and indulged more easily by the timid and ignorant use of low colours than by the courageous attempt to have full ones, and the failure was the more insidious and far reaching because the sillianimity passed for prudence, and naturally, giving no one any sort of satisfaction, must be ranked therefore with the true and counted as such, since virtue (so the sour creed was of its own nature an uncomfortable effort and its reward. They had learnt from some of the modern masters how to deal with colour broadly; let them use that knowledge as a stepping-stone to deal with colour on large faces—not treating their efforts as necessarily monumental or imperishable, but recognising the conditions of use and their material. Then there would grow up a school of house painters and a tradition how the paint could be spread, and in course of time they might hope, in confidence, to see their streets and public buildings looking fresh, clean and cheerful, and, it might be, beautiful.

Mr. J. H. Sibthorpe said that Mr. Ricardo's illustrative allusions to the use of lime-white must, no doubt, be taken as a finger-post pointing in the direction decorators should go. Personally he favoured a colour treatment of the great masses of the face of buildings, and thought architects had erred in lavishing their attention on the border lines rather than on the spaces of buildings. He thought the painting of a man's coat-of-arms outside his house would be neither good taste nor good art. He suggested that our manufacturers should produce some protective finish which, while preserving the decorative colours beneath, would be easily and cheaply renewable from time to time.

Mr. Edmund Kirby (president of the Liverpool Architectural Society) feared that public sentiment would be against covering our abbeys and cathedrals and similar buildings with paint or limewash.

Mr. Orr said that the feeling in Scotland, at any rate, was that it was vandalistic to paint stone buildings.

### QUEEN'S COLLEGE, BELFAST.

ON Friday last the laboratories which have been erected in connection with Queen's College, Belfast, were opened by Sir Otto Jaffe. It was arranged that Lord Kelvin was to perform the ceremony, but, owing to the illness of Lady Kelvin, he was detained in Glasgow. The address which his Lordship intended to deliver was read by his nephew, Mr. James Thompson, and was as follows:—

This is an unique day in University history. I believe I may safely say that never on one day and in one University were seven laboratories opened for scientific instruction and research. The universities of the world are headed by Queen's College, Belfast, in its achievements of to-day. Queen's College, Belfast, is the University of Belfast. The good old honoured name of Queen's College, in memory of our beloved Queen Victoria, will remain for ever with the University of Belfast. But I hope that usage, lawfully participating law, may from to-day forward give to Queen's College, Belfast, provisionally its true name—the University of Belfast. Queen's College is not destined to remain a college of a federated "Queen's University of Ireland," a university which, partly because of its being federal, was never thoroughly and conveniently successful in practice. The University has grown up in Belfast during ninety-five years from the small beginning, about 1815, as the Academical Institution, to the grandeur and completeness in which it now stands forth, fully equipped for all the work of a University. The sooner the University of Belfast is officially proclaimed to be an independent national University the better for Ireland and the better for the world to be benefited by its work. Political antagonisms of all shades of opinion on all subjects may unintentionally conspire to ruin University education in Ireland. They will not succeed. The great development of which the completion is commemorated to-day has come to maturity within six years, from seed planted in 1901 by the Principal Hamilton in his initiation of the Better Equipment Fund. This enterprise has been made a splendid success

by the patriotic liberality of citizens of Belfast and many other well-wishers of Ireland. And now that you have them open ready for use, what are you going to do with them? Your chiefs in the different departments—professors, assistant professors, assistant workers and students—will, I am sure, soon give very good and useful answers to that question. Your seven laboratories extend over the whole field of lifeless matter and of matter associated with life. We may be sure that in none of them will there be any lack of useful occupation. Personally, I need hardly say, I envy most the workers in the laboratories of physics, chemistry and engineering. At the present stage of the era which commenced with Henri Becquerel's discovery of radioactivity in salts of uranium and in metallic uranium, the very thought of physics and chemistry, a now united science, compels us to think of radium in which Madame Curie discovered the element of Becquerel's wonderful radiation. I hope the physical and chemical laboratories of Queen's College, Belfast, will try to find if the radium element does occasionally explode into fragments. If they find that it does, the laboratories will, I trust, hold an official conference with the professors of Greek and logic, and come to a conclusion whether or not it is a convenient fiction to call the radium element an atom. It may remain quite convenient to continue calling radium an element. Indeed, I well remember a time in Belfast when we used to call earth, air, fire and water "the four elements." Whatever may betide, I hope the physical and chemical laboratories of Queen's College will be full of radioactivity until we have more intimate knowledge of radium than we have of iron, with its magnetic quality.

The thought of those early days brings vividly to my mind recollections of the dawn of University history in Belfast. I well remember the joy in the house which my father built for himself in College Square when the news came that King William IV. had conferred on the young Belfast institution (then, if I remember right, about fourteen years old), an honour according to which it became the "Royal Academical Institution" of Belfast. This we may look upon as a first step up towards the dignity of an independent University which we have now in full view. A second step, in which also my father took a keen interest, was the founding of Queen's College, into which, when the institution was about thirty years old, if I remember rightly, its university department was absorbed and made part of the Queen's University of Ireland. I have many happy recollections of Queen's College in the fifties and sixties, when my brother was Professor of Engineering there. What would he not have given for the admirable and useful engineering laboratory of which Queen's College takes possession to-day? I have somewhat later recollections of Queen's College, full of personal and scientific interests, when Thomas Andrews was making his immortal discoveries in it regarding the continuity of the gaseous and liquid states now celebrated throughout the scientific world. I well remember, too, his showing me on a promisingly practical scale of magnitude the electrical transmission of power through a pair of copper wires from one gramme dynamo driven by hand to another taking the work from it. No doubt Andrews showed this to his students at a time when by most engineers and scientific men engineering applications of electro-magnetism were looked on as chimerical fancies of ingenious, non-practical professors or other weak persons. Who can say whether the seed thus sown about 1870 or 1871 or 1872 through University action in the north of Ireland may not have germinated in the Portrush Electric Railway, which has given to Ireland the first historic title to the utilisation of water-power by electric transmission to many miles, instead of to a few yards as shown to the students of Queen's College in Andrews's lecture-room? Flooded with these recollections I need scarcely say that I take a keen personal interest in to-day's commemoration. I warmly thank Principal Hamilton and the authorities of Queen's College for their great kindness in inviting me to take part in it, and I desire to express my deep regret that Lady Kelvin and I are unable to be present.

Professor Hamilton requested Mr. Thompson to accept on behalf of Lord Kelvin a gold key as a token of the regard in which he was held by all connected with Queen's College, Belfast.

Mr. Albert H. Hodge has received a commission to execute three large portrait statues, the subjects being James Watt, Thomas Telford and Henry Bell, for the front of the new Clyde Trust offices in Robertson Street, Glasgow.



## NOTES AND COMMENTS.

AMONG those who regularly visit the galleries of the Louvre there are few who are aware that the great institution possesses a very valuable library. It was formed by order of NAPOLEON, and among the earliest contents were the books which were found in the private libraries of the kings. At no time was it open to every visitor. Admission was only allowed to those who were able to obtain a special permission from one of the Ministers. Under the Third NAPOLEON several select collections were added. Among them were those of VICTOR COUSIN, the Professor of Philosophy, and FIRMIN DIDOT (containing a variety of examples of early printing and other rarities). M. AUDÉOUD, who has bequeathed his fortune for the purchase of paintings, did not forget the library, and has left books, manuscripts and drawings which have a special interest. But so long as the library is a preserve for a few officials the public in general can only indirectly share in the additions. There is, of course, enough to be seen to satisfy any ordinary individual, and as many of the officials are literary men, there must be few works of any value in the library which are not utilised for the ordinary reader.

THE apothecary in "Rob Roy" remarked, "If it werena for hot blood and ill blood what would become of the twa learned faculties?" and when we regard the number of asylums and hospitals which are in course of erection in the country as well as a demand for more capacious law courts we think another learned faculty also profits by human weaknesses. The Edinburgh District Board of Lunacy professed to be somewhat amazed on Monday when they considered the architect's commission on the Bangour Asylum. Mr. HIPPOLYTE BLANC, who has been favoured with so extensive a work, it appeared was paid 8,580*l.*, in addition to 3,000*l.* not included in his account, and there still remained a balance due to him of 2,967*l.* Mr. BLANC was asked by the committee to render a detailed account, which he did. There is, in fact, no mystery in such a case. If a large sum has to be expended on buildings which are indispensable the architect's commission will be proportional to the outlay. It cannot be expected that for a large group of buildings an architect would be content to work for a sum which would be equivalent to what he would receive for an ordinary building. Committees and county councils do not in general believe that the designing of buildings which are or should be plain in character requires much skill. If the Edinburgh Board of Lunacy will inquire they will learn that in England the subject of architects' fees has been several times investigated, and the general conclusion was that any sensible reduction of the commission is not obtainable.

A FORTNIGHT ago an interesting German church was almost totally destroyed by fire. It was founded in the Black Forest, and was known as St. Margen, which was a derivative of the original name, St. Marienzell. A church stood on the site from the beginning of the twelfth century, but by some fatality one after the other succumbed to the flames. The founders were the HOHENBERG family, who wished to rival the ZAHRINGERS, and as the latter favoured the Benedictines the new church was made over to the Augustinian Canons. The district was long troubled by a sort of civil war, and the monks of St. Margen suffered in consequence. In the latter years of the fifteenth century a new monastery was commenced, which was destroyed by fire. In the following century LOUIS XIV., the French king, who had taken possession of Freiburg in 1677, enclosed the site of the church as part of the system of defence by VAUBAN; another and smaller church was erected, but like its predecessors, it was consumed. Next a church was raised in 1716, but on the 12th inst. it also failed to resist the old enemy.

THE French architects are gaining position in America, for it is believed to be preferable to call them directly than to have recourse to American architects, although they may have studied in Paris and call themselves Beaux-Arts architects. Several commissions have been already obtained, and the number will be increased, since M. BOUVARD, the director of works in Paris, has received the appointment of consulting architect for Buenos Ayres. In another field French skill is also about to be invoked. The gardens in connection with the International Exhibition of 1900 are deservedly admired. They were designed by M. VACHEROT, who controls the public gardens of Paris. M. VACHEROT has entered into a partnership with a firm of landscape architects and engineers in New York. He has agreed to spend two months every year in New York. As in M. BOUVARD's case, it will be a very profitable way of taking a holiday. When we consider the admiration which Americans profess for the Old Colonial architecture we think they might occasionally express it by sending missions to English architects or by consultations with them concerning buildings and gardens.

## ILLUSTRATIONS.

UNIVERSITY COLLEGE SCHOOL, FROGNAL, HAMPSTEAD.

A BUNGALOW.

A WEEK-END COTTAGE.

CROXTETH, CLAPHAM PARK, S.W.

HOUSE, NEAR SHANGHAI, CHINA.

THE art of house-building in the Far East is considerably affected by the climatic conditions of the various ports. In Shanghai one must so arrange one's plan that the occupants may remain comparatively cool in a tropical summer, and at the same time the rooms cosy enough to resist the dispiriting influences of a winter as cold and even more cheerless than that of England.

Under these conditions lofty rooms (sometimes necessarily out of proportion to their length and breadth) and verandahs are insisted upon, and indeed become a necessity—a state of affairs which hardly makes for the æsthetic beauty of a home. Until recently convenient little houses of the type illustrated were practically unknown in Shanghai. They were, however, becoming more and more popular. A colonial, in his love for anything homelike, finds in his villa of red tiles and white rough-cast. The house illustrated has a large semi-basement containing stone wine cellars and kitchen, an extensive block at the rear providing for servants' quarters and stabling. The bedroom has a bath-room communicating with it, the latter being fitted up with all modern accoutrements. It is now being built near Shanghai from designs by Messrs. SMEDLEY, DENHAM & ROSE.

DESIGN FOR CHURCH AND MANSE, WELHOLME ROAD, GRIMSBY.

THIS design was submitted in a competition last February. The scheme comprises a church to accommodate a congregation of 700, a school for 300 scholars and a manse for the minister. The church is so arranged that one can pass from the manse to the schools through the church all under cover. The plan of the church is cruciform with radial seating, keeping the preacher in view from every part of the church. The materials used are red brick facings, with surface decoration of plain tiles. The stone, sparingly used, is red Mansfield, with roof of heavy green Westmorland slates. The clerestory is built in half-timber construction with rough-cast panels. The total cost was estimated at 8,240*l.* The authors of the design are Messrs. A. WINTER ROSE & P. M. STRATTON, A.R.I.B.A., of London.



# THE INVENTION OF THE CORINTHIAN CAPITAL.

SEVENTY years ago an imaginary conversation, ostensibly on the subject of the invention of the Corinthian Order, but which was in reality a defence of invention in architecture, appeared anonymously. It was such as a translation of one of the papyri found in the Vatican Museum, but that was not an uncommon practice in those days. The evidence was too strong of its English origin, and the author was probably George Wightwick, author of the "Palace of Architecture" and other works. It claims the character of his interlocutors by saying:—Callimachus is the reported inventor of the Corinthian capital. With regard to the other interlocutor in the dialogue, history has recorded nothing of him; but whoever he has been he survives in his progeny to the present day. Onophrionus is to be met with in every company and in every age:—

ONOPHRIONUS.—May the immortal gods confound thee, Callimachus, as a traitor to the arts, who, after being educated in their bosom and instructed by their doctrines, dost turnest against them the gifts thou hast received from their hands.

CALLIMACHUS.—You deal in hard words, Onophrionus. I did not think to incur your wrath, even though I did not exactly obtain your approbation. But wherefore do you express so much indignation against me because I have been making an experiment and endeavoured to create a new species of capital that I flatter myself will be allowed to manifest both invention and tolerably good taste?

ONOPHRIONUS.—And can you actually intend that fantastical ornament for the capital of a column? Good taste, Callimachus; really a law ought to be enacted to prevent such experiments as you from playing your freaks and barbarising architecture by the introduction of such intolerable caprices, and such new-fangled devices. I will defy you to point out anything in the least resembling this precious invention.

CALLIMACHUS.—Its want of resemblance to what we have hitherto been accustomed to behold is not necessarily a demerit; quite the reverse, provided the thing be good in itself and adapted to the purpose for which it is designed. Unless, however, you can allege something more reasonable against it, I shall be allowed to consider your objections as dictated by prejudice.

ONOPHRIONUS.—You have the vanity then, forsooth, to imagine that you have all at once struck out of your own mind an entirely new species of capital worthy of being admitted into architecture, and take its place by the side of those antique modes of decoration which have been established by the ancients. I must confess, Callimachus, that I admire your invention.

CALLIMACHUS.—What you have just said is a mere futile evasion. The point in question. My modesty or conceit in the matter is a very secondary consideration; or, rather, you are right to charge me with a fond vanity before you own that what I have originated is faulty in itself and contrary to correct principles of taste. You merely say that it is new; I should now like to have your reasons for regarding it as positively bad.

ONOPHRIONUS.—Were it ever so absurd or extravagant, Callimachus, I do not imagine I should be able to convince you that it is not a masterpiece of excellence—a rare invention that will earn for you never-dying renown. I appeal, however, to common sense.

CALLIMACHUS.—Well then, Onophrionus, fancy me, for once, to be the possessor of that excellent quality. Imagine that I am a comb, Callimachus, to have left us, and that you are an embodied "nous" before you, ready to discuss the matter quite dispassionately.

ONOPHRIONUS.—(Aside.)—This self-satisfied impudence really is altogether intolerable; but I will soon cure him of it. Now, Mr. Common Sense, what is your opinion of this strange odd-looking affair which a certain Callimachus wishes to impose upon us as an original pattern of capital for the capitals of columns? Those in present use, I think, are not good enough for him; oh no! he wishes to abolish the world by something quite new—something entirely his own. Happening, therefore, the other day, to see a basket against which the leaves of some plant were pressed up, spreading themselves around it, he forthwith conceived the notable idea of fashioning it into a capital for the Corinthian order of columns, although it is obviously not adapted to such a purpose; since what can be more preposterous than to place a basket where it would be crushed

by the architrave of the entablature, and to fix a parcel of unmeaning leaves around it? It was indeed very natural for the leaves to grow up accidentally against the basket when it was upon the ground close by the stem of the plant, but how they can be imagined to grow out of the summit of the shaft of the column is past my comprehension.

CAL.—Admirably well argued, Onophrionus. By Jove, I would give something to have that varlet Callimachus to listen to our discourse, that we might enjoy his confusion. Yet hold!—we must admit that, although in the contour of this capital some resemblance may be traced to the general outline of such an object, this neither is nor professes to be a facsimile representation of it. Even you yourself would entertain no apprehension of this solid mass of stone being crushed, or appearing to be crushed, by the architrave above it. I apprehend, too, that the knave will say the foliage cannot possibly be mistaken for real leaves, because, independently of their want of colour to favour such deception, they are so methodically disposed, both individually and as regards each other, as to be evidently mere sculptural embellishment, derived from vegetable forms and regulated by the laws of architectural design; consequently we need not be at all perplexed to account how they can grow in such a situation.

ONOPHRIONUS.—I do not mean to say that this foliage can in fact be mistaken for real leaves; yet notwithstanding that, and however it may flatter the eye by intrinsic elegance of form and by the ingenuity displayed in the whole composition—for I will so far allow it to be not without merit—it offends the judgment. According to you, it is at one and the same time both like and unlike the prototype whence you have derived it.

CAL.—Exactly so: it is sufficiently like to point out its origin, and sufficiently unlike to prevent its appearing a direct imitation instead of a piece of embellishment, the idea of which is taken from what in itself would be inadmissible.

ONOPHRIONUS.—I am glad to hear you make that last confession, because it may spare me the trouble of extorting it from you. Upon what ground, then, can you defend so irrational a practice as that of altering, merely for the sake of novelty, any of the indelible features of our architecture, and substituting for them the chimeras of a fanciful imagination? Architecture totally rejects all such freaks; its laws are immutable. It admits of no other embellishment than what is suggested by propriety, and for which there is an evidently satisfactory reason. It tolerates nothing that is merely arbitrary.

CAL.—I am not exactly sure of that. The principles of architecture are, I grant you, immutable; but there are many of its laws which are altogether arbitrary and conventional, those more especially which relate to embellishment. If you are not disposed to tolerate anything that does not carry with it some appearance of direct utility, or some better apology for itself than being beautiful in its effect and not repugnant to sound taste, I am afraid you cannot be very well satisfied with much that we are now accustomed to admire. Is there nothing arbitrary, I ask, in the practice of channelling the shafts of columns? What obvious meaning or utility, either direct or indirect, is to be discovered in it? You will say that it contributes to variety and beauty; certainly. How again, will you reconcile what you have urged against my capital yonder—namely, that the foliage I have applied to it is an unmeaning embellishment—with your admiration of that which, were it tried by the same rigorous test, and with the same disposition to censure, must be pronounced equally faulty?

ONOPHRIONUS.—Please to explain yourself; for, being no Edipus, I do not pretend to unriddle your words.

CAL.—If my meaning is obscure it is a sign to me that you have a more indulgent eye for long-established caprices than for "new-fangled" ones, which latter alone appear to excite your displeasure. However, that you may not have the advantage of pleading ignorance of what it is I allude to, I request you to inform me what particular propriety there is in decorating the metopes of the Doric frieze with sculpture. Does a structure thereby acquire any fresh accession of strictly architectural character? or is there anything peculiarly flattering to common sense in beholding the figures of men and animals—combatants on foot and horseback—wedged in between the ends of the beams of the roof?

ONOPHRIONUS.—What, then, are you tasteless enough—

CAL.—Not I; you quite mistake me, the reasoning and the objections I am making use of are entirely your own, not mine. You will hardly be so inconsistent as to disown



them now, after having so triumphantly brought them forward a very short while ago by way of convicting me of absurdity.

ONOPH.—But there is a very material difference between the two cases.

CAL.—I am unable to perceive it. If it be contrary to reason to apply foliage to the capital of a column because we are convinced that leaves cannot sprout out there, it should follow as a matter of course that it must be equally so to represent human figures either within the tympanum of a pediment or between the triglyphs of a frieze. I am afraid, Onophrionus, that like many other staunch sticklers for common sense, and nothing but common sense, you suffer yourself to be led by your obstinate overweening attachment to it into the greatest of all absurdities, namely, that of trying matters of mere convention and taste by its rules. Nay, I am not quite sure whether, considering sculptured metopes as mere graphic embellishment to the architecture, they are not liable to some trifling objection on the score of the sculpture not being introduced altogether so properly as it might be. Were I Onophrionus, for instance, I should say that if bas-relief figures are required, it would be better to apply them as distinct compositions of sculpture than to separate them and fit them in between the triglyphs, intermixing them with and crowding the architectural forms on a part whose surface is already sufficiently ornamented by the features appropriated to it.

ONOPH.—Prythee, do not put into my mouth remarks which none but yourself would have the temerity to utter. I am sure they would never have entered into any other head. Still I must own that they are tolerably in character, since the man who has genius enough to improve upon the existing orders of architecture doubtless has that superior delicacy of taste and discernment which enables him to detect faults no one save himself ever dreamt of.

CAL.—The improvement upon which you are pleased to compliment me, Onophrionus, is entirely of your own finding out; I certainly did not flatter myself that I had made the improvement you are so ready to attribute to me.

ONOPH.—But of course you consider your capital an improvement upon that both of the Doric and Ionic order, or do you yourself admit its inferiority, and admitting it, will you still persist in your determination of putting it into execution?

CAL.—Again you mistake me; as little have I admitted its inferiority to the other two species of capitals as I have claimed for it any excellence over them. I shall be very well content should this be allowed to possess sufficient merit in itself and be admitted to equal rank with the others. Surely it will be honour enough to have rivalled, if I have not surpassed them, nay, even to have produced something which, if it at present fall in some degree short of the Doric and Ionic, may in time be improved by others into equal beauty. Much is yet wanting to render it a third distinct order, congruous and consistent in all its parts and impressed with the same character throughout. What I have done is but a mere essay towards the accomplishment of such a purpose.

ONOPH.—A most notable purpose, truly. What a pity it is, Callimachus, that the world has been deprived of your aspiring and inventive genius so long. You should have come into the world some ages earlier, for 'tis now, I fear, too late to think of giving us a new order, we having hitherto been able to do exceedingly well with those we have; and therefore it will be labour to no purpose to attempt to bring another into vogue, especially one that, according to your own confession, is a crude imperfect essay.

CAL.—So in their origin were the orders you now consider inimitable.

ONOPH.—I do not dispute that, but there are limits to architecture; and after perfection has been obtained we must rest contented with it, unless, departing from those standards, we are willing to give ourselves up to all sorts of capricious novelties, whims and fancies. Architecture admits but of two distinct characters—boldness and elegance. Those who brought the art to that perfection which it has now attained were well aware of this; had not such been the case they would undoubtedly have supplied the deficiency. There are, however, some people in the world, Callimachus, who fancy it is reserved for them to discover what it has baffled all preceding experience to attain.

CAL.—Your doctrine, Onophrionus, is certainly a most discreet one, and one which, if acted upon discreetly, would save us poor mortals a great deal of thought and trouble. I am only concerned, for my own sake, that I am unable to

take up with so comfortable a theory, and content with following step by step those who have preceded my profession. In reply, however, to the remark just now made, I must say that I differ from you in asserting that architecture is capable of expressing distinct characters; or, admitting such to be the case, does not follow that there may not be infinite gradations of the same character.

ONOPH.—Well, do we not find such gradations in the two orders we possess? What necessity is there for a third?

CAL.—"Necessity" is not the most appropriate speaking of any of those arts which, however, conduce to the refinement of society and its pleasures, have far outstripped its actual necessities. Perhaps, you merely want to say that you do not think anything would be gained with regard to the art we are now speaking of by imparting to it additional greater compass and flexibility and by permitting a freer range than it has hitherto enjoyed?

ONOPH.—Most assuredly am I of opinion that not. Rather would that freedom and variety which seem so ambitious of procuring for it tend to its decay and finally work its destruction. Do not both reasons and analogy clearly point out to us that it is perfect as it is, and that to alter or add to either of the present orders? In the Doric we have the expression of masculine strength and beauty of the male form; in the Ionic, that of femininity and elegance. Had nature created a third sex, our poets combined the two in the fabulous Erichonius; then indeed we might discover a type for another order, which although neither Doric nor Ionic—that is, neither male nor female—should be conformable to those principles from which architecture may not deviate with impunity.

CAL.—Your imagination is most amusingly personated. To say the truth, there is more fancy in your illustration than in the argument you would elicit from it. I am too, you have appealed to the very worst authority in support of your theory that you could have had reason on your side, and that you have unwittingly opened the door to the most capricious innovations that the wildest imagination could conceive.

ONOPH.—How so, pray?

CAL.—Because the varieties of the human race, individuals in the same nation, are so numerous, that we cannot attempt to express, I will not say all of them, but the principal ones, in the same manner as you seem to do in the two sexes now are, there would be so much latitude in the orders would be subdivided *ad infinitum*. I advise and discard your simile, for however appropriate it may be on a poetical occasion it will prove a most trivial allusion in mere prose.

ONOPH.—Whatever latitude my doctrine might give, I am convinced it could never open the door to such a variety as the specimen you have here produced. This is a mere variety of either of the other orders, but so altogether new.

CAL.—So much the better, then; for I do not think it conform to the doctrine you have laid down. Your fantastic analogies, a column is neither more nor less than a column, and such parts as are merely decorative must always be more or less arbitrary; our chief object, therefore, ought to be that they are suitable in themselves and tastefully combined. With equal propriety might I contend that however they may differ in minor details, only two classes of form ought to be admitted for that columns ought to be so restricted. Instead of this we perceive that an exceedingly great diversity of regards contour, proportions and decoration is admitted for such objects; nor does it appear that the latitude allowed has been productive of any ill consequences. On the contrary, although some are decidedly superior to others, there are few, if any, that can be pronounced positively bad. Nay, what is more, we may frequently perceive an equal degree of merit in those which otherwise exhibit the greatest contrast. Now, I do not mean to say that I admit of a similar degree of variety, except it be in the capital; and there, I think, there is ample room for display of invention and taste.

ONOPH.—Oh! doubtless of all kinds of taste, not the worst imaginable, if every one is to be at liberty to follow an unbounded scope to his particular fancy. Let us allow artists to coin their own expressions without being amenable to any fixed standard or authority, and let them go with impunity to the most extravagant conceits.



—Then of course you take it for granted that all the modes of beauty are already exhausted; that taste henceforth cease to be creative, and that it ought to be itself to working continually with the same stock materials?

PH.—Certainly, if we would preserve it unimpaired from deterioration.

—I, for my part, doubt whether equally fatal consequences would not arise from the timid caution you recommend, as from the temerity against which you are so anxious to guard; since, although we might continue to go on tolerably well for some time with a mere traditionalism of ideas, by being reduced to a passive state, taste would ultimately become inert and deadened, and the things which are the objects of it will lose their original spirit, though their form may be retained. Nay, the satiety that attends an invariable recurrence of precisely the same modes of beauty is, in my opinion, quite as apt to open the way for licentious caprice, as is the allowing oneself some liberty of invention and some exercise of discretion.

PH.—Aye, but if we once remove the wholesome restraint of a definite standard and authority, and leave everything to individual discretion, who is to judge what is right and what is not? This is too much like leaving every man to be his own law-maker.

—By no means do I pretend to say that the degree of liberty I am claiming for myself and others would never be used; as little, too, am I inclined to assert that a line can be drawn indicating where propriety terminates and error begins. Yet it is surely not more difficult to create the productions of architecture by the test afforded by the principles of the art and the conditions they impose, than the productions of any other art where feeling and imagination are at all concerned. Wherefore, then, should we conceive that the architect alone ought to be always leading-strings, as if incapable of taking a single step without stumbling?

PH.—I have no very clear idea what those principles are which are to guide us when we once quit the track of established authorities; or, supposing them capable of being completely laid down, what is to prevent anyone from interpreting them so as to suit his own purpose.

—But the same objection may be urged as regards the other of the fine arts. I know of no immutable, unchangeable law adapted to every minute and particular case, and we are left to decide for ourselves as the individual artist may require, according to our judgment and that of innate good sense—in other words, of taste—which we happen to be gifted. According to your theory of arguing, no artist, be his talent what it may, can be at liberty to follow its suggestions, because he would afford a precedent that will be abused by those who possess equal confidence in themselves with far less ability.

PH.—You are perfectly right there; and were it in my power, I would enact a law to restrain all further innovation in architecture, so as to preserve it in its present state.

—A very notable scheme, Onophrionus. If, indeed, the world could be regulated by weight and measure, what might be accomplished might be feasible; yet even then, I apprehend, it would be found to consult the interests of mediocrity rather than of talent, since it would effectually prevent the artist from distinguishing himself, and keep it down to the level of the former. But, to come to the point at once, pray tell me, there in this new capital of mine that excites your imagination so violently? All that I have as yet heard you say against it is that it is an innovation, which I do not mean to dispute, it being upon that very point that I arrogate to myself any merit for it. Unless, however, you can point out in what respect it is inconsistent and unsuitable for the purpose for which it is intended, so far from putting me out of conceit with myself, it only convinces me that I have reason to be satisfied with the success of my attempt.

PH.—Pshaw! it is quite idle to attempt to reason with you; you are absolutely incorrigible, Callimachus. The thing there you have invented all that you fondly fancy yourself is, of what service would it be? We already have all that we require; as for new inventions in architecture at this time of day, they are mere chimeras. I do not want them, I tell you—we do not want them; we suffer such conceited gentlemen as yourself to pour their fancies upon us with impunity.

## CALCUTTA VICTORIA MEMORIAL.

A CORRESPONDENT in Calcutta of the *Manchester Guardian*, writing on the 5th inst., says that for some time there have been rumours that the foundations of the Victoria Memorial Hall, the huge and costly building by which Lord Curzon resolved to honour the memory of Queen Victoria, had cracked badly. A committee of engineers appointed to examine the foundations have now presented a report which shows that the rumours were quite accurate. The great difficulty for which sufficient allowance was not made was the treacherous nature of the soil in Calcutta and in the Gangetic delta generally. Every heavy structure in Calcutta has sunk, in some cases to the extent of several inches. And this is not surprising, for the only available ground is a stratum of soil which, in the words of the committee of engineers, "rests, or perhaps we may almost say floats, on the blue silt in which some peat and a water-bearing silver sand stratum are sandwiched." As the 4-feet concrete bed laid for the Memorial Hall has sunk unequally it has cracked. In the circumstances the committee of engineers can recommend proceeding with the undertaking only on the condition that the concrete and footings are separated into suitable sections, that the weight of all new superstructures is materially reduced and that structural stability is secured solely by a steel framework.

These recommendations, which completely alter the character of the proposed building, have caused a good deal of ridicule. *Capital* describes the suggested structure as a "mammoth steel birdcage," and urges that the scheme should be abandoned. The project has, it is notorious, never been popular. Money was raised for it by means of which the less said the better. The Government of India and the local Governments have facilities for bringing pressure to bear on a wealthy rajah, and these, it is said and believed, were freely employed. Moreover, it could not be expected that a magnificent palace in Calcutta would afford much satisfaction to people in Madras, Bombay or Allahabad. Mr. Morley would do much to revive India's confidence in his rule if he used his influence with the trustees to secure the substitution of a number of provincial schemes of a utilitarian character for a purely ornamental enterprise in Calcutta.

## EXPLORATIONS IN GREECE.

IN an article in the *Boston Transcript*, Mr. Arthur Stoddard Cooley, Ph.D., gives a *résumé* of the operations of the various archæological explorations in Greece.

The question so often asked by visitors to the excavations among the ruins of Greece and Italy, how the ancient sites ever came to be buried so deeply, has received one striking answer during the past year at our own excavations at Corinth, as well as at Olympia. As is true in other parts of Europe, the past winter has been unusually severe in Greece, causing great suffering and even loss of life and damage to the land, especially from floods and rain. Even in the early autumn there were very heavy and long-continued rains, and at Corinth our excavation was flooded and much soil washed in from the surrounding fields, so that when the water subsided a deep stratum of mud and debris was left, in some places burying the marble pavements and ancient foundations to a depth of several feet. The famous underground fountain house in the market-place was filled up entirely.

The Greek Department of Education, under whose charge are the ancient remains, cleared away much of the debris, and most of what they may have left will probably be removed during our own excavation campaign, under Director Hill, which should now be in progress. The Greek Government also made some excavations in the course of which among other finds was a fine head of an ephebos. They set up some of the prostrate columns of the ancient Temple of Apollo on the hill, discovered by us in 1899, replaced and strengthened the broken architrave block between two of the standing columns on the south side of the temple, and, removing part of the unfinished Kapodistria school-house, which covered the east end of its foundations, they devoted the rest of the building to a museum, to replace the small and inadequate one just west of Plane Tree Square.

A similar occurrence took place at Olympia in January. The little river Kladeos, swollen by rains, overflowed its banks and buried again, somewhat as it did centuries ago, part of the ruins nearly excavated by the Germans in the seventies. But this time the stream excavated a little, and



in the ancient gymnasium brought to light helmets and other objects. Fortunately no damage was done to the excavated portion of the gymnasium. The red wooden bridge across the river was carried away. According to the plans of the State engineer of Elis, approved by the Minister of Education, the bridge will be rebuilt about 500 feet further up the stream, and a new road will be constructed, starting from the railroad company's hotel and passing some 160 feet north of the Altis. This new road will fill a long-felt want, connecting the district of Gortynia with Pyrgos, and will obviate the passing of travellers through the excavations themselves by transferring the route to the other side of Kronion Hill. Measures will also be taken to keep the Kladeos in its bed and prevent further inundations of the ruins.

Dr. Kabbadias, ephor-general of antiquities, and architect Balanos, who has been in charge of the restoration of the Erechtheum, also recently visited Delphi to take measures for necessary repairs to the museum there and for the care of the outside antiquities, which have suffered considerable damage from the winter rains.

Among the archaeological activities of the Greek Government projected for the coming year is the erection of museums at Larissa, Volo, Tyrnavo and Halmiros in Thessaly, and at Tegea. The sites will be provided by the towns, and Larissa has already given a large plat and appropriated money for the removal of the barracks occupying it. Land at Eleusis and the Boeotian Orchomenos has been expropriated for excavation. The Archaeological Society will devote their surplus of some 170,000 drachmas from last year to the beautifying of the different ancient monuments of Athens. During the past year the Society carried on excavations in the sanctuary of Amphiaraios, near Oropos, at Sounion, in Euboea, Thessaly, Lokris and Naxos, and at Thermos in Ætolia, Lykosoura in Arcadia, Epidauros and Corinth. Besides the work referred to above, at the last place the remains of the Fountain of Peirene were strengthened. The re-erection of the Temple of Apollo, near Phigaleia, with the old material which has been to so large an extent preserved has continued, and the Society has undertaken the preservation of the Byzantine monuments at Mistra, near Sparta, where the old church of St. John has already been repaired. Museums have been built or enlarged at Lykosoura, Sparta and Corfu.

The French school at Athens is devoting its attention, as is well known, to Delos. At the first public meeting of the year at the school, attended by the king, the crown prince and other royalty, and the archaeologists of the various schools, reports of the work there were given by the director, M. Holleaux, and M. Leroux, one of the fellows of the school. Among the more interesting discoveries at Delos are the stoa of the Macedonian King Antigonos II., the double stoa named after Philip, a curious circular monument raised in honour of some prince, and especially a truly magnificent house with a peristyle whose columns still stand upright, a paved vestibule and statues of the owner and his wife. This house seems to belong to the second century, B.C. Fragments of a fresco discovered depict the myth of Ariadne, and among sculptural finds is a head of Bacchus of the Hellenistic period.

M. Leroux spoke especially of the marble lions found at Delos, works of the Naxian school, and adduced evidence that one of the four lions adorning the entrance of the arsenal at Venice had been carried away from Delos. The provenance of the other three was known, they having been brought from Peiraieus.

At one of the open meetings of the German Archaeological Institute at Athens after a commemorative address by Professor Heberdey, director of the Austrian Institute, on the recently deceased archaeologist Benndorf, Dr. Doerpfeld spoke of his work at Leukas. He reminded his hearers that his excavations were not for the purpose of proving Leukas to be the Homeric Ithaca, for this he feels depends on geographical and historical arguments, which both in print and in speech he has often minutely and to many convincingly set forth. Among the most recent converts to his theory is the eminent geologist Philipson, convinced by geographical reasons on the suppositions that Homer described facts and places as they were and not creations of fancy, and that the change of the name of Ithaca to Leukas and the transfer of the name to the island so-called to-day are the result of an emigration. These suppositions Doerpfeld considers as unquestionable, for Homer's accuracy has been proved by the excavations at Troy and Mycenæ and in Crete, and we know from history that the Dorian migration brought about transfers of peoples

and changes of names of places. Doerpfeld's excavations have been carried on in Leukas in the plain of Nydri he locates the city of Odysseus, and at other especially at the so-called Swine's Cave. The finds to prehistoric times and some large walls, which he as most probably remains of the city and palace of Odysseus.

An important work in this connection has just been published—"Maps of Leukas, Contributions to the Ithaca Question"—by a German, Walther von Mevius, to Greece for the purpose by the German Emperor. The first map, on a scale of 1 to 100,000, relates to Leukas and the surrounding regions. Four other maps, on a scale of 1 to 25,000, relate to the channel between Leukas and the mainland and the Homeric localities of Ithaca, according to the clear description of the poet in the Odyssey. The sixth map gives collectively all the localities mentioned in the Odyssey. From the geological and geographical standpoint the question is completely settled by these maps in agreement with what not only Doerpfeld has previously maintained, but other geographers have previously recognised as correct, and the question must now be considered from a philological or archaeological point of view.

Doerpfeld's excavations at Leukas are confined to the summer. In March he began further work at Tiryns, where many ancient works have been unearthed already. He expects to find a still older megaron there, which he revealed twenty-two years ago by Schliemann and his school. He is continuing his investigations also at Olympia, where finds have just been reported on the north-east side of the Pelopion, consisting of clay and bronze figurines, a geometric period, and a small bronze mule and figures of other animals.

The British School at Athens, under the direction of Sir John Dawkins, assisted by Messrs. Dickens, Wace and others, is now prosecuting its excavations at Sparta with great success, and numerous small finds on the site of the temple of Artemis Orthia by the Eurotas, discovered last year in other spots. Word has just been received of the discovery of the famous Temple of Athena Chalkioikos (the Bronze House), of great archaeological and also historical interest. Here the general Pausanias took refuge from the Spartans, was walled in and left to starve to death. Among the finds are three inscribed stone slabs, with the image of a sickle, one of which mentions the name of a victor in three contests; gold dust, a double axe of gold, the symbol of the Cretan king, a Corinthian vase, a headless archaic statuette, and very small cases of different forms associated with the end of the sixth century B.C., and eleven gold coins of the same size and weight of a 20-franc piece. The direction of the south side of the late enclosing wall of Sparta has been determined, and the discovery of the location of Pityeia, the largest of the villages composing the ancient city, is hoped for.

Meanwhile the Greeks are making notable finds in Thessaly. The Ephor Arvanitopoulos discovered a mound near the railroad station of Velestino a quadrilateral building composed wholly of beautiful white marble of the best workmanship. Since this is but a few miles distant from the artificial funeral mound, the ephor thinks we have here a magnificent tomb with portico, peristyle, chamber and propylæa, like those discovered a half century ago among the royal tombs of Pydna and Pella in Macedonia, which belong to the fourth century B.C. Judging from the architecture and by fragments of vases found in the excavation, the ephor dates this building between 400 and 450 before Christ. "It will be an event of great significance if under this funeral mound the spade of the workmen shall discover the graves of the kings of Thessaly, and particularly of Jason, the great ruler of Thessaly, pitifully assassinated, who had conceived the daring and enterprising plan carried out later by the great Macedonian conqueror."

The proposed erection of a museum at Volo, the capital of Thessaly, has been referred to above. A rich collection of inscriptions, coins and other objects found in excavations in Northern Greece is now in temporary quarters, and there are promises of many gifts from private citizens as the museum is ready.

Excavations have been begun on the site of the ancient market-place of Athens, just east of and below the



ere stands the "Theseion." A number of the houses e have been expropriated and will be removed. Near Dipylon gate the old church of the Holy Trinity (Hagia as) is to be removed and rebuilt elsewhere and further avations will be made here at the beginning of the old red Way to Eleusis.

The discovery of the Palace of Kadmos at Thebes in ivations by the Greek Archæological Society is reed.

### COTTAGE COMPETITION.

HE judges of the competition for model cottages at High Wincobank, near Sheffield, consisted of Mr. M. Gibbs, F.R.I.B.A. (chairman), Mr. Brook Kitchin, I.B.A. (architect to the Local Government Board), Mr. Holmes, A.M.I.C.E. (Sheffield), Mr. C. F. Wike, C.E., Mr. A. J. Forsdike, Mr. H. Bedford Tylor (architect to the Bournville Village Trust), Alderman ton (Leeds), Mrs. Chappell and Mrs. Sinclair.

There were forty-two cottages, but in six cases the bidders did not comply with the condition which required n to keep within a certain limit as to cost. In class A cottages were not to cost more than 175*l.*, in class B *l.*, and in class C 225*l.* Nine examples of class A, nty-one of class B and six of class C were presented. judges reported as follows:—

In our examination of the cottages we have compared n with each of the same class as to the extent of accomation, the convenience of the plan in general, and of a room in particular; as to number and position of s, windows and fireplaces, and the provision of suitplaces for the furniture, the nature and quality of res and fittings. We have also considered the comative arrangements for securing healthy cottages, such e selection of the best aspect available on each parlar site, ventilation, sanitary arrangements and fittings, the materials and construction of the building so far hey affect the health.

We have further considered the materials and construcso far as they affect the first cost, the durability and cost of maintenance and repair. And, finally, we have sidered the appearance externally and internally, and finish of the workmanship.

Those of us who have had the opportunities of seeing er exhibitions are of opinion that the cottages at High ncobank are of a high standard as to convenience and struction, and particularly charming internally, and are markable productions for the limited cost; especially as is inclusive of everything ready for occupation except l-papery or decoration; and that the statements as to are so reliable owing to the provision in the conditions t the competitor may be called upon to build twelve er cottages on the estate at the same prices.

We desire to express special approval of the elevation exhibits Nos. 35, 36 and 37 (designed by Messrs. W. A. rvey, A. McKewan, Birmingham, and H. Webster, ffield).

There are, however, defects in some of the cottages to ch attention should be drawn, viz. outer doors into ng rooms without intervening porch or passage, too y doors into living rooms, in some cases on opposite s; fireplaces awkwardly placed in corners of living ns; windows with heads not near the ceiling, not openat the top, and in some cases impossible to clean from inside; sanitary arrangements not sufficiently screened a view; bedrooms in roofs exposed to excess of heat or . But these defects are the exceptions, and serve as rasts to the others, and to show the general high quali-of the whole.

For the four competitors (nine cottages) for Class A we mment that only the gold and bronze medals be rded.

For the nine competitors (twenty-one cottages) in Class B ecommend that additional bronze medals be awarded ose placed third in merit and bracketed equal.

For the three competitors (six cottages) in Class C we mment that only the gold medal be awarded.

n making the following awards we are in complete imity. We place the cottages in order of merit as ws:—

Class A, cottages costing 175*l.*—Gold medal, Mr. H. L. rson, A.R.I.B.A., Sheffield; builders, Messrs. Roper & s. Bronze medal, Messrs. C. J. Innocent & Son, ffield.

Class B, cottages costing not more than 200*l.*—Gold

medal, Mr. F. W. Chapman, Sheffield; builders, Messrs. Dawson & Jones. Silver medal, Messrs. Pepler & Allen, Croydon; builder, Mr. Reeves Charlesworth, Sheffield. Bronze medals, Mr. Peaterson, Mr. F. W. Chapman and J. Smith, Leeds.

Class C, price not exceeding 225*l.*—Gold medal, Messrs. Benton & Roberts, Sheffield; builder, Mr. W. C. Mander.

### FRANCESCO MILIZIA.

THE briefest of all autobiographies is that by Francesco Milizia, the author of the lives known as "*Memorie degli Architetti*." The following is a translation of it:—

"Everybody ought to write the history of his own life in order to incite himself continually to mend it, and in order to furnish to posterity something of the present time which may be depended on. On this account, I who have written so many lives now write a sketch of my own. I was born at Oria, a little town in the Terra di Otranto, in the kingdom of Naples, in 1725. I was the only son of the richest and noblest family of the hamlet. At nine years old I was taken to Padua, where an uncle of mine, who had been driven from home for some youthful errors, exercised the profession of medicine. There I studied the belles lettres to very little purpose, and after seven years ran away from Padua, on account of some reproofs received from my uncle, and wandered to Bobbio, near Piacenza, whence I wrote to my parents; and after going to Pavia and Milan, I came to Rome, where my father met me. He conducted me to Naples, and left me to continue my studies at that capital. I studied a little of logic and metaphysics under the celebrated Abate Genovese, and natural philosophy and geometry under Padre Orlandi, a Celestine monk. But I ran away also from Naples, prompted by a desire to see the world, and especially France, but was obliged to turn back again from Leghorn for want of money. I then returned home to Oria, where, after a long continuance of an idle and heedless life, I retired into a country house to study the sciences. At last, at the age of twenty-five, I married a lady of Gallipoli, of a good family and an agreeable disposition; and there I fixed myself, with some application to books, but more to pleasure.

"Having obtained a more comfortable provision from my father, I came with my wife to Rome, and after remaining there a year and a half, returned to Gallipoli for another year, and then fixed myself at Rome. Here I have continued to study, and took a fancy to architecture without being able to draw. Enamoured of this art, which I think the most beautiful and most useful of all, I wrote the '*Lives of the most Celebrated Architects*,' which was well received by the public, though the criticisms were severe and the style unpolished.

"After this I translated the article '*Bleeding*' from the *Encyclopædia*, and gave a trimming to the physicians and to medicine. Afterwards I compiled the '*Elements of Pure Mathematics*, according to the Abbé de la Caille,' for my own improvement, and it was printed at Rome at the instance of some of my friends. I then wrote other works, and shall continue writing as long as I live. A treatise on the stage was much controverted at Rome. When I conceived that I had made some progress in my architectural studies, I wrote with a degree of bravura the '*Elements of Civil Architecture*,' which has been reprinted many times. My '*Art of Seeing in the Fine Arts*' is a little book which made some noise in the world, and particularly displeased the stupid adorers of Buonarroti. In compliance afterwards with the wishes of a distinguished friend (Cav. Zulian, ambassador of the republic of Venice at Rome), I undertook to write a work to point out the beauties and deformities of ancient and modern Rome, and I published the first part with the title of '*Roma delle belle Arti del Disegno*;' but the persecution of ignorant professors rendered it necessary to suspend the second and third. After this work I attached myself to natural history, and wrote a good deal on plants and animals, without printing anything except the translation of Bowles's '*Introduction to the Natural History and Physical Geography of Spain*,' which was published at Parma. After this, Bailly's '*History of Ancient and Modern Astronomy*' came into my hands, and I made an abridgment of it in one volume in octavo. The '*Encyclopædia Methodica*' furnished me with the means of making a '*Pocket Dictionary of the Fine Arts*,' published in two volumes. The article '*Engraving*' in this dictionary was also printed separately, with some additions. In com-



pliance with the wish of my illustrious friend the Cav. D. Nicola de Azara, I exerted myself considerably in the compilation of the works of Mengs. I have now completed a 'Dictionary of Domestic Medicine,' on the plan of that of W. Buchan, a Scotch physician, which, if printed, will make two volumes in octavo, and will be intelligible to everybody. Another little work on political economy is now in the press, a subject to which I have attached myself in spite of the unsuitable circumstances of the present times." Milizia died in March 1798, of an inflammation in the lungs.

The "Memorie degli Architetti" is preceded by a general view of the principles of the art. He contends that architecture is an imitative art, and he makes its claim to be considered as one of the fine arts to consist in this imitation. In this he is evidently wrong, as the claim of this or any other to a place among the fine arts depends on its power of exciting mental emotion. He then proceeds to give what he considers as fixed and unalterable rules, which he considers to be generally applicable.

### CALCUTTA AND ITS ARCHITECT.

AS if it had not sufficiently impressed its character as an almost valueless talking machine on the public mind, the Calcutta Corporation has signalised its incompetence, says *Indian Engineering*, by abolishing the post of city architect, the duties of whose office are to be entrusted to four district engineers. It is not disparagement of these possibly competent officials to say that, in these days of "specialising," as Mr. Silk has pointed out in the municipality, not one of them can be expected to know anything about architecture. Moreover, as somebody else urged, to no purpose, in the debate—nothing said to any purpose seems as a rule to have much effect in these oratorical field days—both continuity and uniformity are sacrificed when the expert duties of one person are entrusted to four different and virtually inexpert hands. And all this on the eve of an improvement scheme with its special demands on expert architectural direction. It is curious how readily the whole body of Indian Commissioners can be rallied round any cry of economy when a European official has to be thrown overboard, and how readily the same body recognise efficiency at the expense of economy when the pay of some Indian official has to be raised. It is less easy to understand the chairman's action in some matters of this description. That Mr. Allen intends to do his best for his onerous charge has nowhere been publicly questioned. Whether the onerous nature of that charge, with its multiplicity of duties and complexity of claims on time and attention, admit of sufficient care and thought being exercised in each of the numerous matters that come up for treatment at his hands, before being passed on to the Corporation for final adjustment, is a question which, if it has not yet been publicly raised, will probably not be much longer delayed in the raising. One of the certainties of the immediate future will be the appointment of an architect to put the improvement scheme through one section of its difficulties, and when that is the case the chairman will have to face the wholly unjust charge—not anticipated from the want of a little forethought—that he has helped in getting rid of one man in order to make room for another.

### THE EDINBURGH EXHIBITION, 1908.

THE house and grounds of Saughton in Edinburgh, where the Scottish National Exhibition is to be held next year, are now in the possession of the Corporation of Edinburgh. The house is an old place and quaint in many respects, but its history is possessed of little general interest. Of old, says the *Glasgow Herald*, the estate of Saughton was part of the possessions of the abbey of Holyrood, and it appears that in 1537 the property was transferred to Richard Watson. The oldest title now extant among the family papers is a charter of a feu farm dated September 16, 1553, by which Robert, commendator of the monastery of Holyrood, with consent of the convent and of the commendator and convent of Melrose, granted six oxengates of the town and lands of Saughton, lying in the regality of Broughton and sheriffdom of Edinburgh, to Janet Stenhope, relict of Richard Watson, in liferent, and to James Watson, her son, in fee. From time to time further portions of land adjoining were acquired by the Watsons of Saughton. In 1657

David Watson, of Saughton, obtained a conveyance of the superiority of Saughton Mills from James Winrahame Wiston. The estate passed from father to son in the direct line until 1837, when William Ramsay Watson, the last male of the family, succeeded his brother Charles. Four years later, on his death, the succession opened to his sister Helen. In 1844 this lady married Sholto John, Lord Aberdour, who in 1858 became twentieth Earl of Morton. The house built on the L plan of Scottish architecture. At the joint of the angle a porch has been added, and on one side a small one-storey addition. In front of the house is an ancient draw-well nearly 50 feet deep. It is said that the house was formerly surrounded by a walled courtyard which included this well, and the state of the ground well turned up by gardening operations confirmed this tradition. The rooms on the ground floor are chiefly kitchen apartments and have vaulted stone roofs. One of these is especially interesting. When a thick coat of whitewash had been cleaned off some years ago the roof was found to be covered over with quaint old paintings in oil, most of them in wonderfully good preservation. On a blue ground sprinkled with stars is painted a conventional sun, filling the centre of the roof of the old hall, with the twelve signs of the Zodiac encircling him. Along the spring of the arch on one side is a line of ships in full sail. The burial-place of the Watsons of Saughton is in Corstorphine Church beneath the floor at the entrance to the south transept. Nisbet, in his "Heraldry," writing at the end of the seventeenth century, after describing the arms of Watson of Saughton, speaks of the motto "Inspirata Floruit"—"pointing to the condition of the family who, being possessed of these lands upwards of one hundred years ago, they now enjoy the same again." This would seem to imply that when Richard Watson acquired the estate in 1537 he was recovering an ancient possession of his house.

The ceremony of cutting the first sod in connection with the Scottish National Exhibition was performed on Wednesday by Mrs. Gibson, wife of the Lord Provost of Edinburgh. Sir Robert Cranston, K.C.V.O., chairman of the executive council, presided, and there was present a large and representative company.

### ARCHITECTS AND CONTRACTS.

IN the official report of the last Convention of the American Institute, which has just appeared, we find the following report of the committee "On the Relations of Architects to the Contracting System," with the remarks which it suggested:—

The time allowed this committee has been so short that the subject is so large that the committee can scarcely more than report progress. Nevertheless, the question is of such importance that it appears proper to call your attention to the following facts:—

Some fifteen or twenty years ago it was the usual custom to get proposals from the heads of various trades and to award a number of separate contracts for the work of one building—one each for the mason, plasterer, carpenter, steam-fitter, and so forth. As building construction became more complex there arose a desire to place the work of these various trades under one general contract, and this idea had some advantages to commend it. It was found in practice that at times, with a number of minor contracts at work in one building, there were moments of friction, interference and delay. Sometimes the minor contracts did not join each other exactly, and then an extra bill had to be incurred to complete the structure. Therefore it seemed desirable to put all the work under one general contractor, who would be solely responsible for the whole building and for items which might have been overlooked in minor subdivision. This system appeared to have many advantages, among others, in avoiding the difficulty of telling your client that you were not omniscient and omnipresent. It was not pleasant to tell him that you had forgotten to specify something that would make a plumbing connect with the steam-fitting. You went to him for an extra, but you hesitated to do it. So perhaps you were willing to take refuge under the general contract system. But in this respect the alleged advantage was more apparent than real, for, as you all know, the general contractor was just as keen to take advantage of any deficiency in your specification as were the minor contractors, and the general clauses intended to bridge the gaps proved to be without binding force.

Then there seemed to be another advantage when the general contractor went to the structural steel concerns



drawings of trusses or beams that you had not the time the opportunity or the inclination to prepare yourself. At any rate, we were willing to accept what seemed an easy way, by attempting to load the whole responsibility on one firm. But by this the general contractor has become the arbiter of the building trades. You may guard our procedure by providing that no sub-contractor shall be accepted without your approval, nevertheless the pressure to accept the cheapest sub-contractor, exerted by the general contractor prevails, and this is particularly true of public work. This setting up of the general contractor has resulted in the great building corporations of the present time. They have been able to force the sub-contractor to a lower price, consequently they have introduced a lower grade of work and have succeeded in keeping the architect's term's length from the man who does the work. So much for this case that public bodies, Governmental departments, States, cities, counties, in their contracts state that they will not recognise the sub-contractor. Thus the general contractor gains power to control the sub-contractors to his own ends.

The great promoting and building proposition grows up by introducing the method of competition that relies entirely upon the price and seldom upon the quality. Strive as you will, you cannot bring about a better state of affairs so long as you have the general contractor whose interests are, as a rule, monetary and seldom or never æsthetic or even constructional; for the general contractor who looks upon these things as we look upon them is very rare, and competition at a price soon drives him from the field.

The great building company is the great depositor in the local banks, its members become the directors of banks and of trust companies and insurance corporations and other public bodies. And whereas the former sub-contractors were of considerable importance they are now crowded out, their output is modified, the standard of their work is lowered by price competition, pride of workmanship must give place to a commercial fight for existence and they are reduced to a condition of despair. They must employ cheaper labour, so they fight with the unions upon issues which they could otherwise easily adjust. Sympathetic strikes occur all along the line where strikes might be confined to one particular trade, and the whole matter grows more complex and difficult as we proceed. When a building corporation has grown great it assumes to control the situation. In New York, and possibly in all our large cities, it may be truthfully said that not one in twenty of the important buildings (that is, such as cost half a million dollars and upward) are handled by private enterprise or are under the control of the architect as they formerly were. The building company employs the architect and assumes to control his design, and very largely does. And the man who opposes that system must find his opportunity in some other direction—certainly not in building important commercial buildings. The building company will be supported by the finance committee of the life insurance company that loans the loan and handles the stock and bonds. Ultimately the building company falls into the hands of a financial man or oftener of a financial committee, whose members may perhaps be a real estate man, a director of a bank or a broker, none of whom has any practical knowledge of building. These men care nothing so long as they can make a satisfactory report on the money invested. Property is affected by this as well as loans and the statement of values upon which loans are based. So that when you look over the situation you find that we ourselves, by our method of general contracting, have built up within the last twenty years these companies. It is said that we could cite one building company that entered New York with a capital of 600,000 dols. and inside of eighteen months had recapitalised for five million dollars, and less than a year later had recapitalised for twenty million dollars and inside of five years reorganised with a capital of sixty million, and with an organisation that extended through many of the important financial interests of the city and affiliated with one of the largest banks in the country. This corporation claimed to practically command the output of a great steel corporation, and informed its clients that it could get good steel before anybody else, as it was the largest purchaser of structural steel in the country and could therefore get preferences in milling and delivery. Such corporations say:—"Come to us, let us design your work; we will employ this architect in our own way and guarantee the results, and we are such large buyers of steel that we get rebates and opportunities of rapid shipment and can do better than the architect can do." This seems to your committee a most extraordinary

situation and one that merits your serious attention. We see no reason for supporting a system which is uneconomic, which is disastrous to our business interests, destructive to our professional relations with our proper clients, and absolutely damning to our art.

In our present judgment there may be times when we should advocate the employment of a general contractor, but as a rule it should be the sentiment of the architects of the country to deal with the men that do the work, and that as far as possible we should induce our clients to revert to the old system of letting special contracts for each important branch of their work, and particularly advise them that contingencies may arise which we cannot foresee, but ask them to charge the contingent fund against the 5 to 15 per cent. profit that will be charged by a general contractor or broker, and let them pay a portion of the balance to the architect for his additional services.

We are confronting a situation that means that no architect who desires to practise his profession honourably will find any opportunity for so doing. Emerson said, "Courageous confidence in the intelligence of the community is the sure sign of leadership and success." When this body is ready to take its proper place and courageously discuss these questions of economics relating to the art and business of building in this country, we will be respected accordingly.

Mr. Geo. B. Post: There is one element of the matter which Mr. Gilbert's admirable presentation did not touch. In public work it is a frequent occurrence that a general contractor is appointed who is the lowest bidder, but who is not really a building contractor nor a mechanic in any one of the trades, but a mere building broker who assembles a lot of sub-bids or guesses at the cost and takes the contract, beats down the price of sub-contractors, and attempts to carry on the work without any of the skill and power of direction which makes the fully competent general contractor valuable in works which are to be erected rapidly. Where this evil occurs the architect is forced to perform in his office a large part of the duty for which the general contractor receives pay. The general contractor receives from 5 to 15 per cent. of the cost of the building with practically no expense, with profit guaranteed by sub-contracts and protected by bonds given by sub-contractors and operating on their capital.

Mr. Ralph Adams Cram: We are confronted by a situation that means the annihilation of the honourable practice of architecture in the United States. What is the good of talking about methods of reforming architectural education if no man who desires to practise his profession honourably is to find any opportunity for so doing? I move that the report of the committee and Mr. Post's remarks be printed separately and a copy sent to each member of the Institute.

Many members expressed approval of the report. In order that their ideas might receive the formal sanction of the Institute a committee was appointed to draft resolutions, which being offered at a subsequent session by Mr. Charles I. Berg, were unanimously adopted as follows:—

Whereas the existing condition outlined by the report of the committee "On the Relation of Architects to the Contracting System" is one which menaces the entire architectural profession and, if carried to its logical conclusion, would make impossible "the honourable practice of architecture."

Resolved, That this report be adopted as expressing, not alone the ideas of the members of the committee, but as well the convictions of the American Institute of Architects in convention assembled; and that the Board of Directors be, and hereby is, instructed to receive, edit and print the report of the committee, together with the subsequent expressions of opinion on the part of members of the committee and of the Institute, giving these at the earliest possible moment such publicity as, in its opinion, is best adapted to protect the interests of the architect and of his client.

**The Annual General Meeting of the Scottish Art Teachers' Association** was held in Edinburgh on Saturday. In view of the meeting of the International Congress of Drawing, which takes place next year in London, it was arranged to hold a preliminary exhibition of drawings from which a selection could be made to form a typical exhibit of the work of Scottish children. The following office-bearers for the ensuing year were elected:—President, Mr. David Symons, Aberdeen; vice-president, Mr. Robert Walker, Hamilton; secretary and treasurer, Mr. D. Scott Murray, Laurel Bank, Perth.





#### Income-tax Inquisition.

SIR,—The Inland Revenue authorities seem to have decided upon what must be regarded as a revolutionary and most objectionable course of action in connection with the allowance to be made to machinery users under the new Finance Act.

A few days ago we were informed by a surveyor of taxes that the Board of Inland Revenue had given instructions to their surveyors to oppose any allowance in respect of depreciation of machinery and plant unless a balance sheet is produced. Now there are many persons who have the strongest possible objection to show their balance sheets, as, although it is inevitable that they must state their profits, they are very unwilling to let either the surveyor or the commissioners of taxes have before them particulars of their liabilities and assets. It must be remembered that (except in the case of those persons who make their returns to the Commissioners for Special Purposes) all accounts go before the local Commissioners of Taxes, who are frequently creditors of appellants, and in many cases their rivals in trade. Moreover, it is a well-known fact that, notwithstanding the boasted secrecy observed in regard to income-tax returns, all papers in connection with assessments made by local commissioners are open to the inspection of the surveyor's clerks, many of whom are only youths, and none of whom is a Government servant. This is obviously highly objectionable, more particularly in the smaller provincial towns. Again, there are many traders in a comparatively small way of business who have never had balance sheets prepared, and to do so would often cost more than the amount they would save in income tax by the allowance for depreciation.

Surely the income tax is already sufficiently unpopular without adopting means to make it even more inquisitorial, and we think that, except in rare cases (*e.g.* where there is good ground for doubting the truth of the profit and loss accounts), it should not be necessary to require the production of balance sheets. Certainly the balance sheet is not essential evidence for showing the profit made or arriving at a proper assessment, and in no case where the profit and loss accounts have been certified by a reputable firm of practising accountants should the taxpayer be subjected to such inquisitorial treatment.

The much-vaunted relief to earned incomes will, we are confident, cause very grave dissatisfaction, as before the benefit of the 9d. rate can be obtained information of a very confidential character has to be furnished, particularly in reference to borrowed money employed in the carrying-on of businesses and annuities paid out of the profits, thereby making one set of taxpayers disclose particulars relating to the incomes of others who perhaps do not claim abatement from income tax in any form.—Yours, &c.,

The Income-tax Adjustment Agency, Ltd.,

E. MONTAGUE, Secretary.

9, 10 and 11 Poultry, Cheapside, E.C. :

September 25, 1907.

#### GENERAL.

The Corporation of Hertford have decided to erect new municipal offices in a central position in the town, at a cost not exceeding 3,500*l.* Premiums of 50*l.* and 20*l.* respectively are offered to architects for the two best designs sent in for the buildings.

A Series of Rural Paintings has been executed by Mr. N. H. J. Westlake in St. Augustine's Church, at Tunbridge Wells. The paintings illustrate events in the life of St. Augustine. The subjects form a continuous frieze, 150 feet in length.

The Coroner's Inquiry into the deaths caused by the cinematograph fire at Newmarket closed last week. The jury, after twenty minutes' absence, returned a verdict of "Death from shock, caused by burns occasioned by an accidental outbreak of fire caused by panic." They added the following rider:—"The jury are of opinion that sufficient precautions were not taken by the company for the safety of the public, and that the Urban District Council who let the town hall should in future exact the same provisions as the London County Council require in letting their halls for these entertainments."

Alderman Sir Vezey Strong stated at a meeting of the Court of Common Council on the 19th inst. that since the last Court good progress had been made with the negotiations for the acquisition of Crosby Hall. In fact, matters had advanced so far that the Lord Mayor would summon a meeting of citizens to discuss the situation. The Lord Mayor announced that he had fixed the date of the meeting for the afternoon of October 1 at the Mansion House.

The Twerton School Managers at their last monthly meeting agreed after some discussion "That the managers ask the county education committee for power to employ a local architect or surveyor to prepare plans and specifications when they deem necessary in connection with work to be carried out at Twerton Council schools and to supervise the carrying out of such work." Heretofore it has been usual for the managers to draw up their own specifications and to superintend their carrying out.

Bishop Weldon (Dean of Manchester), before beginning his sermon at Manchester Cathedral on Sunday evening said:—"The installation of the electric light is far advanced. It will, I am told, be completed by the end of next month so that the light will illumine the cathedral on the Sunday that the new Lord Mayor comes to worship here. But it has been a costly work; costlier than was contemplated at first, apparently because of its magnitude. There will be nearly twenty miles of wiring in the cathedral, because it has been thought right in so ancient and sacred an edifice to do the work in the best possible manner, and to avoid any interference or connection with the woodwork. But I believe the congregation will feel that the improvement of the light only but of the atmosphere in the cathedral will greatly tend to comfort, reverence and Divine worship."

Mr. B. W. Adkin, F.S.I., has removed from 14 Queen Street, Cheapside, E.C., to larger offices at 82 Victoria Street, Westminster, S.W., where he will continue to practise as surveyor, land agent and architect.

Applications are invited for the appointment of assistant instructor at the Wellington technical school, New Zealand. Salary, 250*l.*; 40*l.* allowed towards passage. Age not to exceed thirty-five years. For further particulars apply to the High Commissioner for New Zealand, 13 Victoria Street, London, S.W.

The List of special arrangements at the University of London, University College, for the present session includes the following:—On October 3, at 3.30 p.m., Professor Flinders Petrie will begin a course of lectures, illustrated by lantern slides, on "Egypt and Babylonia Compared." A special course of lectures on "School Hygiene" by Professor Kenwood and Dr. Meredith Richards has been instituted and will begin on October 16 at 7.15 p.m. Professor Gardner will lecture on "Characteristics of Greek Sculpture" on October 11. Evening classes will be held in the Department of Architecture. Mr. E. S. Prior will deliver a course of ten lectures on "English Mediaeval Architecture" beginning on October 11; and design classes will be held beginning on October 9 and October 10.

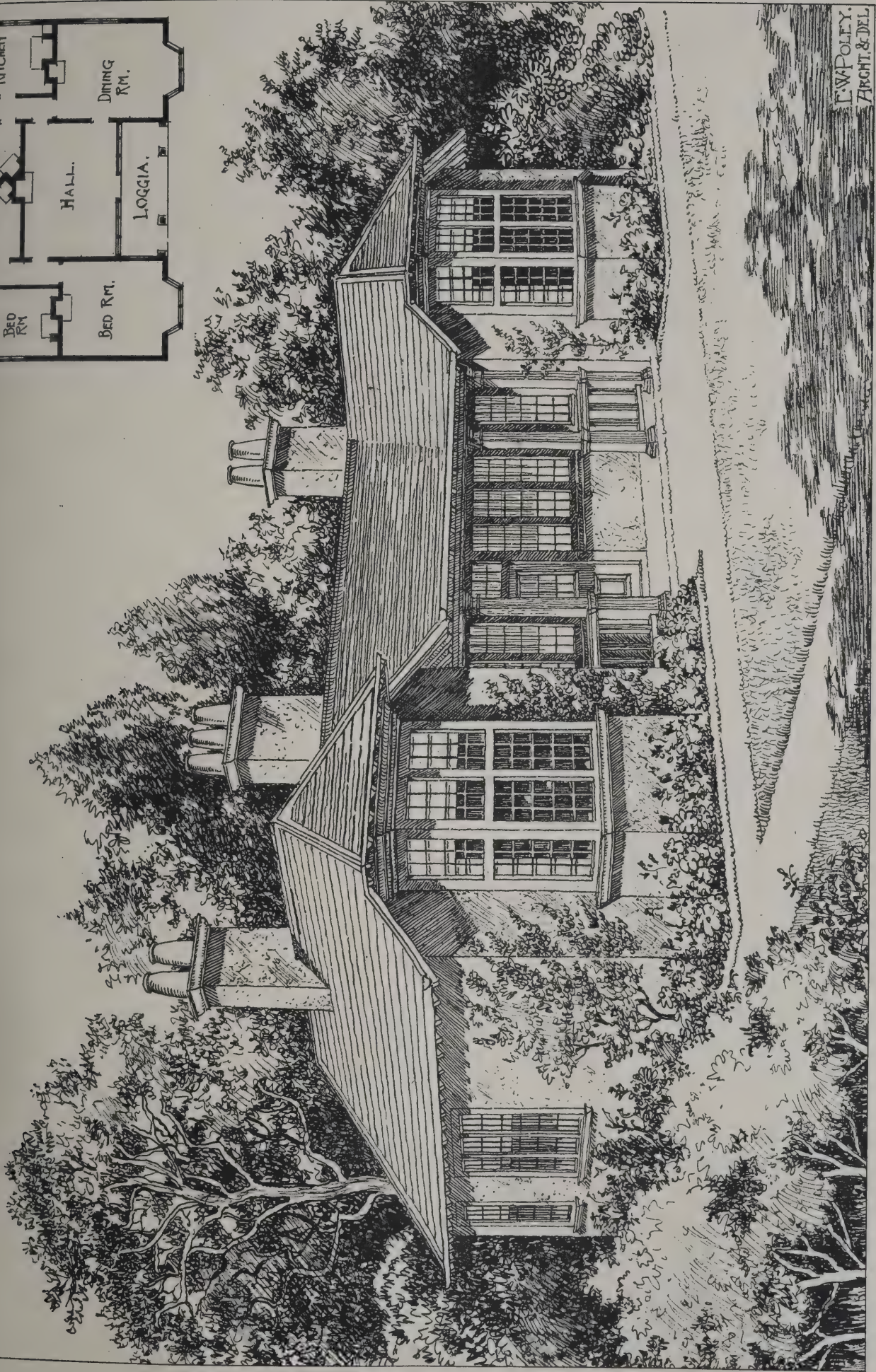
A Series of discoveries has been made at Leighs Priory, Essex, culminating in the finding of the complete ground plan of the monastic buildings which were destroyed by Lord Rich at the time the property came into his possession after the suppression of the monasteries. The present owner, Mr. Hughes-Hughes, who recently purchased the remains of the old Tudor palace built by Lord Rich on the site of the priory, has had the meadow adjoining the ruins excavated, and less than 2 feet below the surface the workmen struck the flint rubble foundation. The carved bases of pillars remain intact, and there are evidences of a portion of Lord Rich's palace having been erected on some of the older foundations.

The Royal Society of Antiquaries of Ireland will hold a quarterly meeting on Tuesday next. On Wednesday, October 2, an excursion (in conjunction with the Kildare Archaeological Society) to the antiquities of Carbury and the neighbourhood has been arranged.

The Will has been proved of Sir Wm. Robertson Copland, LL.D., who practised as a civil engineer and surveyor at 20 Sandyford Place, Glasgow. He was formerly borough engineer for Paisley. The amount of his personal estate is declared at 21,053*l.*

Mr. Banister Fletcher, F.R.I.B.A., will commence a course of public lectures on "Gothic Architecture in Europe," illustrated by lantern slides, at the University of London, Imperial Institute Road, South Kensington, S.W., on Monday, September 30, at 8 p.m. These lectures will form a continuation of those given on "Ancient Architecture" last session.





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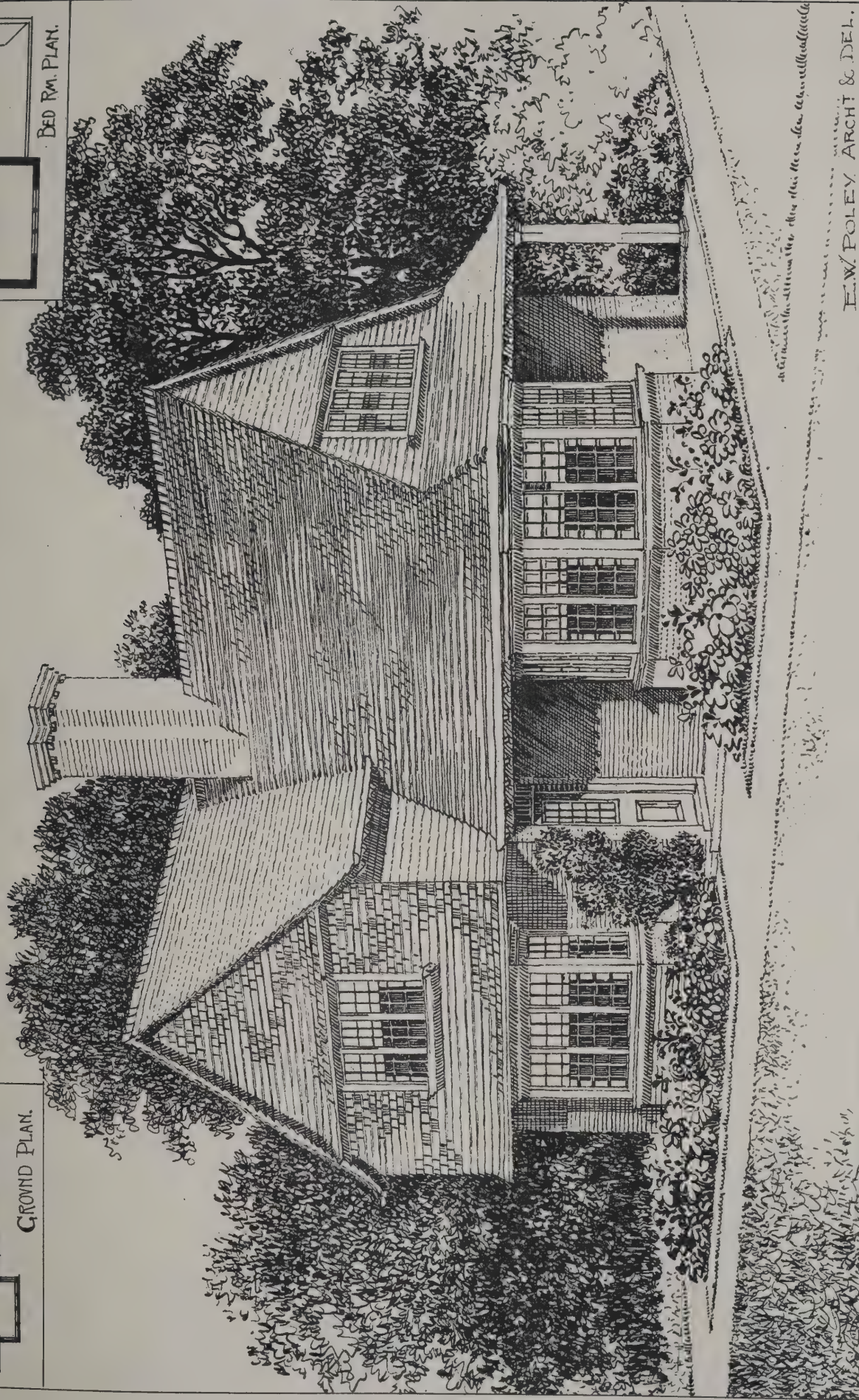
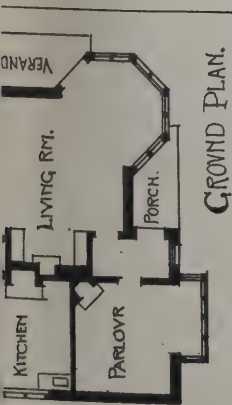
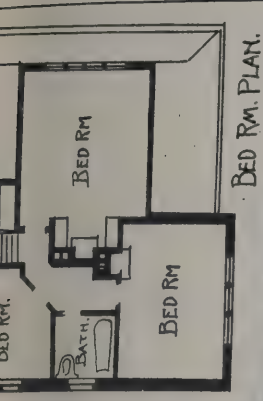
L. W. POLEY.  
ARCHT. & DEL.

A BUNGALOW.  
E. W. POLEY, A.R.I.B.A., Architect.









E. W. POLEY, ARCHT. & DEL.

PHOTO-LITHO. SPRAGUE & CO. L. 445, EAST HARCING STREET, PETER LANE, E.C.

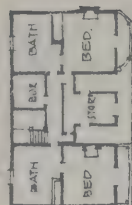
A WEEK-END COTTAGE.

E. W. POLEY, A.R.I.B.A., Architect.









FIRST FLOOR.



GROUND FLOOR.

A WINTER ROSE  
JULY 1907

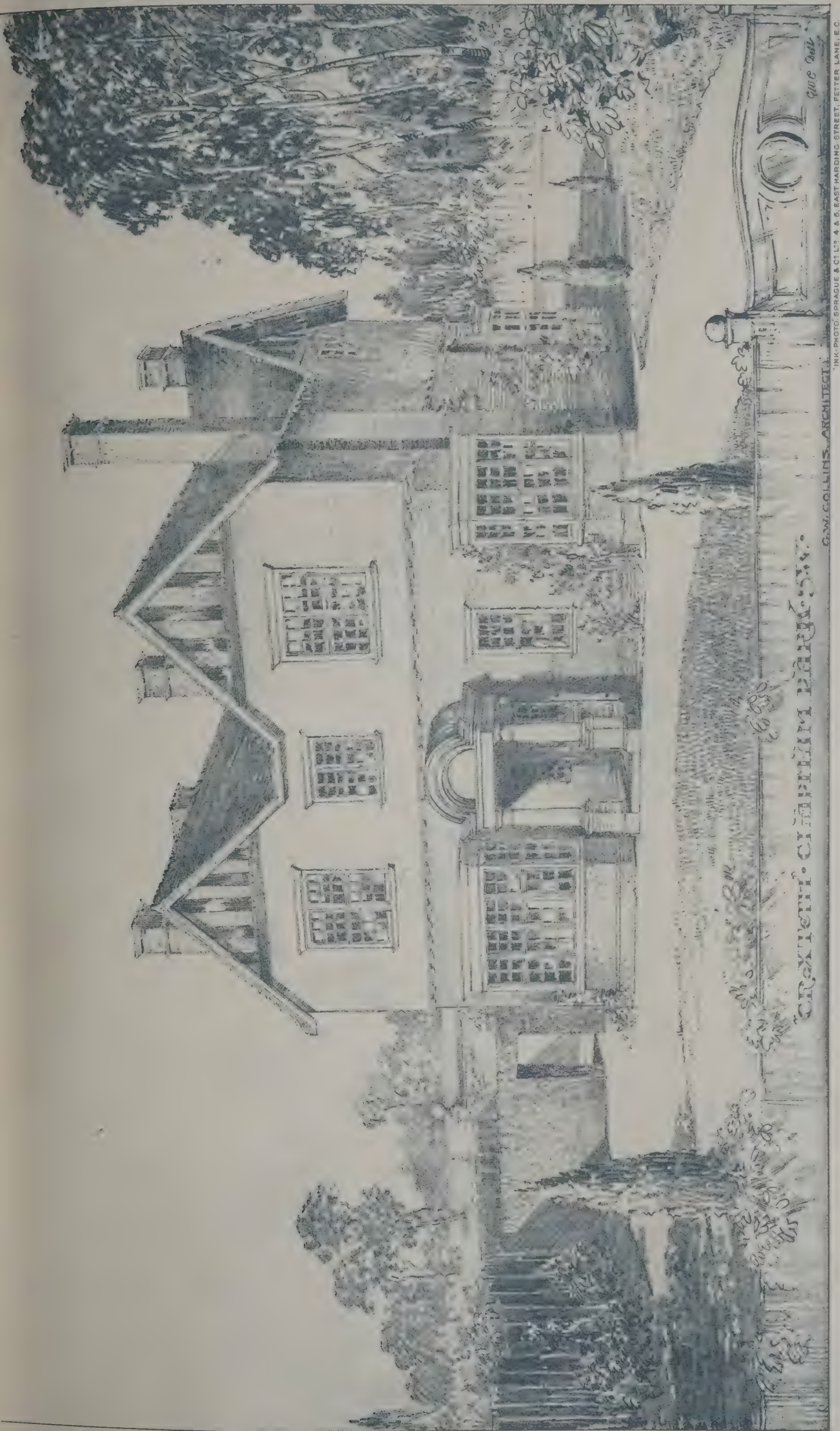
HOUSE NEAR SHANGHAI CHINA  
JAMES DENHAM & ROSE ARCHTS.

STABLES & SERVANTS









CRAXTON CEMENT PAVING CO.

G.W.C. COLLINS, ARCHT. G.W.C. COLLINS, ARCHT. INK PHOTO SPRAGUE & CO. LONDON 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.













PHOTOGRAPH BY A. E. WALSHAM, 45 CHANCERY LANE, W.C.





THE HOUSE OF LORDS, 1845. (See page 100.)











DESIGN FOR CHURCH AND MANSE  
WELHOLME RD. GRIMSBY

A. WINTER-ROSE  
P. M. STRATTON-ARIBA { ARCHITECTS.







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# The Architect.

## THE WEEK.

many rumours have been circulated about Crosby it is excusable if some people are doubtful whether it is feasible to preserve the most important portion of the building. The meeting held at the Mansion House Tuesday has revealed the true state of the case. In the first place, it is manifest from the report of Messrs. RYDON & GUNTON that the directors of the Chartered Bank have been most anxious to preserve as large a portion as possible of the ancient mansion. If money is forthcoming the old hall can escape demolition, and is sufficiently stable to have, as Mr. CARÖE remarked, an unlimited life before it. But it cannot be expected that the directors of the bank and the contractors can remain in an uncertain position for an indefinite time. It is necessary to act not only with decision but with promptitude. The purchase of interests will amount to £110,000, and £10,000 will be needed to uphold the old buildings. A large proportion could be raised on mortgage, for the property would be valuable. Sir RICHARD STRONG urged that the twelve principal companies should each contribute £2,000 each, while the other companies should also assist according to their resources. If the public subscribed £20,000 the financial position would be secured, especially if the directors of the Chartered Bank recognised the improved position which they would obtain by exchange of property in the rear for property with a valuable frontage. The subject has assumed an aspect which men of business recognise, and it only remains for them to exhibit more their accustomed liberality in what might be considered a national service.

A RATHER unusual case was heard on Tuesday before the stipendiary magistrate in Manchester. Messrs. LEAH, builders, were summoned for breach of bye-laws by deviating from a plan which had been approved. It was proposed to erect houses in Fitzroy Street. The street should have been 12 yards wide. Owing to the character of the ground the improvement committee consented to a width of 10 yards. The building line was pegged out by one of the Corporation officials and apparently it was followed. But it was afterwards alleged that the official made a mistake, and a part of the wall which was erected encroached 6 inches upon the street. The Corporation would not accept responsibility, and Messrs. LEAH, as they followed the line of the official surveyor, considered they were not liable. The stipendiary magistrate said that 10 yards wide should have been made, but was unable to impose a penalty for every day the houses remained. Eventually he decided to impose a penalty of £10 and to allow the question of a daily penalty to stand for a month. Messrs. LEAH promised that the back-garden should be at once undertaken. The Corporation contended that they were not obliged by the bye-law to peg out the ground, and it was only for the convenience of the builders the surveyor acted.

WHEN the power to distrain was first granted in the Middle Ages, it was unusual for one man's property to be taken in another man's house. "The taking of a personal chattel out of the possession of the wrongdoer into the custody of the party injured, to procure satisfaction for the wrong committed," accordingly appeared no more than reasonable. But in days of undertenants and lodgers the ancient power should be exercised with discretion, that is, if equity is to prevail. The members of the United Arts Club and their property are now suffering because the feudal principle is not to be recognised as fair, although under difficult circumstances. The club occupies part of the building which once upon a time was known as Almack's.

Another part was used as a restaurant, but the keepers of it failed while owing £2,000 to the superior landlords, who seized under distraint not only the goods in the restaurant, but nearly two hundred pictures which were on view in the club. It was a perfectly legal act as the law now stands. An injunction was applied for, but Mr. Justice NEVILL had no authority to grant it. The club has appealed against this decision, and, if need be, in the interests of the artists primarily and the public generally, it is intended to take the matter up to the House of Lords if possible. But to do this the club, which is a new institution, requires financial support, and all friends of art and justice are invited to help by kindly forwarding their subscriptions for this purpose to the club's bankers, Messrs. BROWN, SHIPLEY & Co., 123 Pall Mall, S.W., for the credit of the United Arts Club Picture Defence Fund. The grievance is no new one, for cases are always occurring where lodgers and others are found in the same predicament as the United Arts Club. But it is doubtful whether a power which has been respected for so many centuries could be set aside by any judges. In the end it would be more economical to endeavour to come to terms with the landlords.

It would appear there is competition between the electricity department of the Edinburgh Corporation and the Gas Commissioners which leads to some curious results, and is causing inconvenience to architects. One architect describes in the *Scotsman* his experience. The Corporation officials made it a condition that on no account should gas for lighting purposes be introduced in some houses which are being erected for working-class tenants. The Gas Commissioners' official asked that gas pipes should be introduced into the houses for the purpose of cooking. The architect afterwards received a letter from the chief engineer, in which he states:—"My inspector reports to me that there is no probable consumption other than the prospective use of a grilling stove. I regret to say, therefore, that unless provision is made for lighting the kitchen by gas I cannot see my way to advise the Commissioners to lay a gas connection to the property at all, seeing that the public stair is to be lighted by electricity." But if the kitchens are lighted with gas the electric light department refuse to light the staircase. Possibly a similar rivalry is exhibited elsewhere. But as Edinburgh houses generally consist of several independent tenements, an unlighted staircase is not only inconvenient, but is, we believe, illegal.

AUGSBURG is too near Munich to rival that city, yet it has an interest of its own which is peculiar. It might be taken as exemplifying the history of burghs in central Europe. The Romans occupied it, it became a free city, and from the extent of its trade it might be called an inland Venice. A great many of the houses which remain are evidence not only of the wealth of the citizens but of their love of art. For, as in Venice, we can still see frescoes on the exteriors which were intended to please all who pass by them. The name of PLANTIN is not more closely connected with Antwerp than that of FUGGER with Augsburg. Originally weavers, there seemed to be no branch of commerce with which they were not connected during several centuries, and some of the institutions they founded remain a benefit to the inhabitants. The paintings in the Fuggerhaus suggest the close connection there was between them and the history of Augsburg. The splendid room known as the bath-room, which the family towards the close of the sixteenth century had decorated by the Italian painters, LAMBERTO and PONSANA, has been reopened. The old frescoes have been cleaned and the cases in the room are filled with a splendid collection of weapons, coins, sculpture, ivory, porcelain and other examples of industrial art. The FUGGERS spared no expense to obtain the best examples that could be produced, and Gothic as well as Renaissance work is well represented.



## MR. WALTER CRANE.\*

THE numerous admirers of Mr. WALTER CRANE, and they are not confined to his countrymen, are aware that some of his most successful designs have taken the form of a procession. He was early impressed with HANS BURGMAIR'S *Triumph of Maximilian*, and there can be no doubt he also studied MANTEGNA'S *Triumph of Julius Caesar*. Their influence is to be seen in his fine *Triumph of Labour*, as well as in other works. The book of reminiscences which he has just published is another effort of the same class. It is not an example of a skilful biography, and it would be far more effective if many pages were omitted and if greater regard were given to the relative importance of details. But, as in one of the artist's processions, there are no vacant places and everything appears on one plane, so in writing about himself Mr. CRANE is indifferent to old-fashioned rules of composition, and in that way has succeeded in filling up five hundred pages about his own life as a hard-working artist to whom Fate was kind in sparing him from becoming the hero or the victim of hazardous adventures.

But the life itself can be considered as a triumph. Mr. CRANE was endowed by nature with great gifts, and he has exercised them for the gratification of the world to the fullest. Many able painters believe it is to their interest to keep a check on their productiveness, and when their pictures are sought after they are not always forthcoming. Mr. CRANE has never been an economical tactician of that kind. However varied might be the opportunities presented to him he never declined them. The consequence is that he has a right to be considered the most versatile of English painters. He has produced a large number of pictures in oils, distemper and water-colour; he has designed for reproductions in different materials; he has revived old processes and he has not only illustrated books but composed them in prose and verse. In addition, Mr. CRANE has been a zealous politician, and he has made various efforts to improve the position of his brother artists. He has also held official positions, and he has been able to travel in many countries.

It is interesting to trace how so successful a career became possible. Mr. CRANE was the son of an artist who could hardly be called prosperous. He was born in 1845. A delight in drawing was early manifested, and when he was thirteen he was apprenticed to W. J. LINTON, the wood-engraver, in order to learn the art and mystery of drawing on wood. His master was probably the best wood-cutter then living. This was strange, for LINTON'S hobby was revolutionary politics. In 1848, any newspaper that would have the courage to print them could have long epistles regularly from him. He wrote so many in the Irish Nationalist journals that the people who had at first imagined he was one of the greatest of artists looked on him as a bore or a Government agent. But his work as an engraver did not suffer, and in business affairs he had an excellent partner in the younger ORRIN SMITH, who managed the office. WALTER CRANE had his share in drawing the various subjects—commercial, anatomical, artistic—for which blocks had to be prepared. His utility was increased by the fact that he was without a specialty.

His apprenticeship having ended, he had to work for the trade. Publishers took advantage of his inexperience, and the circumstance that a representative of evangelicism insisted on deducting 5 per cent. commission on a bill of about 1*l.* must have weakened the young artist's respect for ultra moral people. What first brought him into notice were the illustrations for J. R. WISE'S book on "The New Forest." They were so elaborate they might easily be taken as copies of photographs; but they were drawn from nature, and were enough to suggest that the pre-Raphaelites had

gained a new colleague. As the work of a lad of sixteen they were considered remarkable. About the same time Mr. CRANE painted a small *Lady of Shalott* which was not only hung in the Royal Academy but found a purchaser at five guineas with a commission a companion at the same price. The late EDWARD EVANS, a wood-engraver who was very successful, realised the possibility of printing blocks in colour in a more refined style than was then favoured. He found in Mr. CRANE a qualified coadjutor, and the children's books which were the result were at once successful. Mr. CRANE used his evenings not only for studying HEATHERLEY'S, but in reading books which in those days were supposed to come from the most advanced thinkers. When he was twenty he came under the influence of MADDOX BROWN and BURNE-JONES. A drawing by the latter had to be removed from the Water-Colour Society exhibition because it contained a nude figure. But this increased sympathy for BURNE-JONES among young artists, one of whom was Mr. CRANE, who says:—

Though the artist exhibited publicly no more until years afterwards, those early works had their effect. The curtain had been lifted, and we had had a glimpse of a magic world of romance and pictured poetry, people and ghosts of "ladies dead and lonely knights," a twilight of dark mysterious woodlands, haunted streams, meadows deep green starred with burning flowers, veiled in a soft and mystic light, and stained with low toned crimson and gold.

Mr. CRANE began to be recognised as more than a wood-draughtsman, although perhaps it did not become clear in what field he was to gain distinction. He worked for various publications, including *Fun*; but he was not without ambition, and when he was twenty-three he exhibited a drawing in the Dudley Gallery which was intended "to embody in design and picture something which would symbolise the new philosophy of evolution, which the researches and discoveries of DARWIN and the writings of HERBERT SPENCER were building up. One felt that a new epoch had dawned upon the world, and longed to give it some artistic expression."

Mr. CRANE'S example should be taken to heart by many young artists. Instead of waiting on fate until she sent him commissions worthy of his talent, he recognised the importance of work, however humble, as an exercise, and when in course of time important commissions came to him he was able to execute them satisfactorily. Two landscape studies of his were purchased by LEIGHTON, but although he might aspire to the patronage of the great, he did not neglect to improve the plates for his picture books. He received a number of some Japanese colour prints, and he tells us: "Their treatment in definite black outline and brilliant as well as delicate colours, vivid dramatic decorative feeling, struck me at once, and I endeavoured to apply these methods to the modern fanciful humorous subjects of children's toy-books, and the methods of wood-engraving and machine-printing. CRANE has the true workman's recognition of the value of wherever it is found, and was no doubt always animated with a desire to take advantage of any "wisdom" which came in his way. The consequence is that in spite of the size of the book, there is nowhere to be found in it any effort to make little of another man's work.

For his connection with architecture he appears to have been indebted to the late E. J. TAYLOR, who invited him to paint a frieze of animals and birds for a house in Kensington and a series of panels for "Æsop's Fables" for a house in Worcester. The work was in raised gesso, and suggests the range of CRANE'S studies when he is found capable of employing it. Experience of another kind was offered him by JEFFREY & Co. who commissioned him to design a series of wall-paper. As it was to be for machine-printing, the outlines of the faces had to be formed of brass

\* *An Artist's Reminiscences.* By Walter Crane. With 123 Illustrations by the Author and others from Photographs. (London: Methuen Co.)



which was not favourable to subtlety of expression; in it way began a connection which has continued up to the present time.

When the Grosvenor Gallery was projected Mr. CRANE was invited to become one of the supporters. He was appointed member of the advisory committee of the new Royal School of Art Needlework, and this gave him frequent opportunities to design hangings, screens and panels. It indicates his position when we find him the author of "Alice in Wonderland" negotiating with Mr. CRANE for designs for a new book. In one of his business letters "LEWIS CARROLL" expressed his interest in the evolution of painting, which, according to him, came after sculpture. It suggests that the curious calculations of the charming ALICE were inspired by a notion which was not supposed to agree with accepted beliefs:—

My theory is that among savages there is a much earlier stage than outline drawing, viz. mere reproduction (in ink &c.) of the solid form. I imagine that you would find many and other representations in solid form among nations where no kind of drawing is unknown. The next step I should expect to be alto-relievo (arising from the discovery that you can only see one side of an image at once), and would gradually flatten down. Then the effect (with a light) would be of a flat surface with strong black lines and shadow marking the outline of the form represented. The next step would be to paint lines representing the shadows, and such lines would be broad at first and then narrow on discovering that their breadth was not an essential feature. However, this is all rather theory without actual knowledge.

A commission of a different kind was obtained in connection with the ceiling of a house near Sevenoaks, on which he utilised the assistance of Mr. OSMUND WEEKS. He tells us that "the figures were all modelled in gesso composed of fine Italian plaster of Paris mixed with glue or size, and worked with cotton wool soaked in the gesso on fibrous plaster panels, which were made for me by Messrs. JACKSON, of Rathbone Place; the painting borders and mouldings being cast in plaster. The whole ceiling was coloured by bronze and white oil."

WILLIAM MORRIS having woven with his own hands a complete piece of tapestry, applied to Mr. CRANE for a design of a more elaborate work, with plenty of trees.

The cartoon was 8 feet by 6 feet, and the figure is now at South Kensington. The designs for the mosaic frieze in LEIGHTON'S Arab hall were likewise obtained from Mr. CRANE. He also took up tempera painting, of which examples were seen in the Grosvenor Gallery. In the intervals of larger works Mr. CRANE continued to be as willing as ever to prepare illustrations for books, and, indeed, some of his best designs were produced for that purpose.

In other ways he has served the cause of art. He was one of the early promoters of the National Association for the Advancement of Art—an institution that has since had a longer life than was allotted to it. The efforts which Mr. CRANE read at the meetings were adapted to popularise art. But all the orators were not so definite in their ideas, and in consequence the Society collapsed. He was also one of the founders of the Society of the Arts and Crafts Exhibition, and served the office of master of the Workers' Guild. He accepted the directorship of the Manchester School of Art, but had to resign because he found that it interfered with his work in London. Then he became director of the Art Department of the Reading College, and subsequently Director of Art at South Kensington. All these tests of his ability were passed through successfully, and if Mr. CRANE has not displayed the many-sidedness of the great Renaissance artists, he has sustained trials which would have daunted them, and has proved that it is possible to be an able artist in our time without becoming a specialist, and that services for the

public good can be rendered without diminution of creative power in art.

It is, however, to be regretted that the paintings, which display subtle thought as well as technique, should not be appreciated in this country. Mr. CRANE, with his customary good temper, explains the phenomenon. "It seems curious," he says, "that most of my principal pictures should find homes in Germany, and that hardly anyone besides Mr. WATTS should have shown much interest in them. Possibly, apart from any artistic quality, the symbolic and figurative character of their subjects are more in sympathy with the Teutonic mind, and we like 'all goods marked in plain figures' in England; and though a painter before I was a designer, I had been labelled 'Children's Books' or 'Arts and Crafts,' and it is preposterous for a man to expect to be recognised without his usual label; besides, it disturbs the commercial order of things." That may be true, but it is pitiful, and is not encouraging to those who wish to exercise all their power for the public benefit.

#### CLASSIC ORNAMENT.\*

ALTHOUGH architectural draughtsmanship has advanced since 1825, it is doubtful whether any modern representations of Classic ornament excel the engravings after VULLIAMY's drawings by HENRY MOSES. He was connected with the British Museum, and restricted himself to outlines. He could not, therefore, conceal defects by means of light and shade or "working up," which have enabled many unsatisfactory plates to gain approval. The originals having been obtained by Mr. BATSFORD, they have been used for the reprinting, and, in consequence, every line has the original sharpness which would be impossible if lithographic transfers had been substituted. Apart from their suitability for application in an architect's office, the plates, from their manner of execution, afford pleasure to all lovers of the engraver's art as well as to those who can appreciate refined curvature, symmetry and adaptability of form to occupy spaces of different forms. The ornament, moreover, might have had a suggestiveness which cannot always be recognised by moderns, and which may give rise to speculation. MOSES apparently avoided the use of mechanical aids to produce his lines, and if his circles and curves are not mathematically correct we imagine they must approximate closely to the carver's work. Throughout there is evidently a feeling of pleasure in the work, however laborious, and we may therefore suppose it was not necessary for the engraver to be expeditious in the execution in order to gain a livelihood. At the beginning of the nineteenth century such a publication would be accepted as enabling an architect like VULLIAMY to stand among his foremost contemporaries.

Sixteen of the plates are taken from Greek examples, and the remaining four have characteristics which suggest that in spite of the luxuriance of the detail they are the work of Greek hands. The series may therefore be considered as representing what is best in Classic ornament. That so few plates are adequate for such a subject is remarkable. It is evidence that laws of restriction were accepted in dealing with ornament no less than with the more important constructional features. We cannot suppose that Greek imagination was not able to present as many forms as arose among artists of later times. But sobriety was then considered to be a virtue in art, and, moreover, there may have been associations with some of the forms which gave gratification to those who looked on them however often they were repeated.

\* *Examples of Classic Ornament from Greece and Rome.* Drawn from the originals by Lewis Vulliamy, architect, gold medallist and travelling student of the Royal Academy (1790-1871). A Series of Twenty Plates selected from the original published work, with Introductory and Descriptive Notes by R. Phenè Spiers, F.S.A. (London: B. T. Batsford.)



This repetition is seen in the examples of steles which, from being private memorials, might have been expected to exhibit some novelty. But the six examples selected by VULLIAMY display the anthemion, although the parts are arranged differently to suit the figures to the spaces which they adorned. One is an archaic example which, like some others of the subjects, no longer exists, and it suggests the severity which prevailed at an early time, and which no doubt arose from the shortcomings of the sculptors. When LEWIS VULLIAMY was in Greece development had not become a scientific system. But if he wished to exemplify the law as applied to one class of subject he could not have selected more suitable instances. His third plate is a noble representation showing the surviving example of the ornamental termination to the marble tiles on each flank of the Parthenon, and which is in size two-thirds of the original. VULLIAMY is careful in this as in many other cases to give sections which enable us to realise the skill which was taken with the details. In the steles which could be closely examined the leaves are pointed, but in the Parthenon example of the anthemion they are boldly rounded and the leaves are so connected as almost to appear as if they formed a large palm leaf.

The cymatium of the cornice of the portico at the Erechtheum shows a new arrangement of the anthemion. It is interesting to compare this with the necking of the capitals in the building, for in the latter some elements are omitted in order to obviate overcrowding. A splendid scroll is given from the Choragic monument of LYSICRATES. An antique fragment which may have been part of a triangular panel indicates the tact with which spaces could be decorated, and the character of the ornament is more full than in earlier examples. The cresting of a tomb shows a new application of the anthemion, and the introduction of a bird picking at a leaf is an instance of license which is rare in Greek work, and which few would dare to censure. Various terra-cotta fragments reveal that the material was treated in the same way as stone. The capitals from Priene vary a little from the Athenian examples. The two griffins as supporters of a symbol are curious, and might, like the lions at Mycenæ, have possessed heraldic signification. In the capitals from Branchidæ one has a winged girl instead of the anthemion. But in other plates it appears, although with deviations from the normal form. In a frieze from the same temple the anthemion is combined with lions and griffins.

The ornament on an antique chair of white marble in the church of St. Stefano Rotondo, Rome, will be generally considered as Greek work. It is beautiful, and reminiscent of Athens. Nevertheless, there are many changes and there is still shown a wonderful respect for symmetry. A rose and coffer from the soffit of the cornice of the Temple of Castor and Pollux, Rome, although about 4 inches in projection and vigorously modelled, suggests a resemblance between the leaves which might have been produced by the aid of a machine. A large semicircular panel of white marble which VULLIAMY found in the Mattei Palace can be regarded as an example of composition. There is a central part which is united with the two sideparts. In the rosettes there are some slight differences, but the whole is remarkable for its unity. The final plate is a part of the frieze of the Temple of the Sun, which is one of the most successful instances of ancient decoration.

It is not advisable to make drawings of ornament or any other subject from engravings. Yet few would care to condemn an attempt to imitate the fine lining of HENRY MOSES. From the size of the plates the details are clear, and as the proportions between the engravings and the originals are stated a student could adopt a different scale. The subjects are not only models of Classic ornament, but where casts are not available the plates can be used as exercises in drawing. It is not necessary in our time that a Renaissance building

should display scrupulous fidelity to Greek ornamentation. However, the old examples at least can form a basis for new arrangements, and on that account wise to endeavour to find out the principles which inspired the ancient artists. When we see Classic ornament still serving in humble buildings, and sometimes conferring an air of refinement on them, it becomes quite evident that the designers understood principles and acted on them rather than on momentary impulse.

### HOUSING IN SCOTLAND.

THE difference between Englishmen and Scots tenants of houses in towns was long ago pointed out by Robert Chambers. An Englishman, he said, has really a strong feeling about his house—it is his castle—he never will abandon the fort so long as he can possess it. "The Scotch, on the contrary," according to Chambers, "are an eminently migratory people. They never are three months in any house till they wish the annual term-day were over or at hand, when they might remove to another. It is of no use that expectation is constantly showing how vain are their expectations of better lodgings. Every disappointment seems to give them but a keener relish for a new attempt." This desire for change is not without its disadvantages. Both the tenants and the local authorities who are responsible for the taxes lose money by the irregularities of the tenancies.

A departmental committee was accordingly appointed last November to inquire into alleged grievances in connection with the letting of working men's dwellings in Scotland; or, as interpreted by the committee, dwellings that were not let at a higher rent than 20s. The committee have prepared a report, from which it appears that in Scotland there is practically only one day for removals, viz. May 28, while in England it is said removals take place practically all the year round.

It is admitted by almost all the witnesses that the system of one removal term involves inconvenience and extra expense to tenants, and loss to those engaged in building trades. Before the May term there is great pressure to have new houses finished by the term, soon resulting in scamped work. On the term day the demand for means of conveyance is beyond the supply, leading to high prices and delay, and soon after the term the corresponding slackness in the building trades. In England such drawbacks are unknown. In both countries the original practice was probably that of long lets, with people having gardens attached to their houses and being less migratory. As workmen became less fixed in place, and as workmen's houses ceased to have gardens, the reasons for long lets disappeared. In Scotland, however, although short lets seem to be increasing in places, the general shortening of lets has not followed. In England short lets for ordinary working men's dwellings are well nigh universal, and the tendency is to let quarterly and monthly lets into weekly. In Scotland, on the other hand, where industrial undertakings on a large scale are of more recent growth than in England, short lets are to be found in the cheapest houses and usually in inferior properties. One reason contributing largely to the difference is that in Scotland, while a landlord who lets houses on any tenure up to 4l. or 5l. (varying according to the locality) has to pay the whole burgh taxes on the houses, he gets a substantial allowance for so doing in the case of short lets above 4l. or 5l. he has to pay the "owners' rates," but also the burgh rates primarily on the occupiers, without getting any allowance for the cost of collection or for losses. The same rule applies to council taxes, with the aggravation that owners of houses not only get no allowance for cost of collection, but occupiers' rates or for losses, but are also charged for on unlet property. In England it may be said generally (a) when owners pay tenants' taxes they always get an allowance, and (b) they do not pay rates upon unlet property unless by agreement, in which case a further abatement is made.

It was said by some of the landlord witnesses that the present agitation in favour of short lets is due to the influence of English workmen in Scotland. The English negatives this idea, but proves at the same time



able opinion of the English system formed by Scotchmen who have worked in England, and who have householders and ratepayers there, has strengthened demand in Scotland for short lets. It has also been tested that the agitation for short lets is only a part of a general socialistic programme. We cannot endorse this.

The matter, in our view, has been taken up on its merits, without ulterior views.

It appears also that workmen occasionally in their effort to obtain a house which suits them have to pay rent for two houses. The rating authorities, owing to the rates, really derive no payments for a great many houses, for apparently in some towns rates are collected only once a year. The committee have come to the conclusion to offer the following recommendations for the benefit of occupiers as well as owners:—

1. That no agreements for tenancy of such houses, verbal or written, made more than two months prior to the date of the agreement, shall be binding.

2. That it shall be sufficient, in weekly lets of such houses, to give three days' notice; in monthly lets, one month's notice; and in all other lets one month's notice of termination of tenancy.

3. That weekly lets of such houses shall terminate on a day and other lets on the 28th of the last month of the tenancy of the let.

4. That the stamp duty exigible on agreements of let for more than a year of such houses shall be one penny.

5. That in all cases where owners are liable, under the Rating or Local Acts, for occupiers' rates on such houses let for less than a year, they shall be entitled to an allowance for cost of collection and risk of loss, the amount thereof to be fixed, failing agreement, by the sheriff of the county, subject to a right of appeal by the owners to one of the divisions of the Court of Session, the rating authority being bound in all cases, at the end of one year after the allowance has been fixed, to collect the rates direct from the occupiers.

6. That in all cases where owners are liable for occupiers' rates on such houses, such rates shall be charged only for the period during which the houses have been occupied; in the event of rates of such houses having been paid for a period during which a house was unoccupied, the owner shall be entitled to have the same refunded at the end of the assessment year.

7. That in all cases where occupiers' rates of such houses are collected from owners, the owners shall be entitled to recover the rates from the occupiers without deduction, and shall have the same remedies for recovery of rates, or interest and rates, as for recovery of rent.

8. That in all cases where occupiers' rates of such houses are collected from owners, the rating authorities shall send each occupier annually a notice showing all occupiers' rates.

9. That all rating authorities shall be empowered to require payment of tenants' rates on such houses by such instalments and at such times as they shall think reasonable.

10. That where occupiers' rates on such houses are collected by the rating authority from the occupiers, all tenants shall be liable for their proportion of the rates for the year, whether their names are on the assessment roll or not.

11. That in all cases of payment of occupiers' rates of such houses, whether the same be paid directly by the occupier or through the owner, the rating authority shall be empowered to remit the whole or part of the rate on the ground of the occupier's poverty. If the rate has been already paid, and the local authority resolves to exempt the occupier in whole or in part, the rate or the part remitted, less the commuted allowance, shall be paid by the rating authority to the occupier.

12. That actions of summary ejection of tenants of such houses shall be competent in all burgh courts as well as in sheriff courts.

13. That in actions of ejection no delay beyond forty-eight hours shall be granted by the sheriff or magistrate to the occupiers of such houses, unless on cause shown, and no other delay is granted it shall be on condition of caution and signation, unless the sheriff or magistrate is satisfied that such condition ought not to be imposed, he being bound to state in the order allowing delay the specific ground on account of which he grants delay.

14. That the furniture and plenishing of tenants of such houses shall be exempt from the diligence of all creditors for debts, including rent, taxes and rates, to the market value of 10s. in addition to bedding, wearing apparel, tools and implements of trade.

## BUCKLEBURY AND ITS OWNERS.\*

THE selection of Bucklebury, so rich in literary and historical associations, was a happy inspiration on the part of the Berks Archæological Society, but we find it rather difficult to put into concise form the many interesting circumstances connected with its annals, although it can show so many striking evidences of its former importance. For many centuries previous to the dissolution of the monasteries the manor formed part of the extensive possessions of the mitred Abbot of Reading, who presided over one of the richest monastic foundations in the kingdom. On the suppression of the religious houses it was granted, with the adjoining manor of Thatcham and the revenues of these churches, to John Winchcombe, son of the famous clothier, and popularly known as Jack of Newbury. This worthy Jack of Newbury, whose name and deeds are of world-wide celebrity, is said to have been a native of Winchcombe, in Gloucestershire, in the registers of which parish are entries referring to the family of Smalwode, or Winchcombe, his adopted name. The grant of Bucklebury to John Winchcombe, including the manor of Thatcham, is dated 1541, the consideration money being 2,619*l.* 13*s.* 4*d.*, equal to about 25,000*l.*, according to the present value of money; it cannot therefore be said that the grantee, like numerous others, shared very largely in the spoils of the alienated Church lands on very easy terms. This John Winchcombe, probably owing to the patriotic zeal of his renowned father, commanded considerable influence at the Court of Henry VIII., and was an important and opulent person living at Newbury, where he continued to reside until his death. He represented the borough of Reading in Parliament in 1552-3, and held considerable estates in this county, including the manors of Gynge, Lockinge and Frampton, in East Hendred, and the manor of Farnborough, which had belonged to Abingdon Abbey, but was purchased by Winchcombe from Edmund Fettiplace in 1543. On acquiring the Bucklebury estate the grantee took down the ancient Grange, which had been so long associated with the great ecclesiastical body at Reading, who owned nearly all the property in the Kennet Valley, and built the country gentleman's mansion which stood on this memorable spot for many generations. He died, probably before the house was fully completed, December 2, 1557, and was buried in St. Mary's chantry chapel in Newbury Church, his distinguished father's resting-place. John Winchcombe, son of the grantee, who first went to reside at Bucklebury House, is described in 1559 as one of the gentry of Berks, and served the office of high sheriff of Berks in 1569. From the inquisition taken on his death in 1574 we learn that he held upwards of 3,000 acres of land in this county, and the advowsons of Bucklebury, Thatcham and Lockinge. He left a son, John, who was eighteen at his father's death, but apparently did not live to attain his majority. The Winchcombes also had an estate at Noke, near Islip, Oxfordshire. The manor of Henwick was also held by the Winchcombes, and was originally, like Bucklebury, a residence of the abbots of Reading—the names of the "Abbots' Grove" and the "Abbots' Graffe" still recording its early connection with the monastic régime. The Winchcombes had continued members of the "Old Religion," and John Winchcombe, of Henwick, grandson of the grantee of the manor of Bucklebury, was an ardent member of his Church. His name is reported by Robert Weston, one of the Government spies and informers, in 1591, as a receiver and harbourer of proscribed priests and others at his house at Henwick.

Francis Winchcombe was the next owner of the manor of Bucklebury. He was brother of John Winchcombe, who died under age, and served the office of high sheriff of the county in 1590 and again in 1606. He settled the greater part of his property in favour of his son Henry and his heirs male. He died at Bucklebury January 3, 1619. Henry Winchcombe, successor to his father, Francis, married Mary, daughter of William Wollascot, of Woolhampton, and with his brother William was, by the influence of Archbishop Laud, when they were students at Oxford, brought into conformity with the Church of England, as appears by the Archbishop's defence to the charges formulated against him previous to his trial and execution. On the death of Henry Winchcombe in 1629, and who was buried at Bucklebury, an inquisition was taken at Reading, when it appeared that besides Bucklebury and other estates

\* A paper read by Mr. Walter Money, F.S.A., at the visit of the Berks Archæological Society, and reprinted from the *Reading Mercury*.



he was entitled to the manor of Little or East Shefford and Wickfield Farm, expectant on the death of Lady Clarke, formerly the widow of William Winchcombe, another son of Francis Winchcombe, and elder brother of Henry Winchcombe. There is a monument to William Winchcombe in Little Wittenham Church, Lady Clarke being the daughter of Edmund Dunch, of this place, and married, as her second husband, Sir Edward Clarke, of Ardington. Upon the death of Henry Winchcombe he was succeeded by his son and heir, Henry, then of the age of eight years, and being a minor the estates came into the king's hands. He married, when a little over nineteen, Elizabeth Miller, only daughter and heiress of George Miller, of Swallowfield. He died in April 1643, and was buried at Bucklebury.

Bucklebury has many associations with the great Civil War, and just before the second battle of Newbury, the Parliamentary army, consisting of over 20,000 men under the command of Manchester, Cromwell, Waller and other prominent leaders, was encamped on the west end of the Common previous to their advance on the heights above Shaw.

The Winchcombes suffered much for their loyalty to King Charles I., and one of them, John Winchcombe, of Newbury, a recusant and malignant, was a very active and resolute Cavalier. His estates in Berks and Somerset were sequestered, and after the surrender of Newbury to the Parliament he sought shelter in Wales, where many of his descendants can still be traced. Several skirmishes took place between the opposing forces on the Common, and in the spring of 1644 there was a sharp encounter about half a mile south of the "Bladebone," on or near a piece of land called the "Forties," probably from some association with the fight. There are several entries in the registers as to the burial of soldiers, one of whom is recorded as having been "a soldier of the king slaine at Chappell Row." There also lies in Bucklebury Churchyard Lieutenant Richard Warde, an officer of the Parliament. Guy Carleton, afterwards Bishop of Chichester, was vicar of Bucklebury at this time, and being a very pronounced Royalist was seized and imprisoned in Lambeth House, whence he escaped by letting himself down through a window into a boat on the Thames by a cord secretly conveyed to him by his wife. The old vicarage is still standing on the western side of the churchyard.

Resuming the thread of our narrative, Henry Winchcombe, the third in succession, was an infant of six months old when his father died. He, too, contracted an early marriage and died a young man. His wife was Frances, daughter of Thomas Howard Earl of Berkshire, and was the foundress of the Blue Coat School at Thatcham. He was created a baronet in 1661, in consideration of the loyalty of his family, and died at the age of twenty-six in 1667, leaving his wife, Lady Frances Winchcombe, and one son, Henry Winchcombe, surviving him. Henry, the fourth in succession, was born in 1660, and at the time of his father's death was seven years old. During his minority the manor was held in trust by various persons. Among those acting as lords of the manor were Thomas Howard, William Backhouse, Richard Aldworth, Sir William Terrington and Dr. Richard Francis Hungerford. In 1681 Sir Henry Winchcombe, second baronet, came of age and entered into possession of the estate. He married twice. His first wife was Anne Hungerford, of the great Wiltshire family of this name, and secondly Miss Rolls. By his first wife he had one son, Henry, who predeceased him, and three daughters, namely, Frances, Elizabeth and Mary. By his second wife he had a daughter, Henrietta. Sir Henry represented Berkshire in Parliament in 1688-9, and, although blind from his youth, took an active part in the affairs of the country.

He died in 1703, and on his monument in Bucklebury Church, erected by his three daughters, there is a touching Latin inscription recording that "His eyes having been lost in youth, neither to public nor private duty was he wanting. He served the interests in Parliament of his country, at home of his friends. By promoting these he consoled himself for his calamity, and in tilling his fields, in repairing his property, he enjoyed himself in the country, truly with a great mind, zealously cultivating those things whose fruits he could not perceive in himself. To the best of parents Frances, Elizabeth, Mary, heiresses by his will, this monument is here placed."

Elizabeth Winchcombe, the second daughter, died on September 7, 1705, at the early age of twenty-three, and was buried in Bucklebury Church, where there is an inscribed gravestone over her remains.

Interesting as Bucklebury is, from its association with

the important religious foundation at Reading, and residence in after years of the Winchcombes and their successors, the old manor-house derives its chief world interest from the fact that it was for some time the home of the celebrated Henry St. John, first Viscount Bolingbroke, who married for his first wife Frances, daughter and heiress of Sir Henry Winchcombe.

In these old gardens many a beau and belle must have promenaded in the days of "Good Queen Anne" an early Hanoverian sovereigns, with wig, lappets and headed cane, or in stiff brocaded bodices, with flounced furbelows. We can almost see Pope's lean figure with the author of the most satirical romance the world has ever seen—"Gulliver's Travels"—along the old paths to enjoy a pipe on the little islet in the middle of one of the ancient fishponds, which village tradition ascribes to Bolingbroke's most favourite resort. Surely there is no spot in England where so much literary talent centred.

Owing to the course he had taken in Queen Anne's reign Bolingbroke, upon the accession of George I., was attainted of high treason and deprived of both his estates and titles. He escaped to France, where he entered the service of the Pretender, but was again unsuccessful. In 1723 he contrived to make his peace at home, and was restored to his estates but never to his titles. "lethalis arundo," the poisoned arrow, that rankled him, was his degradation from the House of Lords. His wife died in 1718, and he appears never to have returned to Bucklebury. After several years of able hostility Walpole he renounced politics and again returned to France, but upon his father's death came back and lived at Battersea. Mary, the younger sister of Viscount Bolingbroke, married Robert Packer of Shellingford, and thus the Donnington Castle estate became merged in that of Bucklebury.

Mr. Robert Packer was M.P. for the county of Berkshire in the Parliaments of 1710-13-15-22-27, succeeding to the office on the elevation of his brother-in-law, the Right Hon. Henry St. John, to the peerage. He resided at Shellingford, where there are some remains of the fine old manor-house. The last Sir Henry Winchcombe having died without male issue, the estates devolved on Sir Henry's eldest daughter Frances, wife of Lord Bolingbroke, and she left no child the property passed to her younger daughter Mary, wife of Robert Packer, of Shellingford, and to her son Winchcombe Howard Packer.

Mr. Winchcombe Howard Packer, who resided principally at Donnington Castle House, like his father, represented this county in Parliament. He received many of the chief wits and celebrities of the day at the Castle House, one of whom in a birthday ode describes him as "Patriot, generous and humane." He died at his house in Golden Square, then a fashionable locality, in the early age of forty-four, in 1746, and was buried in Bucklebury.

Henry John Packer, brother of Winchcombe Howard Packer, was the last male heir of the Packers, and dying two years after his brother, at the age of thirty-eight, devised Bucklebury and Donnington Castle estates to the son of his sister Elizabeth—Winchcombe Henry Hartley.

Mr. Hartley was the son of David Hartley, M.D., a philosopher and physician, by his second wife, Elizabeth Packer, daughter of Mr. Robert Packer, of Shellingford. Donnington Castle House, by Mary his wife, daughter and co-heir of the last Sir Henry Winchcombe, Bart. Hartley died at Bath in 1813 in his eighty-fourth year.

Miss Mary Hartley, sister of David Hartley, was universally admired for her accomplishments in literature and the fine arts.

Mr. Winchcombe Howard Hartley, who was Colonel of the Royal Gloucestershire Militia, and M.P. for the county of Berks in the Parliaments of 1774-80-90, died in 1790, leaving an only son, the Rev. Winchcombe Henry Hartley, vicar of Bucklebury. Mr. Hartley died in 1833, leaving a son, Winchcombe Henry Howard Hartley, colonel of the Gloucestershire Militia, and high sheriff of Berks in 1834. He also had a daughter, Elizabeth Ann, who married the Count Palatino, a Greek noble, who fought in the War of Independence. Shortly after Mr. W. H. H. Hartley came into possession of the manor, in 1833, the grand old Elizabethan house having been found to be somewhat out of repair and damaged by fire, was pulled down and the material sold by auction. It was described as a spacious mansion consisting of a centre with wings on either side, the main part being large and ornamented with panelling and carved



imney-pieces extending to the ceilings. There was also long picture-gallery like that at Littlecote and other houses of the Tudor period. The remains now left are a small portion of the wings and a spacious lofty kitchen, said to have been added by Lord Bolingbroke, and a coach-house with extensive stabling. On the death of Mr. Hartley, in 1811, the estates in Berks and Gloucestershire descended to his co-heiresses—the Countess de Palatiano, Mrs. Weeley-Parry, Mrs. Acreman White and Mrs. Charles Russell—but the partition of the estates has recently (1906) been carried out, and Mrs. Weeley-Parry is now the lady of the ancient manor of Bucklebury.

A part of Bucklebury is called Chapel Row, from an ancient chapel which stood on Chapel Row Hill, and the site now forms part of the glebe land belonging to the vicar of the parish.

The far-famed Chapel Row Revel was held on the Monday after St. Anne's Day, July 26, and was celebrated with the backwording displays which took place on these occasions. The Lords of the Manor of Bucklebury gave five guineas yearly, and subscriptions were raised in the neighbourhood for other prizes. These comprised a goldcocked hat, value a guinea and a half, for old gamesters, and one value 25s. for young gamesters, a hat and blue cockade, and a still inferior hat without a cockade. The combatants fought on a raised platform of earth called the butts, bareheaded, with the left hand fastened to the waist, so that they might not use it to ward off the blows. The revels were suppressed many years since on account of a man being killed in one of the encounters.

The noble oak avenue is over a mile in length, and some of the trees are of gigantic growth and of most picturesque character. There is a tradition that the trees were planted to commemorate a visit of Queen Anne to Bucklebury, but it is far more probable they have some association with a visit of Queen Elizabeth. The queen certainly visited Mr. Henry Winchcombe at Newbury in 1568, and she may have taken Bucklebury on her road from Englefield. However this may be, this great avenue was planted as an approach to the old mansion, and from the "Bladebone" as continued down Chapel Row Hill, several fine oaks corresponding to those in the avenue still standing by the side of the road, and the site of the entrance gate to the old manor-house can still be seen.

The outer line of trees was planted to commemorate the victory of Waterloo in 1815, also those with mounds round them by Nuttage Gate. The late Mr. W. H. H. Hartley mentioned to the writer that when his grandfather came to the estate many of the oldest and most venerable of the oaks on the estate must have dated back to a time anterior to the dissolution of Reading Abbey, and there are still a few of these patriarchs of the grove remaining. It is also worthy of record that the longest and finest mast ever turned out at Portsmouth Dockyard was cut from an oak grown on the Bucklebury estate. At this time, when British oak was in such demand for the "wooden walls of old England," Mr. Hartley was offered an immense sum for the whole of the trees in the avenue, but he nobly refused to destroy what time had consecrated and the hand of taste displayed by his ancestors had preserved from spoliation.

### CELTIC ART.

At a meeting of the Art Section of the Pan-Celtic Congress Professor Patrick Geddes, in opening the proceedings, said it had been a question whether there was any Celtic art at all; for while there were circles and megaliths and sculptures of Celtic origin, it was asked how far they belonged to earlier peoples. They had many admirable monographs on Scottish, Irish and Breton Celtic remains. What he thought they wanted was a volume—"A Monumenta Celtica"—which would bring before them in simple, intelligible form some outline of this great heritage. Old Celtic art was, he believed, capable of modern development. In this connection the Professor referred to the new Edinburgh Art School. Those in charge, he said, had got plenty of money, a site, and a royal personage to lay the foundation-stone. The artist would be advertised for. Art needed inspiration. They had not lost the sculptural art, but it had been debased. In Aberdeen, for example, they had lost the art of dealing with granite, and it was for the Celtic artist to arise and regenerate and civilise it.

The Countess Plunkett read a paper on "The Development of Irish Ornament." She said she came from a country that she believed she might call the mother country

of the Gael. Alas! that the battle of races left their ancient civilisation prostrate and wrecked, the remains of which not only they, but all their kith and kin, should be proud of. But for all the victory of ignorant force, Ireland was still the treasury of Gaelic art, Gaelic history and Gaelic literature. The Royal Irish Academy, as trustee for the nation, late though it was, began to bring together the materials from which to reconstruct their past. They retained in their custody MSS. that the scholars of Europe visited Ireland to study, and they had transferred to the Dublin Museum the greatest collection of Celtic art in existence. The Celtic feeling for art found opportunities for expression principally in three or four ways—in monumental work, in personal ornament and domestic utensils, and in warlike and other instruments. While for these various purposes their artists sometimes drew from a common fund of design, they usually differentiated according to use, so that they found styles distinctly associated with particular intention. It was interesting to observe how scrupulously the Irish artist fitted his decoration to his material. When he worked in bronze—on a shield, for example—his figures were bold and salient; while on a pin they were delicate, yet fairly simple. When he wrought in gold nothing could be too elaborate. When he illuminated his design was intricate and his colour-scheme restrained. When he carved, he sometimes covered the stone with one all-embracing interlaced device, but more frequently he built up his monument with a variety of fancies, all striking, yet all in harmony, and contrasted squares with circles, angles with curves. This variation of treatment had led a few writers to hastily conclude that the different styles in Ireland could be strictly limited to periods and be easily traced to their sources. Even Miss Stokes seemed to think that the *opus Hibernicum* was introduced into Ireland by the Christian missionaries. Other less careful thinkers, accepting as gospel the speculations of recent authors, would hand over much of the work of native Irish artists to a mythical or semi-mythical Italian guild. They were told that their interlaced work should not be claimed as Irish; that it was out of harmony with their native ideas, which showed their vigorous simplicity in the work of the La Tene period altogether free from the laboured formalism of Christian art. These speculations were without evidence. They were against Irish tradition. That interlacing, the trumpet pattern, the working of figures into intricate ornament could not be segregated exclusively to any one section of humanity must be conceded by all. But race individuality showed itself in most matters of art; and that, the Countess contended, was the case in Ireland in connection with this particular form of design. Her Ladyship touched on the style "of a broader and bolder character, to which little attention had been paid, but which was yet most undeniably their own." She referred to the patterns executed in bronze belonging to the La Tene period. Take, for example, an Irish shield of this time; see its splendid relief, its simple unity of effect, the fluency, so to speak, of its unerring lines. Anyone not familiar with Celtic art would readily be misled into prizing some of this work as belonging to the greatest period of Greek decoration. The saliency and freshness of its design suggested that it belonged to a creative time, though the handling and finish were perfect, and evidently the result of much training. Artwork in jewellery, gold and bronze were noticed by Lady Plunkett, and praised for their craftsmanship; the work on the great crosses was also illustrated, as also, as another evidence of artistic feeling and a sense of the fitness of things, the outline of objects. In conclusion the Countess said:—"Some people treat Celtic art as one of the charming things, fresh and spontaneous, produced in the childhood of the world. In a sense it is so, for certainly the Irish artist delighted in the work of his hands. Nevertheless, many of the works in our museum, aye, and on our hillsides, are among the world's triumphs of execution. No jewellery of the Italian Renaissance could surpass in technical merit the Tara brooch, the cross of Cong, the chalice of Ardagh. The people whose literature and folklore glorified the past, who made wise men their rulers, who made their weapons of war beautiful, who gave splendour to their churches, who would conquer the world either by force of arms or with the sword of the spirit—these were hardly the people to have to wait for the 'civilising' influence of the Anglo-Norman. And through the long ages of darkness they lived and loved and wrought by the flame lit by Patrick and Brigit; and to-day in the wild West, and the fastnesses of Donegal, and the wooded heights of Kerry, their lives are made gentle and sweet and their hearts kept warm and pure by the wholesome traditions of their race."



## NOTES AND COMMENTS.

THERE is so general a belief that architects' estimates are sure to be exceeded when the works are carried out, it is satisfactory to be able to record that the Birmingham education committee have testified that the total cost of the GEORGE DIXON elementary and secondary schools has been slightly less than the contract sum. It appears that water was struck at an early stage of the original plans, and the committee had to arrange for a further loan of 1,200*l.*, which they feared would be swallowed up in the foundations. But after very careful watching by the architect, the clerk of the works and the surveyor, they had come out of this contract with a slight saving. They had built the gymnasium in the usual way and had done a considerable number of things, amounting to 230*l.*, quite apart from the original building, without having touched the 1,200*l.* for the extra foundations.

THE National Society of French Architects has contemplated a petition to the French Government authorising the removal of the remains of CHARLES GARNIER to the Panthéon. There is no doubt that the architect has a rightful claim to be numbered among the great men for whose services the Panthéon was erected as a general memorial. But GARNIER had already designed a modest tomb for himself and his family in the cemetery of Montparnasse, where so many inhabitants of the Quartier Latin are at rest. Madame GARNIER has regularly visited the spot, and must therefore entertain an affection for it. Accordingly she, while recognising the spirit which prompted the architects' project, hesitates about approving of the change. There is no doubt her wishes will be respected, and there is indeed no necessity for a change in order to fix CHARLES GARNIER's position as a French architect.

THE Americans owe much of their success to technical publications which they are able to value. As there is a demand there is a supply which is remarkable both for quantity and quality. One of the latest publications is a digest of current technical information which has for title "Technical Literature." It is issued from New York, but Messrs. ARCHIBALD CONSTABLE & Co., LTD., are the London agents. It gives selected papers read before technical societies as well as articles and extracts from technical publications and books. From the pages it is easy to realise the efforts which have been made for the advance of practical science in all departments.

## ILLUSTRATIONS.

ROYAL ARMY MEDICAL COLLEGE, WESTMINSTER.

WHITEHALL HOUSE, CHARING CROSS.

PREMISES, NO. 20 CONDUIT STREET, W.

GEORGE PALMER COUNCIL SCHOOLS, BASINGSTOKE ROAD, READING.

THE site is situated on high ground in the Basingstoke Road, and is a long and narrow one about 550 feet by 158 feet. The ground originally was very sloping, and it was found necessary to practically level the whole surface. Considerable difficulty was experienced in making the foundations for the heating chambers, owing to springs which were constantly running at that level. By constant pumping the water was kept under and the chambers were constructed like tanks, the whole of the external portions being cased with asphalt 1 inch thick. Agricultural drains were constructed all round and finally taken into a drain, and from thence to the main surface water drain in the Basingstoke Road, which luckily was just deep enough for the purpose. Many interesting specimens of shells were found in the lower excavations, some of them being in large masses.

The buildings have been arranged in four principal blocks, the first being for infants and junior mixed;

the second for a domestic centre; the third for intermediate and senior mixed; and the fourth for a man instruction centre. Each main block is designed on the central hall system, with classrooms on three sides of the first block having on ground floor a central hall and seven classrooms of various sizes, with ample cloakroom and lavatory accommodation. On this floor is a room for the head-master, overlooking the playground, and in the mezzanine rooms for male and female teachers, &c. On the first floor the accommodation is repeated. The great feature on each floor is that by folding back the partitions at each end two classrooms can be thrown into the central hall when required, thus increasing the length of halls by 42 feet, or 90 feet in all. The other main block for the intermediate and senior mixed is arranged in a similar manner, but with the addition of a drawing classroom on the ground floor and a science room on the first floor. The central hall on the ground floor of this block can be made nearly 100 feet long when required, for examinations, &c. A system of fire drill is taught in all the schools of the borough, and is tested by occasional false alarms, and the children could be got out of the buildings within two minutes of an alarm fire being given. Fire hydrants are provided in various parts of the buildings with lengths of hose attached.

In all cases there is ample window space, and every classroom has the light coming from the left, all heavy bars tending to obstruct the light being omitted. Electric light is laid on throughout, and electric fans are used where required. The ventilation is of a very simple nature, and, after many expensive experiments in the London schools, has been found to answer better than any other. All windows are provided with double sash pieces, so that by raising the lower part of sash fresh air comes in above the middle rail like a Tobin tube. The upper part of most windows is made to fall back and in addition two or more large Tobin tubes are placed in the angles of each classroom. The vitiated air passes away through large gratings taken in at separate air flues in each shaft.

The domestic centre contains on the ground floor a classroom, kitchen, scullery, parlour and bedroom, &c., for demonstrating instruction in housewifery. On the first floor a cooking classroom and scullery attached for instruction in cookery, &c.; also a laundry for instruction in washing, ironing, &c. The manual instruction centre, or technical block, contains the engineering room, fitted up with all modern appliances.

The carpenter's shop is fitted up with benches, &c., and is up to date in every way. Ample light is provided on three sides, and in addition top light in required positions. The shops are well ventilated.

The playgrounds, which will be asphalted, have covered playsheds, cycle houses and various blocks of latrines. There are many very fine old trees on the site and they have been kept intact. Internally the walls are fair brickwork, coloured a pale green tint and dado dark brown. The dados to halls, corridors, staircases, &c., are in glazed brickwork. Externally the buildings are of dark red bricks from a local firm, with Douling stone dressings.

The schools generally will accommodate about 1,400 children. The contractors were Messrs. HARRIS & SON, of Great Marlow, Bucks, the general foreman being Mr. H. FRITH. The heating contractors were Messrs. DINNING & COOKE, of Newcastle-on-Tyne, under the supervision of Mr. GEORGE WHITE, permanent clerk of the works to the education committee. The mechanical school machinery was supplied by Messrs. MACKIE & SON, LTD., Reading, and the electric wiring, &c., by the Reading Electric Supply Company, Ltd. Mr. J. HASTRICK made an admirable clerk of the works. The architect is Mr. GEO. W. WEBB, F.R.I.B.A., Marlborough Place Chambers, Reading. We shall publish the set of plans in connection with these interesting schools in our issue of October 11.

CATHEDRAL SERIES.—SOUTHWARK: THE NAVE FROM THE CHANCEL.



# R. NORMAN SHAW, R.A., ON THE HOUSES OF PARLIAMENT.

select Committee of the House of Lords, before submitting their report on the Palace of Westminster, evidence from Mr. R. Norman Shaw as follows:—

*Lord Stanmore, Chairman.*

I believe, very well acquainted with this building, very.

have considered from all points of view its capacity and the conditions of decoration which are most desirable?—Yes, to a very considerable extent.

You perused the evidence given by other witnesses at the committee last session?—Not in full detail. I have seen the Blue-book of the evidence this morning. I asked the question because it might have shortened the time had been able to refer to portions of the evidence, and I am sure you whether you agreed or disagreed with the evidence made by other gentlemen. The first question I asked you is with regard to the architectural character of the building. You are aware, I believe, that in the designs of Sir Charles Barry for the House of Commons, quite the same as those which were finally adopted?—Quite so.

As to say, Sir Charles Barry had broken up the space a good deal more with architectural decoration, and more arcading than is now the case, the Fine Art Commission having desired large rectangular spaces to be set aside for pictures?—Yes.

In your opinion as an architect would it now be desirable if we are considering the further decoration of the building to revert in any degree or in any places to the design of having more architectural detail and spaces, or would you preserve the large spaces as they stand?—I should be very much indeed against that. It appears to me that if anything is to be done in this building it is repose and blank wall, and to change these places with fresh tracery and panels should consider, be simply going on wrong lines. It would be entirely towards simplicity and restfulness could arrive at those very good qualities, as I think it is. I would have no sort of elaboration, because it seems to my mind does not call for elaboration. It seems to me to be quite elaborate enough. If we could get more repose and more restful I should be more happy.

We have your view upon that point very clearly. Another point upon which I should like to have your opinion as an eminent architect, and as being well acquainted with the building, is this:—We have been told that the building, if it has a fault, is that it does not provide for expansion?—Yes.

Is it a fault that it shares in common with many other buildings?—Yes.

As a result of that is that many of the spaces which were devoted to art are now devoted to utility?—Yes. The spaces which were intended to be painted are covered by big cases for books and cloaks and things of that kind, and unsightly erections in the shape of telephone boxes put up in front of frescoes, fine architectural details and mantelpieces, which are really of a very good character, are deformed by being turned into a round of a large table covered with black bottles and twiches, and so on. How would you propose to provide for these additional needs without deteriorating the architectural features of the building, or interfering with the spaces which it is wished to devote to decoration?—I think there is no place can this building be described as being either as regards the buildings in the courts or on the river front, and I think a great deal might possibly be gained by getting an extra floor in parts of the building. I begin, perhaps, as being safer on the whole, with the spaces, where you might move some of these refreshment-halls, and certain departments perhaps might be added, in fact, more room—what is wanted is more

not almost a fatal objection to that idea that you have these appliances and appurtenances on a higher floor, and consequently there would be considerable inconvenience in having to go up and down stairs?—Yes, that would be a question you would have to consider. It seemed to me that that there might be a good deal of clerical departments which could be put up there very easily enough. It is not as if we were dealing with a storey building. The heights at the present moment are modest indeed in comparison with modern requirements, and there are such things as lifts. In that way you

might be able to do away with the buffets with these black bottles which it is extremely painful to see in front of the frescoes. I should think there would be no difficulty in moving a moderate-sized refreshment bar up a flight of stairs and clearing the bottles in the buffet out of the way. Of course, that would require a great deal of consideration; you cannot extend the building in area, because it is quite big enough, and also because you have no ground to extend it upon, but you certainly could extend it in height to a very great extent, and I am not at all sure that the building might not gain very much by that.

If it were only a matter of clerical accommodation, I should say that the expedient you mention would commend itself to everybody, but you must remember that these needs for which we have to provide are things which are required in haste, and therefore it would be desirable that they should be on the same floor—I mean such things as telephone boxes, post offices and even refreshments—people rush out in a hurry to get a bun and go back again to the committee-rooms, for instance, and they would not like to go up a high flight of stairs for the purpose?—Certainly not. On the other hand, there are rooms such as this in which we are sitting now—large committee-rooms—as to which I do not see that there would be any very great hardship if the room were on a higher floor. You might get a nice suite of rooms on a higher floor with waiting-rooms, and everything that you could want, quite compact and comfortable, with plenty of space.

Would not the increased height seriously interfere with the architectural character of the building?—At this present moment I think possibly it might be a gain. If the building has a fault it is that it is exceedingly long and rather low for its height. The frontage is 650 feet, and practically it is only three storeys high, or you may say two storeys and a ground floor—a semi-basement. I cannot see how anyone could suggest that the building is over done with height at present. You will remember I am giving you only a hastily expressed opinion; you must take it for what it is worth.

Your recommendation, speaking generally, is that we should provide as far as possible on a higher floor for these necessities?—For the things that could be removed. I think if you had a fine high roof over this central block it would be very impressive. I do not think the building would lose by it.

How would you work that in with the central lantern?—It would go up in front of the central lantern. The central lantern would show itself up behind.

It would dwarf it, would it not—you would not see the lower storey at all?—I do not think that the central lantern is the happiest part of the building—if I may say so.

Of course I am not asking you to give me a plan of the new building you suggest?—No. You will understand this is only a hasty suggestion. I think it might be the means of giving you, what I take it is certainly wanted, a great deal of extra accommodation.

You do not think anything could be done in the courts by way of giving further accommodation in that way?—I think you would lose very materially if you tamper in any way with the light; light, of course, is such a very important thing. I think many of the back buildings might be heightened certainly; you might get a floor in perfectly well, and perhaps it would be more easy to do it there than here, because the rooms are not so high at the back part as these rooms.

It would interfere less with the general design of the building, would it not? It certainly would not interfere with the outside of the building at all, and it would give you a lot of room if you heightened these places by another floor. You would get a great deal of room in that way.

Might not something be done by projecting oriels?—Not to any material extent, I think. For instance, to take this room, if you turn those two windows into oriels, of course the room would be larger by those oriels, but the extra space would hardly be available for practical purposes.

I was thinking of such things as telephone boxes, which do not take up much space; might they not be put into some recess?—In nine cases out of ten I think a telephone-box might be got in the thickness of the wall. The walls are a good thickness, or at all events the part that projects might be reduced from about 3 feet, as it is now, to perhaps 1 foot, which, of course, would work no serious drawback at all.

*Earl of Carlisle.*

I should like you to say (if it is not too large a question) what is your general view of the character of the building—whether it is really a worthy and admirable specimen of



architecture, and whether, therefore, it deserves not to be neglected, but to be treated in such a way as to bring out whatsoever excellences it may have?—My opinion of the building is the very highest. I have known it intimately—more intimately fifty years ago even than I do now—and I have never wavered in my admiration for it. It is a most interesting building; and it was a perfectly marvellous building, considering when it was done and all the circumstances attaching to it. I have had the greatest possible enthusiasm for the building for the last fifty years, and I am not going to change my opinion now in my extreme old age.

I asked that question particularly because some time ago, not long after it was built, it was subjected to a great deal of attack and severe criticism owing to its style, because at present no doubt the fashion of architecture has gone in other directions. Therefore, it seems to me, people are perhaps liable not to appreciate the qualities of the building at the present time?—No doubt that is so; but you must remember that people generally are profoundly ignorant and know nothing about it; and that applies not only to the ordinary man—the man in the street, as he is called—but it goes a long way beyond him: it applies sometimes to people who are trained, though in their cases it becomes prejudice.

That is exactly why I was anxious to have your opinion upon the point.—I am happy to say I have no desire to change the opinion I have expressed of entire enthusiasm for the building.

In your opinion might the appearance of the interior, taking this room for instance, be very largely improved by treatment merely—for instance, in your opinion has the appearance of this room and other parts of the House been very greatly damaged by injudicious furnishing and surface treatment?—I must say I think this is a very ugly room. If you were to revert to what I was talking about just now, simplicity and restfulness, do you not think it would be much pleasanter if the panels on this wall were all obliterated and we had a plain wall? That is to say, if all that woodwork were taken bodily away, and we had plain colour or something of that kind or a good paper pattern, treating it as one great wall.

*Chairman.*

But these panels were meant for pictures, were they not?—Do you think that it was seriously meant to put pictures in this room?

Yes, I think so, certainly.—I should be very sorry to be the painter.

*Earl of Carlisle.*

The dining-room further on has been treated by removing the varnish from the wood and by whitening the ceiling. Have you seen that room?—I have not seen it.

That is in the direction that you would recommend, is it not?—That is in the direction of simplicity and restfulness—I have no doubt you would find that room more restful than this.

You think a great deal could be done in that way?—A very great deal could be done in that way.

I do not know whether you have noticed in the House of Commons lobby the statue of Sir William Harcourt, which is put on a pedestal and has been slightly tinted with, as it seems to me, very advantageous effect as compared to the other statues?—As compared to the dead-white statues?

Yes. Should you advise that process to be continued?—I have not seen that statue, but, of course, there is no doubt that a dead-white statue against a stone wall is rather repellent. I was looking at Westminster Hall as I came up just now. I believe in Westminster Hall, for instance, a panel of some simple material would go a long way towards making that more comfortable.

What would you recommend there?—I should try a panel, say, 6 feet wide, running the whole height from the floor up to the cornice, of some nice, good, low-toned material. That I suggest as a mere experiment. You would find, I think, that the statues would look infinitely better against a background of that kind.

What sort of material do you mean?—I should try a common sixpenny curtain material—it is simply colour that you want. Distemper would do perfectly well. I think that a background is the most essential part, and we lose sight of that to an extent that is perfectly amazing. I do not know whether you remember Gérôme's wonderful statue of *Bellona* at the Paris Exhibition. It looked splendid.

It was also in the Academy, was it not?—Exactly, but you will remember how it looked in the Academy. It was

placed there, as I venture to think, without an altogether good background. It had as a background a hideous marble door—whole quantity of confused little pictures in the background, with a deplorable result. I know I look at that statue in the Academy in despair. It was simply a question of placing it. If it had been properly treated had a nice background—it ought to have looked just as it did in Paris.

Among the witnesses who have given evidence to this committee there were some who recommended tapestry, in fact, that used to be the historical decoration of the House of Lords at one time. Do you think that your experience that tapestry, however beautiful the material, is well adapted for the London House of Commons?—Emphatically no. It would perish, and perish rapidly, as our window curtains perish. I am not a chemist, but I do not know precisely, but I suppose it is due to its being in the air. I should think tapestry would be a very bad thing to embark upon.

So that you would rather recommend distemper?—Price, of course, is rather different.

*Chairman.*

The old tapestry in the House of Lords many centuries ago, some centuries, did it not?—Yes, and pieces of it manage to last now, no doubt. There is plenty of it all over the world, and it is beautiful and delicate. There is nothing so magnificent, but in the first place the cost is very nearly prohibitory now.

We have had rather contradictory evidence as to the cost?—If you started with tapestry I could not say what it would cost, but you must, of course, first have a fair chance to copy in tapestry, and it is, I think, exceedingly difficult stuff to make now.

Some of the witnesses before us have suggested other means of decoration, especially for St. Stephen's Hall, the panels there might be filled in, not with the material for which they were intended, but with marble or different coloured marbles, such as one has seen in Italian buildings and churches. Looking at it from an architectural point of view as merely harmonising with the architecture, what is your view about that?—It would be very risky and very doubtful. You are introducing an entirely new material, and a material not very well suited to English architecture.

Another suggestion made by some of the witnesses is the use of coloured relief or gesso. How does that look to you?—It is very difficult. All gesso-work has a tendency to be distinctly showy, and it is rather away from the object of being showy. I do not want to make the place more showy, but to make it simpler if possible. Gesso is distinct work because, of course, the light catches every part of it. Of course, it is very beautiful and superb in its own place, but I think it requires to be skilfully done.

*Earl Beauchamp.*

We have had some evidence with regard to the use of plaster which should be used in this work here rather than one artist has recommended lime plaster and gypsum plaster—could you tell us anything about the point?—No, I am not sufficiently a chemist to speak of it.

Have you had no experience in regard to plaster?—We have used gypsum plaster.

Then how is it there is so much gypsum plaster in the building—which is the most common?—Gypsum plaster decidedly.

It has better colour, has it not?—We use lime plaster generally for internal work and it is highly perishable, covered over with paper, and that prevents the air from acting directly upon it. I suppose other acids in the air would act upon lime plaster at least as much as it has done upon the frescoes—there is a tendency there to split off the surface.

That is with the gypsum plaster, is it?—No, I have never used for the frescoes.

It really depends upon how the lime is mixed with the sand?—Yes.

When it is properly mixed by experts the lime plaster does not only give a very good colour, but it is also very durable and it gets harder from year to year?—Yes, and it resists the acids in the air. Of course, here the plaster is in its infancy, and it would do far better at the end of fifty years, but that is when it is not subjected to our atmosphere. It hardens very much slower—it takes a long time to harden. We know that lime plaster was used by the Romans. What they used was



they did not use concrete cement or gypsum in  
ys.  
you tell us anything as to the use of marble dust in  
No, I have no technical knowledge of that at all.

*Earl of Carlisle.*

you had experience of buildings that have been  
d with wall-painting?—Yes.  
frescoes in this building seem to have suffered  
and their deterioration has been attributed to faults  
laster or in the wall. I believe, in fact, we have it  
nce that it is usual at present in decorating public  
s to follow the French precedent of marouflage, and  
ne painting on an independent surface upon a pre-  
anel. Should you advocate that?—I think that would  
much safer, because if it is put upon the actual wall  
at is such a very slow drying process. I do not sup-  
wall really perceptibly dries through perhaps under  
sixty years, and there is always a certain amount of  
e coming out. For instance, they have had inter-  
e troubles at the Stock Exchange. They lined the  
f the hall in the centre under the great dome with  
ocks of marble, and there are a number of corridors  
atories and other things on the other side, and those  
vered with glazed tiles, and they were always  
why the polish went off the marble so constantly.  
ad it polished again and again, but it would not last  
an a few months. The reason was simply that there  
s damp shut up in the walls that kept, as they call  
ting through the marble and taking the polish off  
That damp must come out—you must get it out  
w or other—and when it was hermetically sealed  
e tiles it began to come through the marble. Those  
troubles that you have to contend with.

nk we have heard that as regards the panels in the  
Exchange there is an interval in between?—Yes,  
an air space. That, of course, is not what we call  
monumental. Some of those are painted on canvas I  
or most of them.

nk they are on canvas applied to the panel?—Yes,  
is simply an oil-painting.

s not in oil, I think?—No, it is not in oil, it is in  
a.

ey are painted in some mixture that has been  
ly described, but the canvas is applied to the  
—Yes.

nk that is the process that is employed in France, is  
—Yes.

*Earl of Plymouth.*

m afraid I came into the room rather late, but I  
ed when I came in you were suggesting the possi-  
of increasing the height and getting more accommo-  
by increasing the height of the building?—Yes.  
as that with the view first of all of getting rid of these  
ment bars and ugly accessories of that sort?—I think  
generally with the view of getting more accommoda-  
round. Those ugly accessories would be the things  
one would like to see go first. Then, of course, there  
be room for whole departments of people engaged in  
work, of whom I presume there must be a large  
er here.

*Chairman.*

t primarily it was in order to get rid of those vulgar  
ories?—Yes, primarily I think it was.

*Earl of Plymouth.*

haps you are aware that in Sir Charles Barry's  
al design it was intended to have built along the face  
idge Street from the clock tower westward?—  
so.

nk the whole of Palace Yard was to have been  
ed, but I am not quite sure?—Yes.

*Chairman.*

nk the whole of Palace Yard was to be enclosed  
huge gate askew?—Yes; of course that was abandoned  
years ago.

*Earl of Plymouth.*

s, but do you think it would be a mistake to revive  
ea in considering any additions to accommodation?—  
; certainly not. It would be very costly, of course.  
ld be infinitely more costly than my modest sugges-  
an extra storey, and then it has the disadvantage  
gives you the accommodation all up at one end. It  
help the House of Commons end very materially—it  
give them a lot more room there, but I do not know  
would help you at all at this end. That, however, is

of course a perfectly open question. The wall of the clock  
tower remained a rough brick wall for many, many years  
facing the place where, I understand, you suggest there  
might be building. Then when that plan was finally  
abandoned it was faced up with architectural treatment.  
That is a long time ago—I should think getting on for forty  
years.

*Chairman.*

I think it was longer ago than that. I think the plan was  
finally abandoned about 1860?—That is forty-seven years  
ago. Perhaps the wall was not covered immediately after  
that.

*Earl of Plymouth.*

That is a question which really affects the whole large  
question of the accommodation in the Palace; it is not quite  
germane to the present inquiry?—Yes.

As regards Westminster Hall, I think you suggested  
that the statues there should be backed with something. It  
is also a question, is it not, whether the statues should be  
there at all?—Yes, I do not think they help the place much.

You would not suggest covering the stonework of West-  
minster Hall except for the purpose of a background?—Oh,  
no. But it was suggested that the statues might be toned.

*Earl of Carlisle.*

That was the question I put to you?—Yes, that was the  
suggestion. Of course, to use a dead white statue against  
that background is most inharmonious; to my mind it is  
unpleasant.

*Earl of Plymouth.*

And the same may be said of the statues in St. Stephen's  
Hall?—Certainly.

I should like to ask you a general question in order to  
make quite clear what I did not quite understand. In view  
of obtaining simplicity as far as possible in the interior of  
the building, is it, in your opinion, desirable that the spaces  
now left in the corridors and halls within the moulded  
stonework should be decorated with painting or in any  
other way?—Taking St. Stephen's Hall, that certainly is a  
very attractive place in many respects, and I do not know  
whether anything could be done with that—it is very well  
lighted.

From both ends?—Yes; I do not know whether any-  
thing could be done with the spaces there, but I feel very  
strongly that we have hardly got a school which would be  
capable of doing that kind of work sufficiently well at  
present. We shall have it, of course, in time—it is growing,  
and growing fast, but whether we shall ever arrive at that  
or not remains to be seen.

*Chairman.*

But would you leave all the panels in the Victoria  
Gallery as they are now?—We should hope for that happy  
time when we could command artists enough to do it well.  
I do not think they are satisfactory—many of them—at  
present, and I do not think the Royal Exchange, which is  
our last effort, is very satisfactory. Many of the pictures  
there are very good indeed—excellent; but my complaint is  
that they do not go with the architecture, whereas the  
old Italian frescoes went with the architecture to perfection.  
One felt it was in that case all one thing, whereas you now  
feel that these pictures are mere pictures dragged in by the  
head and shoulders, so to speak—at least that is the way it  
affects me, but I dare say I am wrong.

*Earl of Carlisle.*

In the Royal Gallery, where the Maclise pictures are,  
there are now a number of vacant spaces which are at  
present, at any rate, filled up in a way which seems to me  
to damage the existing pictures very much?—Yes, and the  
wall-paper is a very large, strong pattern.

You would see no objection to completing that gallery,  
would you?—If you could get anybody to do it. My feeling,  
of course, is this: in Paris, in the New Sorbonne for  
instance, there is a long picture by M. Puvis de Chavannes  
in the big hall which seems to go splendidly with the archi-  
tecture and with everything else. Then on both staircases  
there are a whole series of pictures which are nearly of the  
size of the panels in this room, which are painted in a very  
full-blooded style, with lots of action and lots of colour and  
paint, and they do not seem to me to go with the archi-  
tecture a bit. The general aspect in the one case is  
exceedingly restful and satisfactory and pleasant, and in  
the other case it is turbulent and, to my mind, dis-  
agreeable.

Does not your answer amount to this: not that wall-  
pictures or frescoes are undesirable in themselves, but that the  
painter should be properly selected?—Entirely:



And that he should have a proper feeling for architecture and should work in subordination to the architectural design?—Entirely. To refer to another place in Paris, at the Panthéon there are pictures by Puvis de Chavannes that seem to fit the place and go right well with their surroundings, and there are other pictures which may possibly be finer pictures for aught that I can tell, but which do not fit in with the architecture a bit—the two clash terribly and deplorably; you wish that one or the other was away—either that the picture was away or the architecture.

*Chairman.*

In short, one may sum it up very shortly in this way—that in decoration painting may be of very great use, but the painting must always be subordinate to the architecture?—Entirely, it must go with it.

The painter must be content to follow the architect?—To be in harmony with the framework.

I should like to refer for one moment to your suggestion of an upper storey?—I am afraid it was perhaps a rash suggestion on my part.

I was going to say that at the present moment it was a somewhat vague suggestion. I do not know whether you could give us a little more detail, not now, but in a letter to the clerk of the committee, perhaps, giving us a little more idea as to how it could be applied?—Yes.

Because I see two different lines of thought about it. You were rather inclined in the first instance to recommend a higher erection here on the front?—Yes.

My own feeling would rather be in favour of dealing with the interior courts, and I should be very glad, if you did not mind, if you would give us a good sound architectural opinion upon that point?—I candidly confess that I think that would be infinitely safer. To tackle the outside building and put a roof upon it would be a very daring proceeding.

I should not like to be responsible for that.—I am not sure that I should myself.

When you are making that suggestion to us in your letter, would you kindly bear in mind that what we are concerned with on this committee is not the enlargement of the House or the question of accommodation in the Palace generally, but the question of decoration, and therefore the point that we specially want to consider is any addition that may be required to get rid of these unsightly excrescences and vulgar necessities that exist now, and therefore we should want to see how we could provide for them?—Yes, I quite understand. It is a very practical question indeed.

*Earl of Plymouth.*

May I put one more question about St. Stephen's Hall? Would it in your opinion be better to treat St. Stephen's Hall in stone throughout, and do away with the panels that are now covered with plain green paper?—Yes, I think so decidedly; that is all leaning towards my attempt at simplifying and restfulness. If those panels were obliterated altogether, the whole of the lower portion would be much more restful and quieter and simpler, and it would give a base to the architecture. I think your idea is a very happy one.

The colour in the building, as is the case in most Gothic buildings, is it not, is found in the stained-glass windows?—Yes, certainly.

The stonework is, generally speaking, in the later Gothic work, uncoloured, is it not?—In the later Gothic work they covered the whole thing with colour from floor to ceiling.

May I ask what date you are referring to?—Fifteenth-century work. I think they painted everything then with colour. It is a puzzle to us, but there is not the slightest doubt; there are traces of colour over all that Gothic period, and there is every reason to believe that it was painted entirely.

*Chairman.*

St. Stephen's Chapel itself was highly coloured?—Yes. We have tried it, but seldom with success. The French have tried it very extensively, and it is hideous and dreadful. It was so at Salisbury. At Salisbury the chapter-house is fully coloured. They found on the top of the capital little pieces of colour like pennies that had dropped down and made a little pool at the top of the capital. It was brilliant vermilion and bright blue, but when we try to treat it with brilliant vermilion and bright blue the result is not very satisfactory. I think his Lordship's suggestion of doing away with the panels is a very happy one.

Then you would have no pictures at all?—No at all. You would have a fine base to a great windows and you would have more plain wall, what I hanker for.

You would have plain wall without arched wall without arcading.

*Earl of Carlisle.*

I do not want to controvert what you have said nor rather inconsistent with what you recommended in the minster Hall when you said that the long stone stonework rather unsatisfactory and you would recommend material to be put up or stonework?—That was background for the statues.

But there are statues in St. Stephen's Hall as well. Yes, but do you not feel that a great deal might be gained by toning those statues so as to reduce that extreme white which is what I dislike very much?

Then would you give up hope of ever having windows?—No, you could revert to it in a future century.

*Earl of Plymouth.*

My question only referred to St. Stephen's Hall, and not refer to the Royal Gallery in the slightest degree. Quite so.

St. Stephen's Hall having these large Gothic windows on either side with colour in them, with comparative spaces underneath now filled with green paper?—Of course St. Stephen's Hall is after all somewhat of a nature of an entrance hall, and you do not need it much decorated. Just as in a private house you need your outer entrance hall to be decorated in the same way as your rooms, you look upon it as an ante-chamber what is coming, and that is rather the way I feel with respect to St. Stephen's Hall.

*Chairman.*

Have you seen in the Lobby of the House of Commons and in some of the passages round the House of Commons how they have cleared off the paint?—I have not seen it.

If you had seen it, I was going to ask you whether you would recommend the extension of that to the other building?—It sounds right, but I have not seen it.

Do you know at all why the paint was originally on the stone there?—I should expect it was because of the weather to get very dirty.

But will not that apply to what is done now?—Yes, it may.

I think they have got some method of enabling the stone to be cleaned now, have they not?—Yes, of keeping it clean.

You merely give that as your general impression?—Yes, stonework, not from any particular knowledge of what has been done here?—We know from experience stone work is very troublesome things to keep clean; the pieces are very troublesome things to keep clean; they are dirty towards the edging and mouldings. It may be the fault of the housemaid. I do not know as to whether they are certainly troublesome to keep clean, but painting gets over that difficulty at once; it is quite easy to keep it clean.

*Earl of Carlisle.*

I have asked you already your general opinion as to the value of the building. I gather that you quite value it apart from any expensive scheme of decoration the effect of it is largely improved by these decorative treatments which have been described?—I propose so, but of course I have not seen the room which the noble Lord has spoken. I should like to see it.

*Chairman.*

Then perhaps you would let us have a letter giving a little more definitely your idea as to how any improvement in accommodation might be given by increasing the height?—Yes.

*Earl of Carlisle.*

Perhaps if you are doing that you might at the same time express an opinion as to the probable and comparative advantage of extending the building, as it was proposed, under the clock tower?—Yes; of course there is a difficulty about that is that the extension would be built out at the extreme corner of the building. It might be useful in a variety of ways.

*Chairman.*

It would be very useful to the House of Commons. Yes.

*Earl of Carlisle.*

Would there be any reason to prevent its coming over the archway to the committee-room here in the



ace Yard in this way (describing it on the plan)?—Not slightest that I can see.

The letter which Mr. Norman Shaw wrote has not been stated in full. But when the First Commissioner of Works giving evidence the chairman, Lord Stanmore, referred to it, saying:—"I have received a letter from Mr. Norman Shaw. He says:—"My Lords,—In accordance with your request, I have made a general examination of the Palace of Westminster to see what could be done in the way of structural alterations. First, to remove some unsightly recesses, such as refreshment bars and telephone boxes; and, second, how additional accommodation might be obtained at a moderate cost for departments which at present are inadequately housed." That is not any part of the business; we did not give him any instructions really to that. "There are many positions in which the telephone boxes might easily be placed as thus: passing from the square hall (I am not sure of its name, but it is on the floor below the hall where the frescoes are) into the main corridors, right and left, there are two compartments or alcoves, in each of which might be placed a telephone box, as shown on the accompanying plan. The wall might be raised a little, and the boxes sunk in it. They would be easily visible, as every one would see them in passing. They would not be in the way of the traffic, and they might easily be made quite presentable. A telephone box is about 2 feet 9 inches wide by 3 feet deep. In many places the walls are 3 feet 6 inches thick; in other parts 2 feet 6 inches. In the former the box might be recessed entirely in the wall, and in the latter nearly so, so as practically be unobjectionable; and the small space to be cut out, less than 3 feet wide and about the height of an ordinary door, would in no way weaken the wall. The refreshment bars would be somewhat more difficult, as to get them well placed it would be necessary to build up the wall. At present there is one on the large square hall (where the remains of the frescoes are). I would propose to build a small addition over the rooms below, looking into the Commons Inner Court. This room would be best if approached from the square hall, by removing the existing fireplace which is never used, and making a doorway in its place. If the removal of this fireplace is considered unadvisable, the room might be entered from the corridor, but entering from the hall would be more direct and better seen."

The First Commissioner remarked:—"If I may say so, I think Mr. Norman Shaw has not quite appreciated the present state of that hall, either as to its present structure or the necessary arrangements or rearrangements which would have to be made. I should say first of all that his sketch plan does not represent the existing state of affairs. The doorway in the centre is now occupied by an essential serving-room for the House of Commons dining-rooms. The recesses which he suggests for telephone boxes no longer exist, but are both of them doorways leading from the House of Commons corridors to the House of Commons smoking-room and the additional dining-rooms. The fireplace in that hall is behind the bar which is considered essential for strangers, witnesses and counsel attending the committee-rooms upstairs. The telephone boxes were placed upstairs, I understand, for the use of the counsel, solicitors and Parliamentary agents. If they could be placed where Mr. Norman Shaw suggests, they would be a part of the House of Commons building where no stranger can go."

Afterwards the chairman again referred to the letter:—"Another paragraph of Mr. Norman Shaw's letter presents to me an extraordinary new idea. "In going over the building I was amazed to see the number of places in which increased accommodation might be gained without any visible alteration to the building from the ordinary points of view. It would be easy to get some fifty or sixty additional rooms at a very moderate cost—probably far more."

The First Commissioner of Works observed:—"That is a very interesting statement, both as to the number of rooms and as to the moderation of the cost. I think if Mr. Norman Shaw knew what our structural alterations in this Gothic building cost when I have to make quite small ones he would perhaps omit the adjective in that sentence."

## UNIVERSITY COLLEGE, LONDON.

THE Calendar for the Session 1907-8 has been issued. It contains many new features. There is a sketch of the history of University College by Dr. Carey Foster, together with a full statement of the statutes and regulations under which the college is now governed in its new position as an integral portion of the University of London. It also contains a set of plans that show the uses to which the extension buildings are being put. It appears that the space now available for university purposes is greater by one-third than it was last session. Interesting features are the various examination papers, of which the following will serve as examples:—

### ARCHITECTURE.

#### I. QUANTITY SURVEYING (Upper Grade). Evening Class.

[No student is expected to answer the whole of the questions set, but every student must answer the first three questions marked with an asterisk. Answers should be numbered to correspond with the questions.]

Note.—Mitchell's Plates Nos. 38, 39 and 40 to be used.

- \*1. Take off the carcass work and roof of drawing-room bay, assuming it to have a lead-covered roof.
- \*2. Take off the finishings to windows of dining-room bay in deal, including painting.
- \*3. Abstract and bill the work contained in answers to two foregoing questions.
4. Describe how variations on contract should be dealt with.

5. Explain the method of dealing with "provisions," and write a specimen "provision" bill.

6. Take off the tiling to roofs as shown on plate 39.

7. Explain the method of taking off faience work for separate tradesman, and describe what attendance would be required to be furnished by the general contractor.

8. Take off the drainage as shown on plate 39.

#### II. QUANTITY SURVEYING (Lower Grade). Evening Class.

[No student is expected to answer the whole of the questions set, but every student must answer the first three questions marked with an asterisk. Answers should be numbered to correspond with the questions.]

Note.—Mitchell's Plates Nos. 38, 39 and 40 to be used.

\*1. Take off brickwork to basement as plan plate 39 and sections plate 40.

\*2. Take off the carpentry and boarded floor of drawing-room plate 39.

\*3. Abstract and bill the work contained in answers to two foregoing questions.

4. Give the order of a bill of quantities and write out a summary.

5. Describe how you would take out the carcass of a building, giving a list of the principal sections of the work.

6. Explain the meaning of the term "provisional" and how it is applied in preparing a bill of quantities.

7. Give the meaning of the following terms:—Skew, squint, obtuse birdsmouth, console, cantilever, truss, entertie, brace, sprocket, cleat, puncheon, stud, quarter, ashlar, wreath, ramp, arris, reveal, flush, matched, chamfer, staff bead, quirk.

8. Take off finishings in deal to a doorway 3 feet by 7 feet in one-brick wall, plastered both sides with linings and moulded architraves.

EDMUND J. BURR, *Instructor.*

F. M. SIMPSON, *Professor.*

### BUILDING CONSTRUCTION.

#### I. FIRST YEAR.

1. Draw to inch scale the plans of heading and stretching courses of one side of a window opening in a 14-inch wall. Allow for a recess  $4\frac{1}{2}$  inches in depth on the inside and show a  $4\frac{1}{2}$ -inch reveal on the outside.

2. Name and sketch in elevation any kinds of stone-walling you may know.

3. Draw to 8-inch scale a plan, section and elevation of a first-floor fireplace. Make the opening 3 feet in width and omit the boards from the plan in order to show the trimming of the joists and hearth-arch.

4. How are building stones classified? State what you know about the following:—Portland, Bath and York.

5. Draw cross-sections one-eighth full-size through the girder and binder of a floor having 12 inch by 6 inch rolled joists, 5 inch by 3 inch R.S. binders, and 7 inch by 2 inch wood joists. The girder and binder are to be cased in plaster and are to show below the general ceiling level.

6. What are the characteristics of good timber? What causes decay in timber and how can it be avoided?

Mr. R. M. Prescott has been recommended for the position of town clerk of Sheffield at a salary of 1,250l. per annum. Mr. Prescott held the same office in Fulham.



7. Draw to quarter-inch scale a section through a roof showing a queen post roof-truss with a span of 30 inches and a pitch of 45 degrees. Sketch a quarter full-size detail of the joint at the head of the queen post and include the purlin and rafter.

8. Sketch the various methods of preparing a roof to receive slates from the simplest to the most elaborate, and give brief descriptions and comparisons.

9. How is leadwork fixed in:—(a) stonework, and (b) brickwork in side-flashings? What are the three chief methods of treating side-flashings in a slated roof?

10. Draw to one-eighth inch scale a skeleton diagram of a steel roof-truss suitable for a span of 30 feet; and draw a quarter full-size detail of any joint.

11. Show by sketches where damp-courses occur. What purpose do they serve and of what materials are they made?

12. Draw full-size sections of the side joints of floor-boards, and show the nailing.

13. Sketch in isometric projection to about half full-size the tenons in the joints in a door between (a) the top rail and style, and (b) the bottom rail and style.

14. Draw full-size the plan of the lining of the jamb of an internal door suitable for a 9-inch brick wall. Show all grounds and fixings.

15. Sketch to about half full-size a plan of the casing of a double-hung sash-window. Name and figure the various parts.

## II. SECOND AND THIRD YEARS.

### Group A.

1. A brick pilaster 2 feet 3 inches wide projects  $4\frac{1}{2}$  inches from an 18-inch wall. Draw to  $\frac{1}{8}$  inch scale plans of two courses of pilaster and wall immediately adjoining, and in elevation four courses to the same scale.

2. Draw to inch scale the elevation of a flat red brick arch for a window opening 4 feet wide, and show top courses of red brick quoins.

3. State the advantages and disadvantages (if any) of Portland stone over Bath stone.

4. Illustrate by sketches the slating and tiling of roofs, and figure the size, lap and gauge.

5. Describe and, where possible, illustrate by sketches, the different precautions which should be taken to prevent damp entering a country house on a clay soil.

### Group B.

6. Specify the different woods that can be used for (a) floors, (b) sash-windows, (c) internal doors.

7. Describe any two substitutes which can be used for a wood partition, and their advantages and disadvantages.

8. Illustrate by sketches the construction of the different parts of a wood newel staircase.

\*9. Sketch in outline the plan of any building with which you are acquainted, showing the position of its sanitary fittings, and draw a scheme of drainage for the same. Figure sizes of pipe, describe traps and scheme for ventilating the drains. Rain-water not to be considered.

10. Describe one or more methods of dealing with rain-water from the roof of a country house.

11. The ground floor of a house 25 feet frontage between party-walls is to be removed to make a shop-front. From basement to ground floor is 9 feet high, from ground floor to first floor 13, from first floor to second floor 11. The first floor has three windows in front, each 4 feet wide. Draw to  $\frac{1}{4}$  inch scale elevations, front and side, of needle shoring for the same, and show strutting of first-floor windows. Nothing to be shown above second-floor line.

### Group C.

12. Draw to one-eighth inch scale a skeleton diagram of a steel roof-truss of the trussed rafter type suitable for a span of 30 feet; and draw quarter full-size details of any joint with (a) circular rods and (b) flat bars for the tie or tension rods.

13. Briefly describe the principal materials employed in fire-resisting construction, with special reference to their fire-resisting properties in (a) floors, (b) roofs, (c) partitions and (d) stairs.

14. Sketch in isometric projection, to about half-inch scale, a cross-section through any two fire-resisting floors, showing half a bay on either side of a main girder of 30 feet span; and write a brief description of each system.

15. Describe with sketches the construction of (a) stone and (b) concrete stairs for narrow and wide widths.

16. What is the safe bearing load for ordinarily good soils? How would you calculate the area of foundations on

such a soil in order that it may be capable of resisting pressure from above? Describe several ways of distributing the load from a stanchion over the soil.

## HISTORY OF ARCHITECTURAL DEVELOPMENT

### I. FIRST YEAR.

1. Draw in elevation to a scale of  $\frac{1}{2}$  inch equals 1 foot module the angle column and the one next to it of the Parthenon, Athens, with the stylobate under and entablature over. Draw the section of the entablature four times the size.

2. Describe and illustrate by sketches the development of the Greek temple plan.

3. Name some buildings of the Greek Doric order in Greece or its colonies, and mention the peculiarities of more than three.

4. Describe the construction of the entablature of a Greek Doric temple and illustrate by sketches.

5. Mention the materials used by the Greeks, and describe the methods of building followed by them in stone and marble.

6. Name the precautions taken by the Greeks to counteract optical illusions.

7. Name the countries in which the lintel was used in ancient work.

8. Describe the methods of building arches and vaults prior to our era, and state in which countries each was followed. Illustrate the methods by sketches.

## II. SECOND AND THIRD YEARS.

### Group A.

1. Describe and illustrate by sketches the substitution of arches and piers in Mediæval work, and state reasons for it.

2. Illustrate by sketches the development of moulded (not carved) capitals between the twelfth and fifteenth centuries (both inclusive) in England.

3. What are the main differences in construction between Roman intersecting vaults and Mediæval vaults of the thirteenth century? and describe the steps by which fan-vaulting was evolved in England.

4. Illustrate by sketches the development of window tracery in England.

5. State the main differences between English and Norman French cathedrals:—(a) plan, (b) proportions, dimensions and the results of these differences.

6. Describe briefly the west fronts of Laon, Paris, Bourges cathedrals, and compare them with the west fronts of Salisbury, Wells and Exeter cathedrals.

7. In what respects do the cathedrals of Southern France differ from those of the North?

### Group B.

8. Describe the principal characteristics of the basilica church in Italy, and state in what particulars provincial examples differ from those of Rome.

9. Compare and contrast the domes of (a) the Pantheon, Rome, (b) St. Peter's, Rome, (c) St. Paul's, London, and illustrate by sketches of their sections.

10. To what extent do typical Italian churches of the Renaissance (St. Andrea, Mantua, St. Peter's, Rome, etc.) follow the plan of ancient Roman buildings, such as the Basilica of Constantine, &c.?

11. Describe the main characteristics of domestic architecture in Florence, and state in what important respects Florentine domestic work differs from Venetian.

12. Compare and contrast the Rucellai Palace, Florence, the Cancelleria, Rome, and Palladio's houses in Vicenza.

13. Write a short account of the commencement of the Renaissance in England (1520-80).

14. Illustrate by sketches typical plans of Elizabethan country houses, and compare them with eighteenth-century country houses in England.

**The Chancellor** of the diocese of Carlisle has declined to grant a faculty to assign two pews in the parish church of Hesket-in-the-Forest to Charles Ashton James, of Barrow Park, and his family, and others, the occupiers for the time being of Barrock Park mansion-house, or any house on the site thereof, exclusive of all others for ever. All the pews in the parish church, he said, are the common property of the parish. The distribution of seats rests with the churchwardens as the officers, and subject to the control of the ordinary.



# CROSBY HALL.

A meeting summoned by the Lord Mayor to consider the subject of the preservation of Crosby Hall was held in the Mansion House on Tuesday.

Mr. Vezev Strong, who presided, said that the cost of the work which would have to be acquired in order to be arranged with the directors of the Chartered Bank would be about 50,000*l.*, and the purchase of leasehold interests estimated at 60,000*l.* It was proposed to raise the money partly on mortgage, and partly by contributions from City Companies and the public.

Mr. W. D. Caroe said the building was to the student of architecture what a Reynolds or a Gainsborough was to a painter. The hall was not affected by the later works.

Mr. William Dunn explained the financial condition of the property, and said if Michael Angelo Taylor's Act were passed a reduction of the cost of the leasehold interests would follow.

A resolution was passed approving of the proposals, and a provisional committee was appointed to confer with the persons interested.

Messrs. Gordon & Gunton, the architects for the new building, have prepared the following report:—

Finsbury House, Blomfield Street, London :

September 25, 1907.

Re Crosby Hall.

Dear Sir,—As instructed by your Board, we have pleasure in reporting to you as to the work connected with the demolition at the above, and in sending particulars of various items of interest so far discovered.

As you are aware, the work of pulling down the old building has been entrusted to a first-class firm of building contractors, Messrs. Trollope & Colls, rather than employ an ordinary housebreaking contractor, and that instructions have been given that the work should be done with the utmost care with a view to the preservation of any part of the building that may be interesting from an antiquarian point of view. For this purpose a foreman is constantly employed upon the work during the day and a watchman at night.

Your instructions to us to pull down only that portion of the building fronting Bishopsgate Street, known as the Council Chamber and so-called Throne Room, leaving the quieting-hall and its appurtenances intact, have been embodied in an agreement and are being duly carried out.

At the present time the portion of the building fronting Bishopsgate Street has been pulled down to the ground-level, and by the 30th of this month will be completely reduced to the basement level.

So far as that portion of the building now being pulled down, we have to report that hardly any old work has been found other than the walls and rough timbering, the following only being of any interest:—Two stone chimney-pieces of the Tudor period, some of the old masonry connected with two of the windows, and to the north door of the old postern gate. There are two panels of Roman tessellated pavement, discovered by Sir Francis Davies some years since under that portion of the Council Chamber lately occupied by the offices. These panels were framed and tabulated by him and fixed to the wall of the staircase, and were removed by him prior to the pulling-down of the building, and are now in his charge at No. 23 Great St. Helens. So far as the gabled front in Bishopsgate Street is concerned, this was found to be modern, although keeping with the old lines and appearance, the windows being deal and the architraves plaster, and the pinnacles, which were apparently carved, were found to be cast-iron; the barge-boards also deal, grained to imitate old work. This building appears to have been stripped and utterly spoilt many years since, practically everything of value having been removed.

With regard to the banqueting-hall, as you are aware, the contract for pulling this portion down has been entered into, but the understanding was that, unless instructions to the contrary were given, this work of demolition should be proceeded with immediately after the 30th of this month.

The expense attached to the careful removal of this part of the building must be very considerable. There are many most interesting details well worth preserving. So far as we have been able to judge, the great part of the roof with its stone corbels supporting the same appears to belong to the original period, and is well worth preserving. Theiel window is a very beautiful specimen of fifteenth-century work, and it is worth while going to the expense of taking this down in bulk. Several of the other windows of the same period and in a fair state of preservation,

and the chimney-piece may be partly old, but portions of these works have been spoilt by alterations carried out in plaster. Scarcely any portion of the gallery fronts appears to be antique; it is framed in deal and grained to imitate oak. None of the original woodwork, except portions of the roof, has been preserved. Very little of the glazing is antique; it is mostly heraldic, and probably placed in the windows to commemorate the subscribers to the alterations which took place something like seventy years since.

The general design and appearance of the hall has been maintained to a certain extent, and the general effect is good, but the work is to a great extent imitation and formed with inferior material.

We would suggest that the authorities at South Kensington and at the City Guildhall might be communicated with, with the view of the interesting parts being preserved.

As we have before stated, we have given implicit directions to the contractors that, in the event of the building being entirely removed, all articles of interest shall be reserved, and we have had photographs taken of every portion of the building as a record, and a complete survey of the old buildings has been made and planned by us.—We are, dear Sir, yours faithfully,

GORDON & GUNTON.

William Hoggan, Esq., the Chartered Bank of India, Australia and China, Hatton Court, Threadneedle Street, E.C.

## MILIZIA'S PRINCIPLES OF ARCHITECTURE.

ARCHITECTURE, like every other fine art, is subject to the following general rules:—(1) In all its productions we should find an agreeable correspondence of the parts with the whole. This is known by the name of symmetry. (2) It ought to have variety lest the spectator's attention should be wearied, and unity, which is opposed to confusion and disorder. This is comprehended in the term eurhythmia. (3) Convenience, or suitableness, is also a necessary quality. This consists in a just application of symmetry and eurhythmia, and of that relation which ought to subsist between an edifice and the purpose to which it is applied; between the details of ornament and the general appearance of the building, choosing the most appropriate, and the style which accords best with the magnificence or simplicity of the structure. (4) If architecture be the daughter of necessity, every beauty which it possesses ought to connect itself with that necessity, and to appear made for some useful purpose. In every art which administers to pleasure the artifice ought not to be discovered; everything done for mere ornament is a defect. (5) The principal ornaments of architecture are its orders, which in fact are rather to be considered as the skeleton and most essential part of the edifice than as mere ornament. We might therefore define the orders, necessary ornaments arising from the nature of the edifice. All the other decorations of architecture are subject to the same law. (6) Consequently, in architecture the decoration is the result of the construction. Nothing is ever to be seen in a fabric that has not its appropriate use and is not an essential part of the structure; the office that it indicates it ought to perform. (7) Consequently, nothing is admissible for which a good reason cannot be rendered. (8) These reasons are to be deduced from the origin and analysis of that primitive natural architecture, the hut, from whence has arisen the beautiful imitative art of civil architecture. This is the pole-star of the artist in his works and of the intelligent observer in examining them. Everything should rest upon truth and verisimilitude. What could not really exist cannot be approved, although evidently a matter of mereshow. (9) Examples and authority, however they may be appealed to, will never influence him who wishes to be reasonable. These principles are constant, positive, general, because they depend on the nature of the thing itself and on good sense. Taken together, they constitute the true and essential beauty of architecture; if they are kept out of view, adieu architecture. It is no more a science or an art, but is changed into mere fashion, caprice, or delirium.

The "Principii di Architettura Civile," in three octavo volumes, contains the same view of the subject, carried out into all its bearings, as that sketched in the preface to the "Memorie degli Architetti." In spite of the apparently limited nature of the subject, Milizia has made great part interesting and even amusing. Like Vitruvius, he is fond of introducing a little natural history, and he is hardly more correct or more to the purpose than his Latin original.



Of the "Arte di Vedere" a few words may be said. Milizia had probably been disgusted by the extravagant praises so lavishly bestowed on Michel Angelo and echoed from one writer to another, and in this book he sees nothing but his defects. No wonder, then, that it offended the "stupid adorers of Buonarroti," and the sensible ones too. On this and several other occasions Milizia gives to Mengs a degree of praise which the present age disclaims. In the "Roma delle belle Arti" praise and blame are more mixed. The offence seems to have been taken from the force and spirit of the remarks rather than their direction; he may sometimes exaggerate, but he rarely blames on grounds either insufficient or mistaken. The "Dictionary" is by no means a mere compilation; Milizia could not write without criticising, and no man was less disposed to adopt implicitly the observations and sentiments of another. He has in these works frequently repeated himself, but they all contain much original matter.

#### NORTHERN ARCHITECTURAL ASSOCIATION.

A MEETING of the Northern Architectural Association was held at Wallsend on Saturday. The party, numbering upwards of forty members, travelled by special car from the rooms of the Association at Higham Place. An inspection of the Western Council schools was made under the guidance of Mr. W. H. Knowles, architect, and the party afterwards proceeded to St. Luke's Church, where they were received by the vicar (the Rev. W. M. O'Brady Jones). Mr. Weightman (on behalf of the architects, Messrs. Oliver, Leeson & Wood) explained the recent additions to the church, and the members were hospitably entertained at the vicarage at the conclusion of the meeting. Among those present were Mr. A. B. Plummer (president), Messrs. H. C. Charlewood, W. H. Knowles, J. Bruce, G. T. Brown (Sunderland), J. M. Dingle (South Shields), W. J. Moscrop (Darlington) and C. S. Errington (hon. secretary).

#### GENERAL.

The Hendon Education Committee have considered plans for a new school at the Hyde to accommodate 1,000 children, and awarded first place in the limited competition to Mr. W. G. Wilson, F.R.I.B.A., 5 Bloomsbury Mansions, W.C. The second premium was awarded to Mr. G. Hornblower, F.R.I.B.A., of Devonshire Place, W., and Hendon, and the third premium to Messrs. Cabuche & Hayward, M.M.S.A., Westcliff-on-Sea and Finchley.

Mr. G. H. Wenyon, architect, Tipton, has been successful in a competition for a Carnegie library at Dudley. The plans placed second and third were by Mr. John P. Osborne and Messrs. Nichols & Nichols (both of Birmingham) respectively. The competition was limited to architects practising within a radius of 50 miles from Dudley.

In Connection with the courses of lectures and practical work for the architectural students arranged to be held at University College in the evenings in conjunction with the Carpenters' Company, a public introductory lecture on "English Mediaeval Architecture" will be delivered by Mr. Edward S. Prior, F.S.A., F.R.I.B.A., in the Botanical Theatre, University College, on Friday, October 11, at 6.30 p.m. Lieut.-Col. A. C. Preston (master of the Carpenters' Company) will preside.

The Bury St. Edmunds pageant committee report that the total receipts of the recent pageant amounted to 10,084*l.*, of which 7,873*l.* was from the sale of tickets. After paying expenses and returning all subscriptions, a balance of just over 1,000*l.* remains. To what purpose the surplus is to be devoted has not yet been decided.

The Prix Chaudesaigues was awarded on Saturday by the French Academy of Fine Arts to M. Levard, architect. The subject assigned was the publishing office of a large newspaper.

Pictures by the following artists in the Barcelona International Exhibition have been purchased by the executive commission for the Art Museum of Barcelona:—W. Lee Hankey, one water-colour and one colour-print; R. Anning Bell, one water-colour; Bertram Priestman, one oil-colour; Professor Gerald Moira, one oil-colour; Alfred Withers, one oil-colour.

M. Paul Chevalier, who was one of the principal auctioneers for works of art in Paris, died on Sunday in his fifty-sixth year.

A Course of six lectures on William Blake will be given at Alexandra College, Dublin, beginning on Monday, October 7, at 8 p.m., by Mr. J. H. Wicksteed.

The Hon. John Collier is exhibiting his picture "J. Godiva" at the Modern Gallery, 61 New Bond Street, for a few weeks.

The Governors of the Glasgow School of Art held their annual meeting last week. Sir James Fleming was elected as chairman. The report stated that there had been increases both in the number of students enrolled and in the amount of fees received, and in face of the advance in the standard now required for admission that was considered very satisfactory. An important recognition of the school by the Glasgow provincial committee had taken place, and it was now a centre for the training of art teachers, a course of instruction not hitherto attempted in Scotland, but well judged by the demand made for art teachers, was necessary. Senior classes alone will be held, and to enable deserving students to fulfil the requirements, the Scottish Education Department had authorised the Governors to grant maintenance bursaries. A very favourable report had been received from His Majesty's inspector, Mr. F. W. Young, upon the classes for the instruction of school teachers in drawing, and the other departments of the school were reported upon as being in a very healthy condition.

The Lancaster Town Council, who have been considering the selection of a motto, recently approved of "The Honourable Lancaster," but the Garter King at Arms declined to register it, on the ground that it was a quotation from Shakespeare and applied to John of Gaunt. Thereupon a member of the Council gave notice to rescind the resolution, so that the whole question could be gone into anew. It was announced at the meeting of the Corporation on Wednesday that the Garter King at Arms had fixed upon "Lucy Loyne" as the motto, and had registered it. This led to strong protests by several members, who urged that the Council should adopt its own motto and not be dictated by any outside official. An amendment was proposed that the motto be "May time-honoured Lancaster be ever prosperous," but this was defeated by 14 votes to 7, the assurance being given that whatever the Council proposed would not be registered, and that the one chosen for the town was definitely fixed.

The Restoration of Winchester Cathedral will soon be a standstill if more money is not forthcoming. The end of the structure is safe, but the transepts are dangerous and are shored up. Preservation of these must not be proceeded with until more money is received, and the shoring will remain as a protest. Another appeal must be made. There has been an excess of expenditure of the fund of 5,000*l.*, and in addition 30,000*l.* will be needed.

The General Purposes Committee of the Worcester City Council have approved of the suggestion that the ceiling of the north window of the Shire Hall should be decorated with the arms of the city of Worcester and the arms of the five boroughs within the county. They have resolved that the mayor and chairman of the committee be asked to obtain subscriptions towards the cost of the city arms, viz. 14*l.*

Mr. C. Turton has been appointed surveyor to the Epsom Rural District Council at a salary of 220*l.* a year. There were nearly two hundred applicants, three of whom the Council interviewed, viz. Mr. F. Feather, surveyor to the Cheriton Urban District Council; Mr. J. C. Hooper, surveyor to the Hitchin Rural District Council; and Mr. C. Turton, chief assistant surveyor, Cannock Rural District Council.

The Municipal Buildings Scheme for Coventry was the principal matter before the fortnightly meeting of the City Council last week. In June last the Local Government Board held an inquiry as to the proposal to borrow money to place municipal offices, above shops, in Earl Street. The Department now wrote that it appeared to the Board that at present there was not sufficient evidence as to the probable cost of the buildings, and requesting that detailed drawings and a priced bill of quantities might be prepared and a detailed estimate forwarded. The Board further stated that the estimate should show clearly what amounts were included for adapting the ground floor for shops. In this connection the Board explained that the provision of shops did not appear to them to be a purpose to which the borrowing powers conferred by the Municipal Corporations Act, 1882, were directly applicable. After a discussion it was resolved to ascertain from the Local Government Board whether they would, under any circumstances, sanction the erection of shops underneath municipal buildings, before incurring the expense of supplying information in detail.













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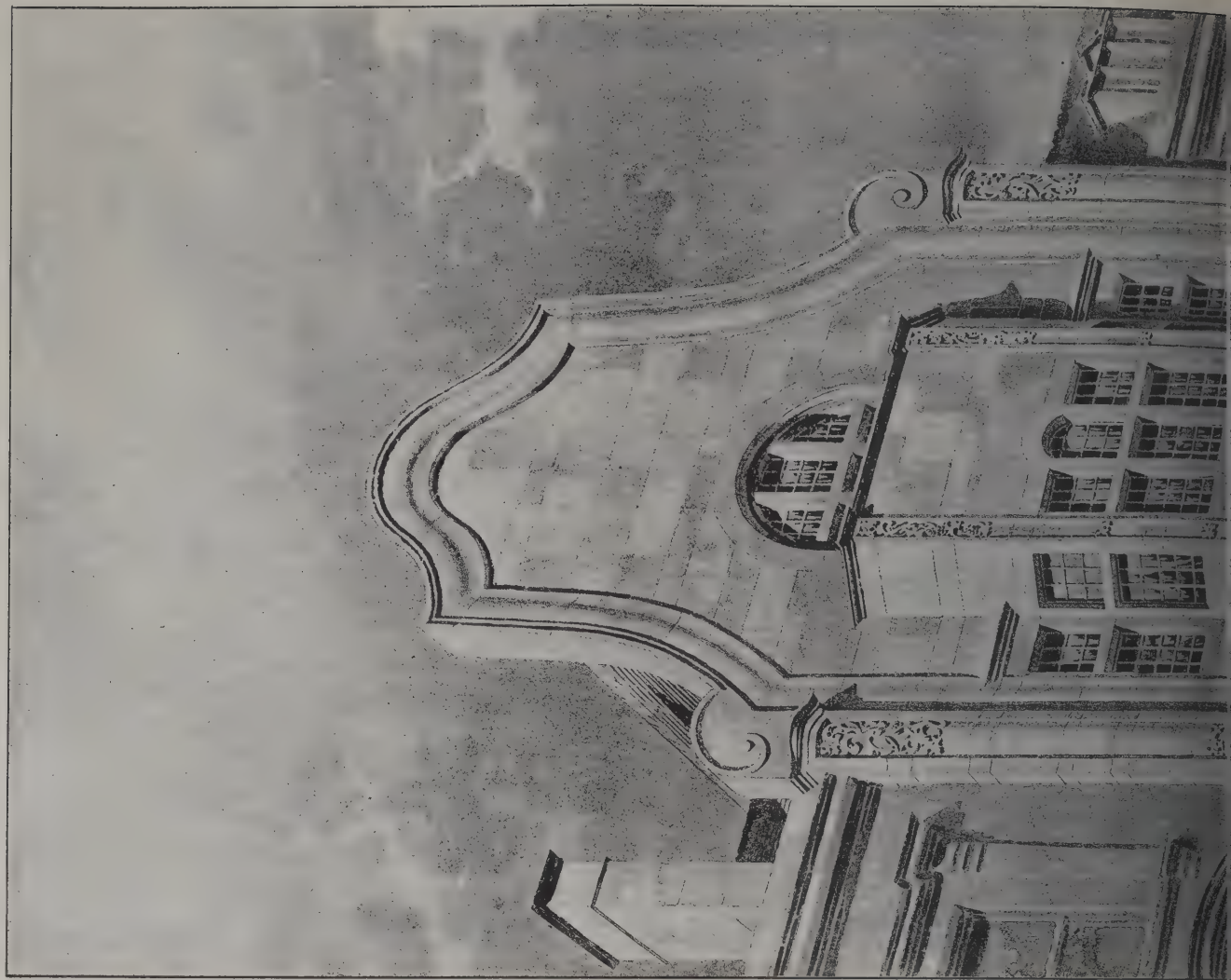
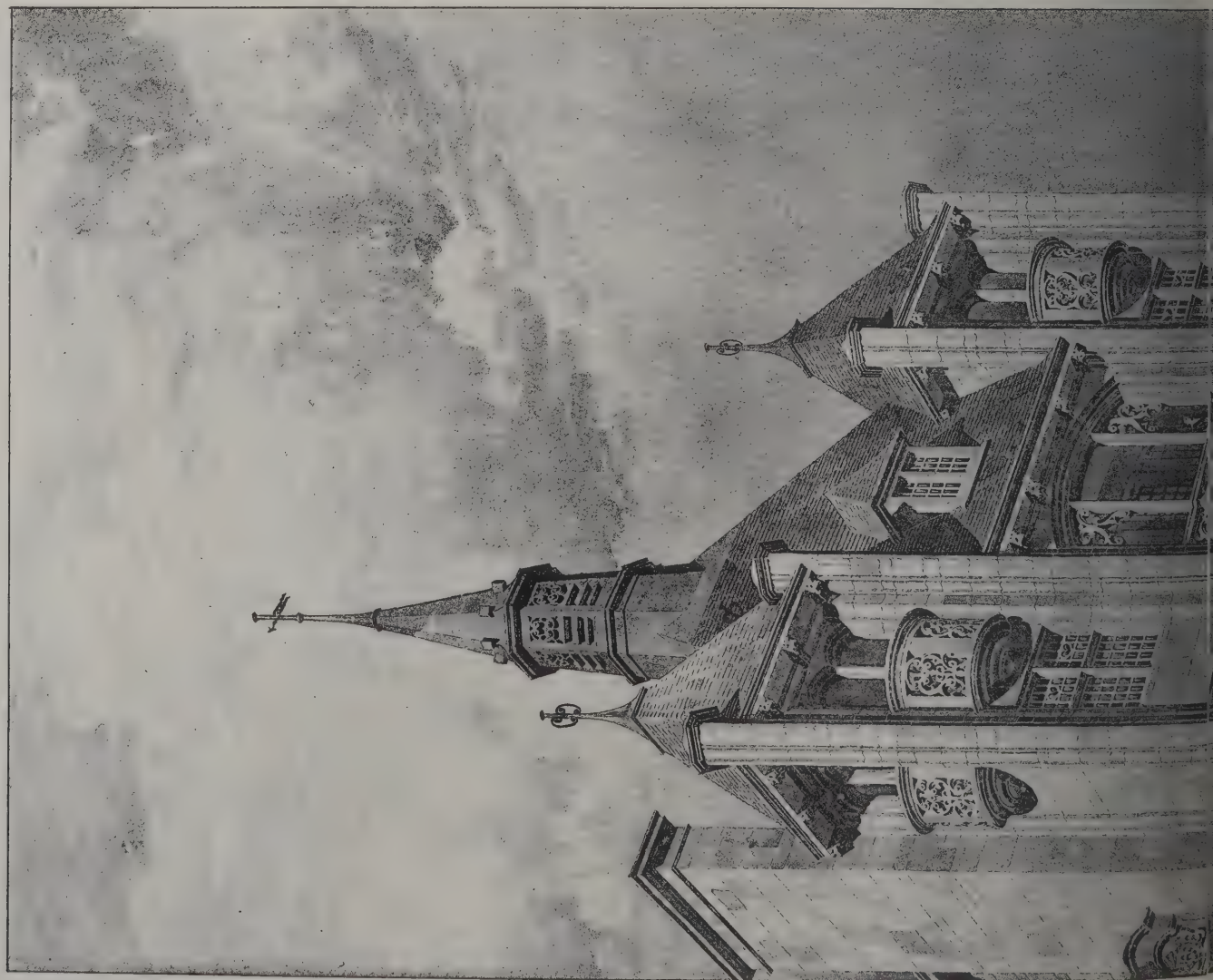










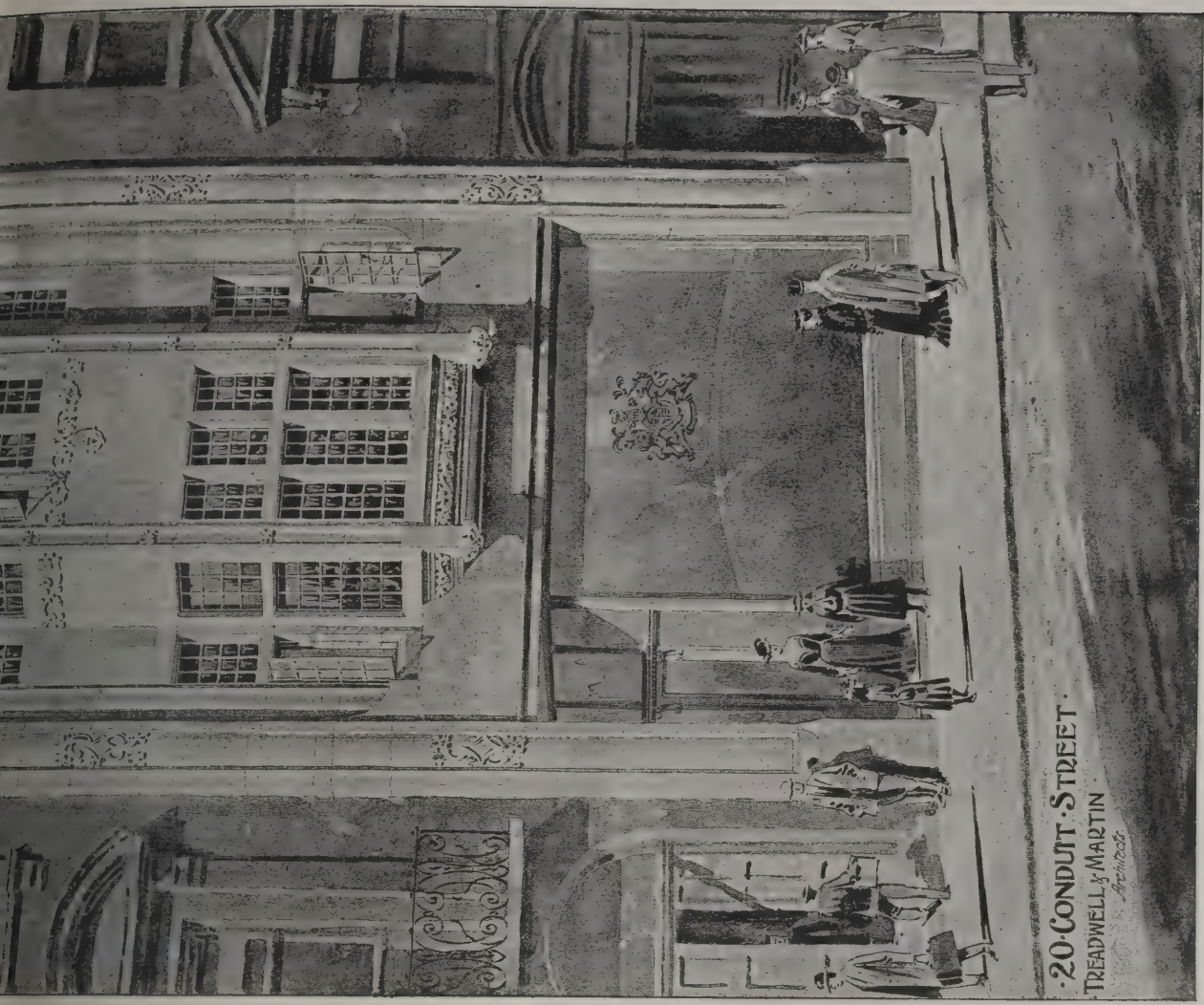






**WHITEHALL HOUSE, CHARING CROSS.**

Messrs. TREADWELL & MARTIN, Architects.



INK-PHOTO: SPRAGUE & CO. LTD. 4 & 5, EASTHARDING STREET, FETTER LANE, E.C.

**PREMISES: No. 20 CONDUIT STREET, W.**

Messrs. TREADWELL & MARTIN, Architects.













PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.





"INK-PHOTO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

AVE, FROM THE CHANCEL.







# The Architect.

## THE WEEK.

The London Building Act, 1894, there are rules for the conversion of buildings which undoubtedly may be described as flats, although they may be described as separate dwelling-houses. In the majority of cases similar regulations are observed. In fact common sense would dictate that a more exact scrutiny of plans is needed when a house is transformed into a series of flats than in ordinary cases relating to houses. At Hove, however, where it is supposed the most advanced regulations are enforced, flats have come into existence for which no plans were approved by the proper authority. The matter has at length been brought under the notice of the works committee of the Council, and the following resolution was passed:—"That the town clerk and borough surveyor be instructed to take steps to bring under the notice of architects, builders and others concerned, the conversion of a single dwelling-house into several tenements falls within section 159 of the Public Health Act, 1875, and is, therefore, the erection of a new building, and that plans must be submitted under the provisions as to new streets and buildings for the consideration of the Council."

It is proposed to hold an exhibition of British art in the Town Hall during March, April and May of next year. The director is Mr. LAKE, who has been connected with similar exhibitions since 1888. It is intended to have a loan collection of the works of the principal painters of the Victorian era, and paintings, drawings and engravings of various kinds will be shown in the hope of inducing purchasers for them. There is a National Gallery in Melbourne, and as a sum of 6,000*l.* is likely to be available in June the whole or part of it will be offered for the purchase of pictures. Several excellent examples of English art have already found a home in Australia, and few of the Colonies have done more to encourage a love of art among the people. The opportunity is therefore worth the consideration of painters, and it cannot be denied that at the present time an unusually large number of pictures will be found in Australia.

On Wednesday Lord RIBBLESDALE opened the new Art Exhibition in the Whitechapel Art Gallery, which will be continued during October and November 1907. It is another instance of the variety of the Rev. Canon BARNETT and the trustees contribute to secure for the benefit of the people of the city. One gallery is devoted to paintings and drawings. There are groups of paintings by Flemish and Dutch animal painters (RUBENS, SNYDERS, PAUL POTTER, COETER, &c.), as well as groups by the older English painters (MORLAND, STUBBS and WARD), and nineteenth-century or contemporary animal painters from England and France. A second gallery is given up to Japanese and Chinese paintings, drawings and engravings of animals. In the lower gallery there are models for (1) animal sculpture; (2) animals in ancient Assyrian, Egyptian, Greek and Roman; (3) Mediæval carvings and paintings illustrating the animal symbolism of the bestiaries, &c.; (4) heraldic animals; (5) the use of animal forms in decorative work by various races. Animal forms occurring in tiles, tapestries, metalwork (aquamanilles), pottery, furniture, &c., have been included. There is a section for drawings of animals by DÜRER, REMBRANDT, ROMNEY, WARD and modern artists. The subject, "Animals in Art," is one that is certain to appeal to people in East London, and it is hoped that by treating the subject widely and giving some examples of ancient, Mediæval and modern work it may be made both interesting and of educational value.

It is strange how little is known by many sensible people about the organising power necessary when a large contract for any kind of construction is undertaken. Owing to the circumstance that in the early days of railway making some of the contractors were of humble origin, the tradition has been expanded about the competence of navvies to bring difficult works to a successful issue. But among the early railway contractors the most successful were men like THOMAS BRASSEY, who were endowed with extraordinary administrative powers. In our times there is little chance for the navvy unless with very small contracts. If there is one class of work which demands the exercise of constructive power, caution, watchfulness and experience, it is the construction of a reservoir. The catastrophes which may follow from a slight settlement or from a few cubic yards of careless work are too well known to be discussed. Yet when it was proposed last week to give a contract for a new reservoir for Bolton to Messrs. BEST, of Edinburgh, some of the members of the Council insisted that the fitting course was to have the work done by the working men of Bolton under Corporation officials. Any apprehension about the want of experience on the part of officials or workmen was scouted. Fortunately there was a large majority of the Council who were able to take a sensible view of the case, and the Delph reservoir will be carried out by a firm who are acquainted with the risks of that class of work.

On Wednesday evening a water-colour drawing, *On the Test, Hants*, by Mr. AUGUSTUS WALFORD WEEDON, R.I., was presented to the Architectural Association on behalf of old pupils of the water-colour class as an appreciation of friendship, and in pleasant remembrance of many happy meetings. Mr. WEEDON was during fourteen years instructor of the class, and endeared himself by his genial manner to all the members. The drawing was subscribed for as a memorial of his services by the following members:—ERNEST BATES, C. W. BEAUMONT, A. G. BEWES, CECIL C. BREWER, H. C. CORLETTE, L. S. CROSBIE, W. E. DAVIS, ARCH. C. DICKIE, F. R. FARROW, BANISTER F. FLETCHER, H. L. FLORENCE, D. THEODORE FYFE, H. R. GOODERHAM, E. GREENOP, S. K. GREENSLADE, A. TROYTE GRIFFITH, EDGAR A. HAWKINS, A. E. HENDERSON, H. C. R. HIDE, I. HUMPHREY JONES, F. LISHMAN, GEO. G. LYNES, E. W. MARSHALL, FRANCIS E. MASEY, F. O. OERTEL, ANDREW OLIVER, JOHN ORMROD, WILLIAM A. PITE, THOS. E. PRYCE, G. H. FELLOWES PRYNNE, KOTARO SAKURAI, W. K. SHIRLEY, A. DUNBAR SMITH, LEONARD STOKES, J. W. STONHOLD, WM. H. TOWN, R. H. WEYMOUTH, T. C. YATES, and W. B. G. LEWIS, hon. secretary.

The twenty-seventh annual meeting of the Glasgow Institute of Measurers was held on Monday in the Building Trades Exchange. Mr. JOHN BAXTER, president, was in the chair. The report of the Council for the past year was submitted. It stated that the membership stood at seventy-four, besides one honorary member and seven associates. It was reported that the examinations qualifying for membership were held in March last. Two candidates passed in the preliminary examination and two were successful in the final examination, and had been placed on the register of associates. A grant of 2*l.* 2*s.* had again been made to the Technical College for prizes in the classes of building construction. The treasurer's statement showed the funds to amount to 65*l.* 13*s.* 4*d.* The office-bearers for the ensuing year are as follow:—President, Mr. GEORGE B. WALKER; vice-president, Mr. ANTHONY PURDIE; secretary and treasurer, Mr. THOMAS N. HILL, F.S.I., 180 Hope Street; auditors of professional accounts, Messrs. JOHN BAXTER and JOHN S. STEWART; other members of Council, Messrs. ALEXANDER DAVIE, JAMES D. HERBERTSON, JOHN H. ALLAN, JOHN W. FYFE, JAMES SMELLIE, ARCHIBALD B. WATSON and JAMES P. SCOTT.



## LONDON COUNTY COUNCIL.

THE meetings of the County Council were resumed on Tuesday. But it must not be supposed that during the recess the committees were inactive. Tenders were received and considered, reports had to be prepared and administrative duties transacted, although accounts of the proceedings did not regularly come before the public.

In the year which has just commenced economy is expected to prevail. Nevertheless, many things must be done which will be of great importance in the Metropolis, and which cannot be carried out without corresponding expenditure. To architects the most important event is the erection of the new County Hall. All the drawings which will represent the final stage of the competition must be sent in not later than December 30. As the assessors have shown remarkable expedition in dealing with the 1,199 drawings submitted in the preliminary stage it may be assumed that a decision may be arrived at early in 1908, and the Council will have to determine the extent which they will be able to build over.

Probably the decision on the cubical content of buildings will have more general interest. The Building Act committee recognise that the large scale on which modern industries must be carried out is not possible with such a restriction as is imposed by 250,000 and 450,000 cubic feet limitations. It is therefore proposed in the next session to amend the Building Act in order to allow horizontal separation, to remove all restrictions on the Council's power to permit increased cubical capacity for buildings of the warehouse class, and to give the Council discretionary power with regard to openings in party walls, the provision of fire-resisting doors constructed of other materials than iron, and the uniting of buildings. There is no doubt that the manufacturers whose interests the County Council are eager to meet are desirous of constructing buildings in which concrete and steel would be employed. It would be well for the County Council to consider whether, in amending the Building Act, more facilities for that class of construction should not be allowed. As the system has proved its efficiency, care should be taken to avoid suggesting that it is inferior to other methods of construction. Warehouses and manufactories need not present an architectural appearance corresponding with that of a county hall, and consequently it is unreasonable to insist that the building regulations shall be uniform.

The position assigned to economy in the programme of the year must affect the proposals relating to the northern frontage of the Strand. "An association of private individuals known as the Further Strand Improvement Committee," in spite of their reiterated efforts, have not yet succeeded in persuading the Improvements Committee to alter the northern frontage between the churches of St. Mary-le-Strand and St. Clement Danes. It is still maintained that the alteration would involve a loss of 249,400*l.*, and that the enhancement of the view of the Strand being doubtful, so heavy a loss is not justified. It is remarkable that as yet people who would be likely to build on the vacant land have in no way expressed any desire for a change. That may be business tactics; for if the sites can be brought into disrepute the Council would have to accept more moderate prices for them. If the property were an ordinary building estate there is no doubt the recommendations of such people would have great value. The Improvements Committee of the County Council are only following the general practice. They can claim that intending leaseholders are indifferent, and while that state of things continues the efforts of those who are eager to preserve the views of the churches and the Law Courts must be in vain. It is strange, but only one additional offer for land in the new street is now before the Council. Messrs. MARK JUDGE & SONS, for the Nineteenth Century Building Society, offer 800*l.* a year rent for a site adjoining Danes Inn House with a frontage of 25 feet 6 inches. An offer which was accepted

last December for a site in Sardinia Street, for a rent of 2,000*l.* a year was to be paid, and a building erected at a cost of 80,000*l.*, appears to be a fiasco.

There is an indication of a slight change in policy of the Housing of the Working Classes Committee. On the Totterdown Fields estate at Tooting the Council had erected already 697 cottages, and twelve more are in progress. In 1906-7 there was a deficiency of 1,541*l.*, and a similar loss would excite alarm in an ordinary building society. The Council propose, however, to construct within the next three or four years 496 cottages. As an instalment, authority to erect sixty-seven is sought at a cost of 15,350*l.* The cottages to have five rooms and a bath-room, thirty-six to have four rooms and a bath-room, and twenty-eight three rooms and a bath-room. It appears there is little demand for the five-room cottages, owing to the number of villas with five rooms that have been put up near the estate. It is an unwise policy to interfere with ordinary building by speculators, who have provided all round London with houses at a very cheap rate. The County Council committee evidently decided they were justified in providing humble tenants more accommodation than was needed. It is therefore satisfactory to find that they are fully considering the policy to be adopted on the other estates, taking that to mean that the supply of cottages will correspond with the demand for them.

The Improvements Committee recommend work for the year will cost only 82,394*l.* To this may be added 100,000*l.* a contribution to local improvements; during the last nineteen years the average has been 425,675*l.* The most expensive undertaking is a street 60 feet wide from Gray's Inn Road to Pentonville Road, with a frontage of 1,000 feet, at the centre of the Metropolitan Railway at King's Cross. For the various improvements the Council advised to obtain from Parliament exemption from the Lands Clauses Act, in order that when taking portions of gardens, private pavements and strips of open land will not be necessary to purchase houses as well.

The Highways Committee recommend some new lines of tramway. The most expensive is from Norwood to the Crystal Palace, which is estimated at 66,623*l.*, and for which the overhead system of traction will be adopted. Another tramway from the Crystal Palace from Lordship Lane Railway Station is estimated at 49,626*l.* It is proposed to seek from Parliament to employ overhead traction on the line between Hammersmith and Putney, and to connect the line from Hammersmith to Harlesden for the accommodation of the visitors to the Franco-British Exhibition.

The special committee who inquired into the working of the Council's electricity station in connection with the Royal Observatory made certain recommendations regarding the machinery and chimneys. The latter were intended to be 272 feet in height at the time of the inquiry they were not more than 204 feet high. The Highways Committee agree that the height shall not be increased, and the other recommendations are also to be carried out. The Observatory is controlled by the Admiralty, and it will also be necessary to consider the conclusions of the committee, so that it may be considered that for the present the subject is ended.

The Finance Committee have arrived at several conclusions of which the effect can hardly be overestimated. Practically there has been hitherto little control over the finances as a whole. It is proposed of discussing the subject at any time, which means that one or more members of a committee may desire to propose that votes on the capital account should be taken at specified times and early in the year. In other words, there will be an approach to the system adopted by Government, for the Budget will have to be discussed and approved by the whole Council. It will consequently be necessary for each committee to prepare a whole year's estimates in advance. The arrangement will, no doubt, involve more labour on the part of the officials and unless there is provision for



it will be difficult to meet requirements which suddenly arise. But if economy is secured, the on whom the burden of taxation falls will rejoice in change. One of its advantages may be that those who tender for works will be allowed longer to make inquiries.

## GEORGE'S CATHEDRAL, SOUTHWARK.

THE announcement of an intention to complete the tower of St. George's Roman Catholic Cathedral will give satisfaction to all inhabitants of the parish who are desirous of seeing long vistas of the city closed by a prominent structure. WELBY, who designed the building, in a letter to the Rev. Canon, the French archæologist and author of the well-known book on iconography, wrote:—"L'église de St. Georges à Londres vous fera plaisir. Elle a une tour de long. Le clocher aura 317 pieds de haut jusqu'à la croix de la flèche." BENJAMIN, in his *Life of Pugin*, adds, "The base of this tower is only yet built, and according to present appearances there seems little hope of the structure ever being completed according to Pugin's design." Pugin made more than one design for the cathedral, but the one now to be desired, for the sake of architectural unity, whenever the tower is raised to its full height as is planned, his intentions will be respected.

In a historical sense the cathedral is interesting, as it is a revival of "True Principles." The majority of the best works of architecture consists of churches and chapels, and all lovers of the art must hope that the cathedral will be far distant when such buildings will be superseded by CARLYLE'S "Cathedral of Immensity," and that there will be no longer possible, in the words of the poet Mariner—

To walk together to the kirk,  
And all together pray,  
While each to his great Father bends,  
Old men, and babes, and loving friends,  
And youths and maidens gay.

At the beginning of the nineteenth century anyone who visited the Roman Catholic churches of London could not imagine that architecture was not tolerated, or that the evolution of architecture had produced the most magnificent structures. That might be ascribed partly to the influence of the penal laws, partly to ignorance, and partly to poverty. The examples must have been shown to those foreigners who were acquainted with the great cathedrals and churches of the Continent. In 1838, when an endeavour was about to be made to produce a change, has left a description of the Roman Catholic churches then existing:—

There is Moorfields, he wrote, like a theatre, with its galleries and boxes; Warwick Street, a concert-room in the sense of the word—an abomination; Lincoln's Inn, a place grated like a chapel for convicts; the rest dirty, dingy, conventicle-looking buildings, with the exception of John's Wood chapel, which, though infinitely superior to the others, savours far too much of the nineteenth century. With this single exception there is not, in fact, the slightest degree suitable for the sacred purposes which it is destined or which is calculated to impress the mind with the sublimity of true religion. All are intended, on the contrary, to produce the worst effects on the mind, and I can hardly wonder at the insulting levity of the architecture displayed by those Protestants who enter them.

Pugin somehow early fell into the way, which is not uncommon, of running down contemporary architects—who, to his mind, appeared to be "men, for the most part, utterly despicable; who venture to produce noble art for the sole purpose of prostituting it to the degrading of it to their own private interests"—and his works. But his description of the churches is based on old drawings and prints. Cardinal ANSELMI relates that when he was a boy his father, who used to hear a piece of music, brought him to the chapel

in Warwick Street, and, although having a precocious interest in ecclesiastical details, he was unable to recall more than a pulpit, a preacher and a boy with a censor.

It was therefore a courageous attempt to propose the erection of a cathedral of a superior character in one of the poorest districts of London. PUGIN, who had made himself prominent by his writings and drawings, prepared designs of a grandiose building in 1838. Anyone who looked at the views might well imagine that the Ages of Faith had returned and that unlimited funds were to be at the architect's disposal. "The eternal lack of pence which vexeth public men" is especially hard upon enthusiastic architects. Poor PUGIN had to own afterwards that with the exception of his own church at Ramsgate, where he was paymaster as well as architect, he never had a chance of producing a single fine ecclesiastical building. Even that church is still incomplete. "St. George's," he said, "was spoilt by the very instructions laid down by the committee, that it was to hold 3,000 people on the floor at a limited price; in consequence, height, proportion, everything was sacrificed to meet these conditions."

The cathedral of St. George was commenced about 1840. PUGIN was then only twenty-eight, but he must have had enough experience to be aware that unless rich men like Lord SHREWSBURY were willing to contribute liberally the money to build Roman Catholic churches was derived mainly from the pennies of the poor. St. George's covered a large area, and it was impossible that the walls could attain the height which PUGIN sought after as the first essential of Gothic. It had to replace a building erected in 1793 in which it was essential, in order to provide accommodation, to surround the nave with a gallery. It was the necessities of the congregation which were dominant with the bishop and clergy, and they could only expect the realisation of PUGIN'S dreams in a remote age.

What seemed to be unaccountable was that having adequate space and being a stickler for orientation, he should neglect that ancient principle of church planning. It may have been through economy that he also employed for the walls the common brick which so easily becomes stained in a London atmosphere. What was intended to be the principal entrance to the church had to be sacrificed to an organ gallery. A chancel screen which was introduced gave rise to much controversy, and, indeed, there were many features about the building which were objected to by laymen as well as by architects. But none of the critics was more sarcastic than JOHN RUSKIN. He had been annoyed in witnessing the indifference to painting and sculpture of the clergy of Italian churches, and he came to the conclusion that Romanism was not only incapable of producing anything great in art, but could not preserve what had been given to it. The griffins of the cathedral of Verona were made to serve as line-props for a washerwoman. Caricatures for sale were allowed to be fastened on the shafts of St. Mark's, Venice. Altar-pieces were being destroyed by candle-droppings. PUGIN was accepted as the chief representative of Catholic art in England, and was turned into a victim for the misdeeds of centuries in foreign churches. His desire to have ample room for the expression of architectural qualities was treated as if it arose from conceit in the possession of imaginary powers, as in the following extract from "The Stones of Venice":—

Phidias can niche himself in the corner of a pediment, Raphael expatiate within the circumference of a clay platter; but Pugin is inexpressible in less than a cathedral. Let his ineffableness be assured of this, once for all, that no difficulty or restraint ever happened to a man of real power, but his power was the more manifested in the contending with, or conquering it; and that there is no field so small, no cranny so contracted, but that a great spirit can house and manifest itself therein. The thunder that smites the Alps into dust can gather itself into the width of a golden wire. Whatever greatness there was in you, had it been Buonarroti's own, you had room enough for it in a single niche; you might have put the whole power of it



into two feet cube of Caen stone. St. George's was not high enough for want of money? But was it want of money that made you put that blunt, overloaded, laborious ogee door into the side of it? Was it for lack of funds that you sunk the tracery of the parapet in its clumsy zigzags? Was it in parsimony that you buried its paltry pinnacles in that eruption of diseased crockets? Or in pecuniary embarrassment that you set up the belfry fools'-caps with the mimicry of dormer windows, which nobody can ever reach nor look out of? Not so, but in mere incapability of better things. I am sorry to have to speak thus of any living architect; and there is much in this man, if he were rightly estimated, which we might both regard and profit by. He has a most sincere love for his profession, a hearty honest enthusiasm for pixes and piscinas; and though he will never design so much as a pix or a piscina thoroughly well, yet better than most of the experimental architects of the day. Employ him by all means, but on small work. Expect no cathedrals of him; but no one, at present, can design a better finial. There is an exceedingly beautiful one over the western door of St. George's; and there is some spirited impishness and switching of tails in the supporting figures at the impost. Only do not allow his good designing of finials to be employed as an evidence in matters of divinity, nor thence deduce the incompatibility of Protestantism and art.

We believe the passage we have quoted was deleted by RUSKIN from the later editions of his work. But it is important as evidence of the spirit in which an effort to revive Gothic was received by contemporaries. It is, moreover, remarkable that there was much in common between the two men. Neither PUGIN nor RUSKIN could be said to have followed the customary routine for gaining knowledge of architecture. Neither cared much for the accepted divisions of periods of Gothic architecture, although both believed in the superiority of Gothic over Classic forms. Both valued the auxiliary arts of painting and sculpture, both were dogmatic writers and both displayed a contempt for the conventionalities of English life. RUSKIN probably was of opinion that "two stars keep not their motion in one sphere," and the student of Christ Church and the heir to a large fortune from whom artists expected commissions could hardly believe that a man who had passed through so many experiences was much more than a charlatan. But with all his fortune and cleverness in drawing, RUSKIN was not competent to make such a design as PUGIN submitted for Southwark Cathedral.

#### LIVERPOOL CATHEDRAL.

A MEETING of the Liverpool Cathedral committee was held on Monday. Sir Wm. B. Forwood presided, and there were also present the Bishop of Liverpool, Archdeacon Madden, Canon Penrhyn, Canon Sylvester, Rev. C. Harris, Messrs. Arthur Earle, Robert Gladstone, A. Crosthwaite, Richard Dart, T. Sutton Timmis, F. M. Radcliffe, J. Alderson Smith (hon. secretary) and G. Gilbert Scott (architect).

Mr. Scott presented a report on the progress which is being made with the building. He stated that the lady chapel has been advanced up to the window sills, and the triforium has been nearly completed. The vestries walls have been carried up to their full height, and the vestry aisle has been completed to the height of the ceiling. The walls of the choir are being proceeded with, and also the piers, and it is now possible to obtain some idea of the size and spaciousness of the choir when completed. Mr. Scott also submitted complete drawings of the lady chapel, showing the tracings of the windows and the triforium, which were approved by the committee.

A letter was read from the family of the late Mr. Robert Morrison, whose firm are contractors for the building of the cathedral, and who when he was alive took the warmest interest in the work. The letter stated that the family would like to erect in Mr. Morrison's memory two windows in the lady chapel, one from his widow and the other from his children.

The committee very gratefully accepted this offer with the expression of their appreciation of the personal interest which Mr. Morrison took in the work of the building of the cathedral during his lifetime.

#### THE ARCHITECTURAL ASSOCIATION

THE opening meeting of the Association for the year 1907-8 was held on Friday evening last in the premises at Tufton Street, Westminster, Mr. Walter B. Wood, president, in the chair.

The following gentlemen were elected members: Messrs. C. W. Bowles, G. Norman, H. F. L. Pilch, E. W. T. Hoare, jun.

The President distributed the prizes, medals and certificates gained by students in the last session.

#### Presidential Address.

Fellow-members of the Architectural Association, has become a custom in the past for your President to address you at the beginning of each session. The President has discussed in able language many topics connected with the Association and architecture in general. The great selection of the topics in which we are all interested makes the selection of a subject a task of no little difficulty.

The past history of the Association and its aims and hopes for the future, and the whole duty of an architect from the time he enters the schools till he finally lays down his pencil, have been constantly dealt with by your Presidents, and at first sight it does not seem that much more can be said. Yet the actual position of the Architectural Association and the position of the architect changes so rapidly from year to year, that I think I may confidently ask you to listen once more to a few words on the same subject.

I cannot begin my address to you without some expression of thanks for the very great honour that you have placed me in this chair. As years go on the duties of President become one of increasing difficulty, and I am conscious of what is expected of him and the amount of time and thought he has to give to fill this responsible position, and secondly on account of the difficulty of following the distinguished Presidents before him. I am conscious, therefore, that I enter upon my year of office with some misgivings that I enter upon my year of office; but I trust your help and co-operation, and that of the Council, will not altogether fail. Your past president, Mr. Balfour, was well fitted to carry on the work of the Architectural Association, and his most unfortunate death was a very real disaster not only to himself but to you. If there was one man who was well able to do good work it was Mr. Balfour, and I am sure you will all agree with me in wishing him a speedy and complete recovery. His work fell naturally on your shoulders, and to Mr. A. Needham Wilson you owe a great debt of gratitude, whilst I can only say that as President I gained much knowledge of the work which has now been laid on my shoulders.

During the past session many important changes have been made in the educational work of the Architectural Association, and as you all know the schools, both day and evening, have been placed under the charge of one man, Mr. H. P. G. Maule—in whose hands I think we can leave the educational work. He has under him an efficient body of assistant masters, and with Mr. Varndell as master of the evening school, the increased success of our schools, I think, is a matter of very great gratification.

As a consequence of these changes we lose Mr. T. Green, whose work in the evening schools was of great value to the Architectural Association. We also lose the services of Mr. J. H. Squire, Mr. J. H. Markham, Mr. Welford and Mr. F. R. Hiorns, and I wish on behalf of the Architectural Association to thank them most sincerely for their work in the past and wish them success in their future careers.

The day school at present numbers some sixty students, under the guidance of seven masters, while the evening school has sixty-five students. These numbers must give us all ground for serious thought, especially when we think of the comparatively short time (some thirty years) that the schools have been in existence. At first sight it would seem that from these schools alone a sufficient number of architects annually entering the profession is great in proportion to the work to be done, and the value of encouraging so many young men to enter the list of architects would be questioned. But after reflection it seems to me that the justification of our educational system can be found in the old days, up to some fifteen to twenty years ago, when the system of articulated pupils was the only means of learning our work, many more incompetent students entered the profession. The want of method in teaching, if teaching could be called, resulted in the fact that comparatively few emerged who could properly be called qualified architects.



not think that after taking all things into consideration young men set out to be architects now than twenty ago, but they are now more under observation, and standard of proficiency has increased beyond all measure. This can only be counted a gain to the profession at large; also under our system, it is possible for a master in the school to ascertain at an early period the probable chances of success of each individual student and it is too late for him to take up any other profession. In connection with our schools I should like to say that the last report from the Board of Architectural Education is eminently satisfactory, and it is a matter of congratulation that after some correspondence and meetings with the Academy authorities our educational work as now organised has met with approval.

I wish here to state that it has been decided to open a class (particulars of which are furnished in the Brown Book), and it is hoped that many will take advantage of the opportunity. The study of the life under an efficient master is of great importance to architects, and a branch of our education too much neglected; the exceptional opportunity offered is one of which I hope many members will take themselves.

On the retiring members of the Council, Messrs. John Driver and Arnold Mitchell, on your behalf, I offer our best thanks both for their services and their generous contributions to the building fund, and to the new members, Mr. Drumwell Thomas and Messrs. J. S. Gibson, F. D. Ham and Baxter Greig I offer a very cordial welcome. To our hon. secretaries we owe a great deal, and especially to Mr. Henry Tanner, who is now one of your presidents.

To the permanent officials the Association owes more than it has any idea of, and the excellent work done by Mr. Driver and his assistants makes it possible to carry on our ever increasing affairs of the Architectural Association in a satisfactory manner. No one who has not been intimately connected with the inner working of our Association is able to appreciate the painstaking and devoted labour which is being done in all directions by Mr. Driver, without his knowledge, tact and energy the position of the Association would be an impossible one.

The Association has lost many of its members during the last year, and special reference must be made to the loss of its past hon. secretary, Mr. A. Maryon Watson. The increase in membership has been satisfactory. We have 1,727 on our books, and it is hoped that during the coming session we shall further add to our members.

We have now settled down in our new premises, and it is with very great satisfaction that I am able to announce that our building debt has been reduced to 712%. We must, however, not consider that our work is done, for though we are very shortly to be free from debt, the yearly increase of our expenses, especially in connection with our educational work, leaves but a small margin of safety. We must have a reserve fund on which we may be able to draw in case of emergency, but without being unduly optimistic, I think we may feel satisfied with our present financial position, more particularly as we have as hon. treasurer our president, Mr. H. T. Hare, an old and tried friend of the Architectural Association.

Our warmest thanks are due to the Royal Institute for its generous support, both financially and morally. It is a matter of congratulation that we have received in the past and still continue to receive from the leading body of the profession such encouragement and sympathy, without which we should find our work exceedingly difficult if not impossible. I may add that our collection of casts is now being completed, and should be of immense value; and I am glad to find that the general public are taking more interest in architecture.

The position held by the Architectural Association was never so high as at the present time. We occupy a peculiar and unique position as the great educating body in the profession. We represent the younger generation in a way in which no other society can claim to do, and in spite of our youth we are the teachers. This somewhat anomalous position is in reality our greatest strength. By a combination of circumstances we have assumed the position and responsibility of a great educating body. The Royal Institute to whom we owe so much, cannot undertake the education of the young, and we have voluntarily laid on our own shoulders, and because we represent the younger side of the profession.

The enthusiasm and high ideals of youth, combined with the capacity for hard work, alone make it possible for a scheme of education to succeed; without these we

should become dull and academic, unattractive and inefficient. But a body of young men who are educating each other would not be successful without cohesion.

Our Association has within itself opportunities not only for education but for social intercourse. Our athletic clubs are growing in numbers and popularity, the musical talent amongst our members is of a high order and the opportunity of meeting one another in many ways outside our professional work is not the least valuable of the many advantages of the Architectural Association.

But there is a point in connection with this subject which, I think, needs emphasis. There is a very large amount of organising work to be done which involves time and trouble, and members are not always ready to give these when called upon. If our Association is to continue on the lines which we have now laid down, each member must realise that it is his own individual effort that is required to further our aims and insure success. On each member rests this responsibility. He must be willing to give up his time if called upon to serve on committees, and to show by his example that he is a real member of the Architectural Association, and not be content alone to reap benefits resulting from the work of his fellow-members. Let us all work together to this end, so that the cohesion of which I spoke just now may be a reality.

I must ask the elder members to bear with me if I lay particular stress on the youthful side of the Architectural Association. But I doubt if any of us really feel old, and as far as our profession is concerned I think architects never grow old—I mean that they are always learning, though the capacity for acquiring and retaining knowledge may decrease with years. I am sure they will agree with me when I say that the desire to continue their education increases as time goes on—with the expansion of our horizon our thirst for knowledge grows stronger. We see more clearly the difficulties in our path and are more lenient to the mistakes of others. Our outlook is wider, and we endeavour to grasp the larger issues and strive for breadth and dignity, which are the greatest attributes of all fine architecture.

To the student whose career is before him I would say cultivate the practice of observation and endeavour to train the senses not only to see accurately but to retain facts. Sketching from memory is an excellent way of training the mind in this direction—sketch and measure whenever opportunities arise. R. L. Stevenson in one of his delightful essays tell us that as a boy he always carried with him two books, one to read and one to write in. So I would say, always have a sketch book in your pocket and keep your eyes open, and you will be astonished to find what a useful amount of information you will collect in a comparatively short time. Be accurate—it is astonishing how inaccurate many people are and into what difficulties it leads them.

The young architect is indeed the heir of all the ages. For him exists all that is noble and beautiful in the past. This is his glorious heritage, but in order that he may enter in and take possession he must have both sympathy and knowledge. I want each one of you to feel this personally. Do not be content only to sketch and measure whenever opportunity occurs, but read all that you can of the history of the architecture you are sketching, and endeavour to get at the thought which lies behind the work. For it is more than true that there is no new thing under the sun—each feature in succeeding styles has its origin in something done before, and each genuine piece of architecture can be traced through its evolution back to the original thought which produced it. Remember, too, that architecture is founded on necessity, and no building worthy of the name of architecture can be produced which does not fulfil the conditions for which it is intended. These conditions are altering every day, and he who would be successful must not only realise these changes, but also understand the conditions in the past which have produced the successful results which we all venerate.

Thus architecture to be alive must be progressive, and grow like other natural things. It cannot begin suddenly to produce entirely different forms any more than the rose tree can produce another kind of flower, and, like the rose, it requires judicious but severe pruning from time to time—cut off all the dead shoots and the unhealthy buds right back to the parent stem, for from that alone can we hope to see any beautiful blossom.

Cultivate self-reliance and the power of honestly facing difficulties with no shirking; you will often be surprised to find how difficulties diminish when fairly faced.



If after an honest endeavour you cannot find your way out of your troubles, you have here in the Association many who will willingly help, and this brings me to another point—cultivate friendships while you are young. That is the time when all the greatest friendships are formed. Youth is invaluable if only for this opportunity of making friends amongst the fellow workers of your own age—it will be more difficult as years go on, and in the keenness of competition we find little time to make friends. Hero worship is again a prerogative of youth and undoubtedly has its advantages, and is a healthy sign if not carried to excess. We all have had our heroes, and their influence on our life and work we older men can recognise; fortunate indeed is he whose judgment was sound and who has gained nothing but strength from the influence of the master in whose footsteps he attempted to tread.

Another of the advantages opened to the student by the present system of our day school before entering an office is the opportunity of getting advice on what to sketch and look for on his travels. I can well remember my feelings of bewilderment when first going abroad without any definite ideas. The practice of making a sketching tour on the Continent on completion of one's articles is not so prevalent as in days gone by. It is a custom which is well worthy to be observed, but to attempt it without some personal help and advice will in all probability lead to little benefit. A definite idea of what to aim at in sketching and measuring is as essential to the student as it is to the architect in his designs. To travel with one's eyes open is one thing, but to have them directed in the right direction is quite another matter.

The Architectural Association organises a great many visits both to old and new work, which I fear are not too well attended. But I strongly recommend everyone to avail themselves of the opportunity of seeing examples of good architecture which may not occur again—the critical faculties are sharpened by the many different views expressed on these occasions, and it is astonishing how often interesting points appear as the result of a keen discussion which might otherwise have escaped attention. I have purposely confined most of my remarks to the student who is setting forth on the difficult path of architecture, and in conclusion I would say, persevere in your work here in the schools, so as to get all the advantage possible from the system of training provided for you. Sketch and measure wherever possible with discrimination, and keep in mind the ultimate end of all your work. Be thorough and conscientious in all things. Build up your store of knowledge bit by bit, so as to fit yourselves for the responsibility that devolves on all architects. You will some day be in the position of spending someone else's money, and you will be required not only to show your knowledge, but to give the best possible value both from an artistic and commercial point of view.

Realise when the time comes to practise what you have learnt, and that each piece of work, however small, has an ultimate effect not only on your personal career, but on architecture in general. Every piece of work honestly and thoughtfully carried out advances our profession, and no work is too small or insignificant. From the smallest things may come the greatest. Beware of beginning to practise too soon. Many well-equipped and capable men have retarded if not ruined their future by premature practice—an extra year of study may make the whole difference between failure and success. Keep your eyes open and your intelligence sharpened wherever you go. Remember the broad rules of life and practise self-reliance and self-restraint. Realise that you will be called upon some day to show of what you are made. An architect requires more than mere technical knowledge of his profession if he is to be successful. The importance of a sound education is enormous. A public school, followed by an university degree, is not within the reach of all, but a general knowledge of the world can be acquired by each one of us. Modern languages, music, athletics, &c., all help to equip the student, and no outside knowledge comes amiss.

There are few points in the social life of our times with which an architect is not sooner or later brought into contact in the exercise of his profession.

It is easy to abuse athletics, but to play games brings out many qualities such as courage, patience, accuracy, forbearance and perseverance, which not only develop the character, but fit a man "to meet his enemy in the gate."

Mr. A. NEEDHAM WILSON proposed a vote of thanks to the President for his address, and congratulated him on the

proud position he had been called upon to occupy Association. Although it was no easy matter to follow the long line of distinguished presidents who had filled office, yet he thought the Association were also to be congratulated on having a president who would be a worthy successor to his predecessors. The speaker referred to the balance of the debt on the building fund reminded members that it had been the great aim of Balfour to clear the debt during his year of office, but it spoiled his endeavours. The speaker therefore suggested that the members should show their appreciation of Balfour by renewing their efforts to clear the debt at the ensuing session. The progressive vitality of the Association was a source of gratification to those responsible for its management. They endeavoured to the best of their ability to keep ahead of the requirements of the age, and he hoped they would see a period of increased progress under the present system.

Mr. H. T. HARE seconded the motion, which was supported by Messrs. Leonard Stokes, G. H. Fellowes P and A. Keen.

The PRESIDENT announced that at the next meeting on October 18 a paper by Mr. Halsey Ricardo entitled "The Future of Architecture" would be read.

### AUGUSTUS SAINT-GAUDENS.

TO many beyond the immediate circle of his later life, the death of Augustus Saint-Gaudens, says Kenyon Cox in *The Architectural Record* of New York, has brought a sense of personal loss. He had a great friendship, and in the course of his brilliant career established intimate relations with men in many walks of life; and no one who had ever known him well, however separated from him by these last years of illness and comparative retirement, can have felt anything other than a deep and continuing affection for him. To his friends he seemed greater and finer even than his life, and the gap he has left in their lives will be harder to fill than his vacant place in American art.

No one who ever came in contact with him, no one who ever saw his portrait can have missed one of his dominant characteristics, a fiery and compelling energy. That extraordinary head, with its heavy brow beetling above the but piercing eyes, its crisp and wiry hair, its projecting and great, strongly-modelled nose, was alive with power. Not so readily discernible at a glance were the gentleness, the patience, the sweetness, the delicate sensitivity and abounding sympathy that were equally a part of his nature. He could be almost ruthless in the assertion of his will when he felt it necessary to be so, yet there was a tenderheartedness in him which made it distasteful to him to inflict pain on anyone, and which made him strike the harder, when he did strike, to have it felt with. He was entirely and wholeheartedly devoted to his art, and until his later years had few other interests. One of the greatest alleviations of this time of suffering was his broadening and deepening love for nature and literature. Music he had always loved. It was his passion for his art which caused his rare acts of self-assertion, and it was this same devotion, no less than his natural kindness, that made him ever helpful to younger artists who showed any promise of achievement. Even in his last months of pain he would summon what was left of his old strength to give a word of criticism and advice above all a word of commendation, to anyone who needed the one or had earned the other. The essential goodness of the man was most felt by those who were closest to him, and he could command, as few have been able to do, loyalty and love of the assistants upon whose aid he was more and more forced to rely. The faculty of communicating to them his ideas and desires and of producing through the hands of others, work essentially his own, became extraordinarily developed in him, at cost of heroic effort and of what strain upon brain and nerves one can ever know.

But however much his vivid and lovable personality may have meant to his friends, for the world at large it is his work that counts and will endure. He earned for himself the recognised position not so much of our foremost sculptor as of our greatest artist, indeed he was one of the first artists of his day in this country. It is not difficult to understand the feeling that though one may not entirely sympathise with it, that his art was scarcely sculptural in its essential quality.



ling of the *morceau* was not especially his affair, and  
ems of mass and weight and structure, of stress and  
ure of movement, were not those which most  
sted him. He did not, apparently, care greatly for  
uman figure as a figure—an affair of bones and  
es and integument—and, after his student days, pro-  
no nude except the purely decorative *Diana* of the  
on Square Tower. But in the presence of such work  
what, after all, does it matter whether or not we  
it sculpturesque, or whether we call it sculpture at all,  
ent some new name for it? It is art, and art of the  
and most profound. So Ghiberti may be said to  
produced pictures in bronze rather than true reliefs,  
ichel Angelo, a sculptor if ever there was one, thought  
ates of San Giovanni worthy to be the gates of  
ise, and the world would almost as lief be without  
iefs of the Parthenon as without Ghiberti's pictures.  
an age too much given to naturalism, to the scientific  
er and to the display of technical ability, Saint-  
ens was always and essentially the artist, the artificer  
uty, the searcher for perfection. First of all, and by  
e, he was a designer, and exquisiteness of design was  
ality he most consciously strove for—the quality on  
he expended his unresting, unending, persevering  
Never was artistic conscience more exacting, choice  
fastidious, industry more unwearied, and the result  
proportionate to the effort. There is nothing more  
more delicate in line, more ethereal in illusiveness  
face than his many small reliefs, portraits of women  
children; nothing more purely and nobly beautiful  
his caryatids or angelic figures, and his power of  
n rose with the dignity of his subject until it reached  
unsurpassable expressiveness of composition as is  
n in the Shaw memorial or the equestrian statue of  
man.

ut that which makes the art of Saint-Gaudens so  
icant for us is a greater power than this conscious  
f design; it is what must always be a more or less  
conscious power—that of a penetrating and creative  
ination. Without his strength of imagination he  
d have been a delightful decorative artist, worthy to  
mpared with the most charming of the Florentines;  
it he became something much more than this—he  
ne a great original force.

is less uncommon form Saint-Gaudens's imaginative  
er shows itself in his grasp of character—in that  
athetic perception and unerring presentation of  
iduity which makes him one of the greatest modern  
ers of the portrait statue. His earliest important work,  
*Tarragut*, showed this command of characterisation in  
a slightly less degree than his more mature produc-  
s, and it reached its culmination in such masterly pre-  
ations of personality as the *Lincoln* and the *Sherman*.  
instinctive knowledge of the significant elements of  
acter, the elimination of the merely accidental, the  
ity of feeling and the breadth of treatment evinced in  
place such figures as these among the world's few  
y monuments to its great men. Half French, half  
s, as he was by blood, Saint-Gaudens was wholly  
rican in feeling. He had lived through the time of  
ivil War and had felt the stir of it in his veins, and these  
esentations of the heroes of that conflict are among the  
national as they are among the most vital things that  
rica has produced in art.

ore evidently, though not more really, imaginative is  
vention of such an ideal portrait as the *Deacon Chapin*  
portrait of such convincing verisimilitude that one has  
ulty in believing that it is invented and that no such  
ndiment of New England puritanism ever existed  
e flesh. But the highest flights of Saint-Gaudens's  
ination were in the invention of such ideal or sym-  
al figures as the *Angel of Death* in the Shaw  
orial or the striding *Victory* of the Sherman group.  
as a bold enterprise to place them where they are,  
ling thus in the same work the real and the ideal, the  
al and the allegorical, but the boldness is justified by  
ss. In either case the entire work is keyed to the  
of these figures, and the figures themselves are no  
conventional allegories, no purely decorative acces-  
s, but true creations. To their creator the unseen was  
al as the seen—nay, it was more so. That Shaw was  
g to his death at the command of duty was the only  
g that made Shaw memorable. That Sherman was  
hing to a victory the fruits of which should be peace  
the essential thing about Sherman. Death and Duty—  
ory and Peace—in each case the compound ideal found

its expression in a figure entirely original and astonishingly  
living, a person as truly as Shaw or Sherman themselves.  
He could not have left them out. It were better to give up  
the work entirely than to do it otherwise than as he saw it.

But the most profoundly original and imaginative of  
Saint-Gaudens's creations is that wonderful, enigmatic,  
brooding figure in the cemetery at Washington—a figure  
that has been called by many names and whose meaning is  
mystery—a figure one would wish, were it possible, to  
place above his own tomb as the fitting memorial of his  
genius. Her enigma remains unsolved, but such an artist  
as he who made her is surely immortal in the only sense  
in which humanity can be sure of immortality. His mind,  
his spirit, his character, have taken on enduring forms and  
are become a part of the inheritance of mankind. And  
even if, in the lapse of ages, his name should be forgotten—  
as are the names of many great artists who have gone before  
him—yet his works will remain; and while any fragment  
of them is decipherable the world will be the richer in that  
he lived.

## A VARIED CAREER.

**A**N official notice is given by the Chicago Chapter of the  
late James Rowland Willett, a member. He was  
born in Dublin, Ireland, June 23, 1831, but went with his  
parents when quite young to America, and settled in Phila-  
delphia. He died in Chicago, Illinois, May 9, 1907.

Mr. Willett started in life as a stereotype moulder, after-  
wards matriculated in the Polytechnic College of the State  
of Pennsylvania and received his degree as Bachelor of  
Mine Engineering in 1854. He practised this profession  
until the outbreak of the Civil War. Then he entered the  
United States army and was appointed by General Freemont  
in 1861 as lieutenant of engineers. He performed duty as  
an engineer of fortifications and took active part in many  
battles. In 1863 he was made post engineer at Nashville  
and had charge of the construction of all fortifications in  
and about Nashville. In 1864 he was made inspector of  
fortifications of the district of Tennessee. During this year  
he was also made major of volunteer engineers, at the same  
time being made chief inspector of railroad defences. He  
was discharged from the army September 26, 1865, with  
the rank of brevet lieutenant-colonel. After the war  
Mr. Willett was appointed inspector to report on the  
condition of the Government buildings throughout the  
South which had been destroyed by the ravages of the  
war, after which he was appointed superintendent of the  
erection of the new Government building at Nashville,  
Tenn., and commenced the practice of architecture. Just  
after the fire he moved to Chicago and opened an office, the  
first commission being the building for the *Chicago Times*,  
one of the leading papers. In 1876 he built the first large  
apartment building in Chicago. In 1878 he was appointed  
architect for the Eastern Hospital for the Insane at Kan-  
kakee, Ill., the first asylum to adopt the cottage system.  
During his practice in Chicago he was architect for many  
public and private buildings throughout the West. In 1900  
Mr. Willett retired from business and devoted the rest of  
his life to books and study. He was a deep student and a  
vigorous worker as well as an authority on many branches  
of his profession, contributing many reviews on professional  
books to architectural journals. He lectured, wrote and  
did considerable research work in graphics and in the  
heating of buildings.

Mr. Willett joined the American Institute of Architects  
in 1870 and was one of the organisers of the Chicago  
Chapter. He was always zealous in maintaining the high  
standing of his profession, honourable in his dealings with  
his brother architects and never in any way compromising  
for the sake of a commission.

**The Selby Abbey** restoration committee have met and  
reported that the total funds amounted to 37,000*l*. The  
elevation of the tower in accordance with the original  
design of the structure which fell in 1690 was discussed,  
and it was decided to proceed with the project. The  
meeting resolved to erect a choir screen in accordance with  
Mr. J. Oldrid Scott's design at a probable cost of 700*l*. A  
considerable saving on the estimates was reported, and  
with an additional sum of 10,000*l*. the abbey would be com-  
pletely restored, including the erection of the south tran-  
sept. The reopening of the nave will take place on  
October 19.



## NOTES AND COMMENTS.

It was decided at a public meeting held in May that a minimum of 250,000*l.* was needed to enable the University of Oxford to meet the more pressing demands upon it. Contributions amounting to 56,700*l.* have been promised, and Lord CURZON, as Chancellor of the University, appeals for the completion of the sum required. A large proportion will have to be expended on building. A chemical laboratory to cost 30,000*l.*, an electrical laboratory to cost 15,000*l.*, an engineering laboratory to cost a similar amount, and laboratories for hygiene and materia medica are needed. More lecture and classrooms are desirable. Dr. ARTHUR EVANS is making a special appeal for the purchase of property which is a source of danger to the Ashmolean Museum and University galleries. It comprises a builder's extensive timber store and a petrol store. The galleries most immediately threatened from the first effect of a conflagration include those containing the priceless specimens of the Fortnum collection, the lobby with the Tradescant collection, and the annexe to the picture gallery, with the Rembrandt etchings. Should a serious fire break out in the neighbouring sheds and stables the main part of the picture galleries also could hardly escape. If the whole of the property necessary to insure safety could be acquired the outlay would be 30,000*l.* Additions to the museum and galleries are necessary, and the estimated outlay is at least 16,000*l.* An Egyptian-room and a lecture theatre are also essential, and would involve a cost of about 5,000*l.* It is claimed that owing to the really perilous situation in which both the museum and galleries are placed it is impossible to deny that some of these needs are of a more urgent nature than those of any other University institution.

IRELAND is a poor country. But Government departments are in error when they conclude that materials must be cheaper than in England, and that workmen will accept less wages. The low prices which were fixed for labourers' cottages is an instance of their mistaken views. The National schools, which seem to be in danger of collapse, are proofs that strange notions about cheap building existed several years ago. Another instance is likely to be afforded by technical schools. In 1889, when the Local Taxation Act enabled a part of the money obtained through beer and spirits to be applied to the building of such schools, England took advantage of it. Not till ten years afterwards did the Irish people condescend to believe that they were deficient in technical knowledge. Now they profess to be still more anxious, and on Monday a deputation waited on the Vice-President of the Department of Agriculture and Technical Instruction, seeking building grants. Mr. RUSSELL was favourable, but evidently he has the economical craze, as if jerry-built schools would serve the purposes required. Between 4,000*l.* and 5,000*l.* each he considered sufficient for big schools. But what he desired was to see technical schools which would not cost more than 300*l.* or 400*l.* for entire cost, including, we suppose, the expensive apparatus. Mr. RUSSELL declared himself to be an opponent of extravagant buildings, and told the deputation he would rather have education going on than pay for ornament. That is merely a platitude of the kind which orators of Mr. RUSSELL's stamp indulge in. If he would erect a building for manual instruction at his own cost he would soon discover that 300*l.* would go only a small way towards it.

THERE are a great many houses in England which from the extent of the collections of works which they contain deserve to be considered as miniature museums. Unlike museums they are, however, rarely open to public inspection. The owners preserve them for their own gratification or that of select friends. There are signs that a less selfish spirit is arising. Sir RUPERT BOYCE, the professor of pathology in Liverpool University, and who is one of the analysts for the city, has

in his residence, known as Park Lodge, Prince's a valuable collection, especially of pottery. He had experience of the facilities which are offered residents in Amsterdam to show their treasures all who care to see them, Sir RUPERT is now the experiment of imitating the Dutch practice. Collections can be seen by all who have any interest in them. It is to be hoped he will have no occasion to repent of his generosity, and it may be expected other collectors will also realise the excellence of property in trust as it were for the public.

It does not require much knowledge of the history of Dutch art to be acquainted with the connection of the Six family with many of the artists. The etching of *Burgomaster Six* by REMBRANDT is one of the master's works. The paintings, which were borrowed direct from the artists, are still to be seen by anyone who cares to seek permission in the fine old house at the Heerengracht, Amsterdam. It has become doubtful whether the famous collection will long remain in its entirety. One of the present owners has, it is resolved to part with his share of the pictures. In 1702 they were considered to be the supporters of the distinction of the family, and it was a duty to preserve them in their entirety. Whether an apportionment among the heirs was arranged seems to be uncertain, but some of the masterpieces are already assumed liable to removal from Holland. For the *Woman with a Milk Pail*, by JAN VAN DER MEER VAN DELFT, the sum of 700,000 florins is said to be asked, and money can be obtained in order to enrich an Amsterdam gallery with the small picture. There are amateur dealers who consider many other pictures of little interest. The little portrait of *Ebthraim Bona*, a physician, and the unfinished *Burgomaster Six* by REMBRANDT, GERARD DOW'S *Girl at a Window*, *Dentist*, TERBURG'S *Concert*, HOBBEEMA'S *Forest*, &c. are among those which, when once seen, are never remembered. It is believed that the other heirs will still preserve their pictures from dispersal.

## ILLUSTRATIONS.

LONDON AND LANCASHIRE FIRE INSURANCE COMPANY  
59 AND 60 PALL MALL, S.W.

GEORGE PALMER COUNCIL SCHOOL, READING.

LAST week we published the perspective drawings of these new schools at Reading, and we had the pleasure of giving the plans this week. The description was also published in our last issue.

PREMISES, FENCHURCH STREET AND ROOD LANE, E.C.

THIS office building was erected in accordance with the designs of Mr. EDWARD B. ELLIS, of 18-19 Fenchurch Street, for Messrs. KLEINWERTS. The front is of Portland stone and grey granite, and the front steps of mahogany, the fine dome and dormers being covered with copper. There is a very effective staircase with walls of which have been lined with Pavonazzi Cipollino marble by Messrs. WALTON, GOODWIN, CRIPPS, and a mahogany panelled dado. The mental ironwork is by Messrs. STARKIE GARDNER & Co. The building is warmed by hot water circulated from the boiler in the sub-basement, which has been excavated out to a considerable depth below the ground level for strong-rooms, &c. The floors have been proofed and the constructional steelwork is by Messrs. HOMAN & RODGERS. The general building work and the whole of the mahogany and teak fittings and ornamental plastering have been executed by Messrs. HOWE & WILLIAMS, Ltd., builders, 11-17 Bermondsey Street, London Bridge, S.E.

RECEPTION ROOM, 22 PORTMAN SQUARE, W.



# GILBERT SCOTT ON THE HOUSES OF PARLIAMENT.

following evidence was given by Mr. Gilbert Scott before the select committee on the Palace of West-

are, I believe, the architect of Liverpool Cathedral?—

is so. The designs you prepared for Liverpool Cathedral you study a great deal the adaptation of Gothic to modern times?—Yes.

is the special reason why we wish to have evidence from you. Are you well acquainted with this building?—Over the interior for the first time yesterday. Of the outside I have known and admired very much. Have you been through the courts?—No, I have not seen the internal courts.

Many people think that is the best part of the building.—I have not been able to have seen them. I went over the interior of the building, and, if I may give a sort of general impression, the effect produced upon my mind in going round, was to say that it was entirely in accord with Mr. Norman Shaw's opinion—that it is very much overdone. It struck me there was far too much decoration, if you call it so. There is a lack of repose and concentration; no restraint.

Do you think there is not sufficient plain wall surface?—There is not sufficient plain wall surface. Until the surfaces are altered and made more simple, it seems to me to put more decorations in the way of paintings.

Does it not surely extend to all parts of the building, and not only the walls?—Well, yes, I think it does to pretty well all.

Would you have the Royal Gallery as it is now, with no pictures in it and no others along the walls there?—It struck me that that wanted completing. But then the surroundings want simplifying so as to give concentration.

What way would you suggest?—First of all I should like to get rid of a lot of the gilding, and the varnish on the wood strikes me as being out of character with Gothic architecture. I should have more white wall surfaces.

Would you not extend that, would you, to leaving the frescoes in the King's Robing Room?—You remember there are two panels unfilled in that room. The room with the series of pictures of the Legend of King David?—I am afraid I omitted that room.

As regards what is commonly called the Moses room where there are two pictures, would you not complete that room?—It seemed to me that wherever paintings begun they ought to be completed so as to get breadth of effect, but at the same time I should simplify the surroundings so as to concentrate upon the decoration. That struck me.

Do you say you have not seen the King's Robing Room; would you apply what you say to the Moses Room?—The varnish on the oak seems to me to be entirely out of character; I should like to see it pickled off with a solution of lime and soda, which produces a nice grey effect like old oak which has been bleached.

*Earl of Carlisle.*

What has been done in the dining-room further down?—I have not seen that room, but I should very much like to see it, because it seems to me that that is what is wanted.

*Chairman.*

Do you think that the effect in corridors—for instance, the corridors leading to the House of Lords—is destroyed by having pictures in them?—No, not if the decorations are made more Gothic in feeling. I think there is a lack of true Gothic feeling in most of the interior. It is mechanical and hard, and the true spirit does not seem to be quite got hold of.

Is it true all through the House, I think?—That is so. In the two corridors, you would agree, are not injured by paintings; would you not, then, treat the third corridor, which leads up to the Cromwell bust, in the same way?—I do not quite know which corridor you refer to. I mean the corridor leading from the central hall?—In the corridors and rooms in which no paintings exist I hesitate very much to recommend paintings being inserted. I should certainly advise that they should be kept out of the way and not have paintings inserted. I agree with Mr. Norman Shaw's view about the state of decorative art in England at present. Very little encouragement

seems to be given to artists, and so far as I have seen their work does not harmonise with the architecture.

*Earl of Carlisle.*

Do you think that the absence of a school of decorative painters in England is partly to be attributed to the fact that no encouragement is given to them, and that the fact which Mr. Norman Shaw mentioned of the existence of M. Puvis de Chavannes and other artists in Paris with an excellent feeling for architectural decoration may be partly attributed to the fact that work was given to them to do in public buildings?—I think that is quite true. Architects are afraid to entrust the decoration of their buildings to artists in the present state of decorative painting, and artists will not give the time to studying that branch of art when they receive no encouragement from architects.

Therefore it is possible that, if the contention that painting should not be employed in this decoration prevails, it will tend to continue that state of things?—That is so.

*Chairman.*

That will be bad for the interests of art, so far as painting is concerned?—That is so. Some one must make a start, and they will probably have to suffer for it, though it will no doubt have a good effect in the end.

You have heard Mr. Norman Shaw's suggestion with regard to additions to the height of parts of the building; what is your view about that?—It seems to me to depend so much upon the amount of accommodation that is required. If it is only a small matter of telephone boxes and refreshment bars I should have thought that it could have been arranged in the courts, but if it is a question of providing additional committee-rooms, of course sufficient accommodation would not be provided in that way.

This committee has nothing to do with providing committee-rooms; we are only considering the question of the decorative treatment of the building. You say, as I understand, that you have not been in the courts, so that you cannot have looked to see how far they are suitable for the purpose suggested?—No.

Have you taken note of these excrescences which have been referred to—refreshment bars, telephone boxes and so on?—Yes.

What treatment would you suggest for getting rid of all those things?—It seems to me you want special rooms for these things to be put in, and that they should not be placed in the open corridors.

But then special rooms do not exist?—If there is not much accommodation required I should have thought the difficulty could have been got over by additions towards the courtyards.

That means an addition through the whole storeys of the House, basement and all, does it not?—Yes, it probably would.

You think you cannot provide for it simply by projections?—It could be done, but I doubt whether it would provide sufficient room.

Have you any special suggestions to make to the committee resulting from your examination of the building?—The chief suggestion I should like to make as my own personal opinion is that there is far too much decoration at present, and that before anything is done there should be a good deal of simplifying in the way of getting rid of the gilding and the varnish and the various decorations that at present exist.

In short there is much to be undone?—There is much to be undone before anything is done—that is what strikes me.

It is not worth while bearing in mind that the whole idea with which the decoration of the building was started was for the encouragement of art in England and especially pictorial art. If you look at the proceedings of the Fine Arts Commission you will see that that was so.—Of course that should be considered. At the same time it is so risky that one hesitates to advise it.

Supposing that that canon were observed which was laid down by Mr. Norman Shaw, that the painting was always to be in subordination to the architecture, would your objection to painting be as great then?—If you can get your man I should say have the painting. Otherwise I should hesitate to advise it.

You heard what Mr. Norman Shaw said about the special treatment of St. Stephen's Hall—have you any views to give the committee upon that point?—I quite agree with what he said that plain wall surfaces are what it requires.



Would you complete the mosaics in the Central Hall?—As those two mosaics already exist there, I should complete the others so as to get breadth of treatment, though personally I never considered mosaic to go with Gothic architecture at all. To my mind it is quite out of character with the style.

In short, your idea of the proper treatment of the building would be not so much the finishing of what is now blank and incomplete as the reduction of the ornament where it exists?—That would be my view.

Would you tell us how you would set to work on the House of Lords itself, for example?—That is a room I did not look at very long.

That is the most gilded of all?—Yes, I should do away with most of the gilding and varnishing and substitute simpler glass. I should have less colour; I should have white glass with coats of arms and so forth, which is more suitable for domestic work than figure subjects.

*Earl of Carlisle.*

Is it not a fact that taste of fashion in decoration changes rather rapidly? Do you not think that if one generation reconstitutes the decorative scheme of this building it is opening a rather interminable process of surface alteration?—I contend that the true feeling of Gothic architecture is far better understood now than it was in the earlier years of the Gothic revival; there is not so much scholarly knowledge, but there is far more artistic feeling.

You do not think that each successive fashion thinks that of the one before?—I would rather not express an opinion upon that.

*Chairman.*

I suppose you would extend the remark that you made with regard to the glass in the House of Lords to the rest of the building?—Yes.

To St. Stephen's Hall and other parts of the building?—Certainly.

Is there anything you would like to suggest further to the committee?—There is one thing which I have just remembered. The tile flooring throughout the building seems to me to produce a very cheap and, to my mind, shoddy effect. I think a far finer effect would be produced with marble, say black and white marble in large squares, or something of that kind. Then as regards the treatment of Westminster Hall, that is the one building in which there is a sense of repose, and there a bit of colour seems to me to be needed in the way of materials or hangings on the walls behind the statues.

You would hang the walls there, would you?—Certainly. I do not think anything should be done to the walls themselves in the way of bas-reliefs or anything of that kind, but a rich bit of colour in the way of tapestry or hangings would, to my mind, be most suitable.

Would you do that whether there were statues there or not?—Certainly.

Would you remove the statues?—I should. I may add that the electric-light standards in that hall seem to me out of keeping. There you get the gilding and the chocolate-coloured paint, and a general coarseness of design which seems to me to be entirely out of character with that old hall.

Do you think you could by any means introduce more light into Westminster Hall throughout? As it is the roof is hardly seen, or at any rate it is always very dark.—I should not advise anything in the way of structural alteration.

It is a moot point, is it not, whether there was not once a window in the roof?—I do not happen to know as to that.

*Earl of Carlisle.*

I do not know whether you have expressed an opinion on the question which we put to Mr. Norman Shaw and others as to the effect of tinting statues in the same way as the statue of Sir William Harcourt put up in the House of Commons lobby has been tinted?—I have not seen that particular statue, but I am strongly in favour of the idea of tinting.

**The Crown** has purchased a number of properties in Park Street, Windsor, leading to the Long Walk and adjacent to the Castle precincts. The tenants have been given six months' notice to quit, when the houses will be demolished, and others as they are acquired, to make room for a number of projected improvements at Windsor Castle, including the provision of a garage for their Majesties' motor-cars.

## ST. MARK'S, VENICE.

THE Vienna correspondent of the *Morning Post* takes the advantage of going over St. Mark's to see the engineer in charge of the repairs, and has described in his journal what is being done to the famous basilica.

There are two different parts of St. Mark's on which workmen are at present engaged. The first and most important restoration is that of the so-called "Angolo di Sant' Alipio," which projects from the left corner of the atrium opposite the entrance of the Merceria. The condition of the "Angolo di Sant' Alipio" is a matter of history and the mode of its construction. It was built by the rest of the basilica about the middle of the thirteenth century, when the Republic had been enriched by the capture of Constantinople, and the technical blunder was committed of uniting this new edifice to the masonry of an already existing church, already some two centuries old. When one climbs to the scaffolding inside the "Angolo," one can distinctly see the marble cornice which forms the outside of the original building. At this point the huge fissures large enough to insert one's hand, and the masonry of the thirteenth century has separated from the masonry of the eleventh, which is far stronger and much surer. But this is not the only sign of collapse. The foundations of the "Angolo di Sant' Alipio" were laid in a cemetery, and the edifice, therefore, reposed upon a soft matter, which had to support a weight of 36,000 grammes. As long ago as 1765 the displacement of the corner of St. Mark's was noticed, and the architects of the period accordingly fastened the columns of the "Angolo" to the main building by means of an iron bar. This bar is now the sole support of the upper part; it is a few degrees out of its original position, and if it cracks the engineer remarked while we stood beneath it, the whole would come the "Angolo." Nor is this all. The iron bar, inside the columns, owing to oxidation, has begun to split the marble, and it is necessary to remove the oxidised metal and replace it by bronze—a difficult and slow process. Owing to a curious accident, it is not possible to calculate with mathematical accuracy the extent of the displacement of the "Angolo" since 1800. In that year the authorities erected a simple iron sundial on the columns. An iron rod was inserted in the marble, and a deep furrow was drawn down the pillar, which furrow runs south. It has been observed that at midday the end of the rod no longer falls on this line, but is 3 metres out of the perpendicular; it therefore follows that the "Angolo di Sant' Alipio" has been displaced much as 12 centimetres in 107 years. Last May the plan for its complete repair was examined by the committee of management; this plan has just been approved, and the work of saving this left corner of the atrium is being actively prosecuted. The men employed on the repairs of St. Mark's, who have their workshop in the desecrated cemetery of St. Basso hard by, do eight and a half hours of work exclusive of their meals and their siesta, and every day of an hour's delay costs them a quarter of their daily wages. Inside the basilica itself the so-called "Arcone dell'Albero genealogico della Vergine"—a name derived from the genealogical tree of the Virgin, which is depicted in the mosaics of the north transept—is now in the hands of the workmen. A large wooden platform has been erected to support the arch, and the men have now finished their task here. The mosaic had fallen away from the wall, the bricks had begun to drop on to the floor, and huge cracks had appeared in the masonry, of which photographs were shown me. This part of the arch has been entirely replaced by new materials, and the scaffolding can be taken down.

There are two other parts of the basilica which have been taken in hand, but upon which work has been temporarily suspended. These are the "Tribune of the Patriarch" and the "Arch of the Apocalypse." The importance of the repairs to the former may be judged from the fact that the four "Tribunes" have to support the greatest weight of the basilica. One can see, now that the mosaic has been stripped off this "Tribune," the portion of the arch, close to the keystone, as we call it, which has fallen 7 centimetres. It was here that the mosaic, that a coin of the year 1205, the year of the Latin Conquest of Constantinople, was found last year. As for the "Arch of the Apocalypse," at the west end of the church, that is still filled up with the massive sculpture which seems as if it, too, were intended to last for ever. It was judged that the "Angolo di Sant' Alipio" required urgent attention, so the "Apocalypse" has been left



much as it was when I visited it last year. There is some scaffolding in the atrium of the church, but the removing the iron clamps from inside the columns and placing them with bronze has been successfully finished, and no one but an expert would now know the columns had been raised and replaced.

At the great basilica the administration of St. Peter is undertaking extensive repairs at three smaller churches—St. Moisè, St. Giuliano and St. Gallo. Outside the city, but also undergoing structural restoration, are important churches of the Frari, of St. Francesco della Vigna, and SS. Giovanni e Paolo. Thus it is by no means surprising to see the monuments in many of the Venetian churches of Benedetto Pesaro, for instance, in the Frari, is surrounded with scaffolding, while one of the largest pictures, the Doge's Palace has been taken down from the Venetian lagoon, in short, is given over to architects and artists, but the work has been undertaken none too late. It is now believed that all the threatened edifices are saved.

## ANCIENT EARTHWORKS.

The report of the committee on ancient earthworks and fortified enclosures says there is a marked increase of interest taken in ancient defensive works and their historical memorials. It is seldom that the programme of the archaeological society's excursion does not include some ancient earthwork, camp or castle site; more attention is now given to our subject both in the transactions of societies and in the public press, and the honorary secretary receives a large number of increased interest in numerous letters coming from all parts of the country. At the same time respect for the relics of the past has not yet spread sufficiently to prevent the constantly recurring instances of destruction. Archaeological societies are asked not to overlook the complete schedules of earthworks existing in the country, included in their respective spheres, being the duty of the judicious circulation of such lists will stay the hands of the destroyer. It is remarkable how quickly the owner of a previously despised relic begins to value it when he finds that other people consider it of importance, and as few of our country's ancient remains are protected by law it is the more important to influence those who own the vast majority of the earthworks. Schedules are being prepared by the Yorkshire Archaeological Society, the East Herts Archaeological Society, the Cardiff Naturalists and by a few other societies. From destruction of ancient works of earth or stone for agricultural purposes, minor influences tend to their preservation; to these the attention of owners and occupiers and may well be drawn by archaeological societies. In some places, great trees, perhaps centuries old, grow on the site of an ancient camp, a tree is blown down or grubbed up, a large bite is thereby eaten out of the earth and nothing is done to fill up the hollow thus created, the cost of so doing is infinitesimal. Rabbits are allowed to burrow, gradually causing the banks to crumble and destroy their continuity, while gardeners and others are allowed to remove barrow-loads of the light material, which possess guarding walls of stone are even the mercy of the neighbourhood unless jealously guarded. That there is as much need as ever to keep the old fortifications is made manifest by a glance at the record of destruction contained in this report—a record very far from complete, for in many cases the destruction is accomplished unnoticed by anyone possessed of the means for the past.

Transference to public bodies of ancient castles and forts, though usually structures of masonry rather than earthwork strongholds, must be mentioned. Montagu Castle at Gorey, Jersey, long occupied as barracks and signalling station, has been presented to the island government for preservation. Scarborough Castle ruins have been handed by the Department of Woods and Forests to the Corporation of Scarborough on a thirty years' lease. The castle keep has been freed from rubbish, the castle has been cleared to a depth of 180 feet, and a large area of earth has been removed from the castle site. The urban council of Bishop's Stortford is purchasing the castle mount and the surrounding land, which will probably be used as a public garden or recreation ground. It is to be hoped that the utmost care will be taken to prevent injury to the great earthen mount, and to the interesting remains of the masonry of the

castle on the summit. The camp on Housestead farm at Castleshaw, in the parish of Saddleworth, Yorkshire, has been purchased by Mr. Samuel Andrew, of Oldham, and Major Lees, of the 4th Manchester Volunteer Regiment, with a view to the scientific excavation and permanent preservation of the fortress.

The destruction or mutilation of defensive earthworks, and even more of tumuli and barrows, is constantly proceeding in many parts of the country, but passes unrecorded in most instances. Cases which have come under notice include:—

*Abdon Burf.*—The remains of the camp on Brown Clee are in hourly danger of removal in the process of obtaining stone for the construction of the Cleobury Mortimer and Ditton Priors Light Railway. Coal apparently will also be worked on the hill. A tram line has been laid to the summit to facilitate the removal of stone. The camp known as Bitterley, on the Titterstone Clee, has so long been subjected to similar treatment that its fragments are hard to recognise.

*Barnard Castle.*—Mr. Duncan Montgomerie wrote in September last:—"I find that part of the original moat is being (and has nearly been) filled up by tipping town refuse into it. The portion referred to is on the north side and is where the ditch ran out on to the cliff. This is being done by the District Council with the consent of Lord Barnard, and the reason alleged is 'to make the descent less dangerous,' but the footpath does not touch this portion."

*Burghill, Herefordshire.*—The low mount close to the church has been levelled. It was of square form and moated.

*Ham Hill, near Montacute, Somerset.*—The quarrying operations referred to in our last report are further threatening the important remains of the camp.

*Harbledown, Bigberry, near Canterbury.*—Remains of earthworks are being further destroyed by digging for gravel on the south-west side.

*Harmondsworth, Middlesex.*—The poor remnants of a square camp, about 380 feet across, consisting mainly of a low enclosing rampart, have recently been completely levelled by agricultural operations. The camp was situated in the hamlet of Sipson Green, south of the Bath road.

*Leek, Staffordshire.*—Cock Low barrow, described in Bateman's "Ten Years' Diggings," p. 183, has been levelled to the ground, the owner and the local authority not agreeing upon terms for its retention.

*Lydiard Tregose, Wiltshire.*—Bincknoll Camp. Rubble digging on the site has materially injured the rampart of this ancient stronghold.

*Mendip Hills.*—Adjacent to the Castle of Comfort Inn, on the top of the range, were four curious ring-works; one has long since been destroyed, and recently another has been levelled to make a cabbage-field.

*Norwich.*—A portion of the castle mount has been cut away to provide a site for the extension of the shire hall. (It appears that the mount is natural to a greater extent than has been thought.)

*Stannon, St. Breward (East), Cornwall.*—Mr. H. St. George Gray informs us that a viaduct in connection with the china clay works is being built and that "the granite is being obtained from the fine group of hut circles in some of the roughest pasture fields on Stannon farm and between that farm and the Fernacre Circle and Rough Tor. I am wondering whether an attempt will be made to destroy the circles next. I am assured by the farmers in the neighbourhood that the circles are safe, being on common land; but the destruction of the hut circles is still in progress and likely to be for some time. I am told that the agent of the owner of Stannon farm (Sir Wm. Onslow) has given permission for these hut circles to be destroyed, as they are a hindrance to agriculture in the fields, but other hut circles, near those outside the fields and on the common, are not to be touched, and this remark applies also to the circles. However, if stone enough cannot be obtained from the fields it is quite possible that permission may be sought to remove granite from the moors, and if so the circles would be imperilled."

*Witham, Essex.*—Destruction of the remnants of this priceless historic record continues. There will soon be little or nothing remaining of the burh of Edward the Elder.

*Aldeburgh, Suffolk.*—The raised ground or low mound on Barber's Point, long supposed to be the site of a settlement of the Roman period, has been partially explored by the Aldeburgh Literary Society, and has yielded Samian and other ware.



*Berwick-on-Tweed.*—Accumulated earth and rubbish have been removed from parts of the Brass Mount and the Cumberland bastion of the Elizabethan walls, and further work is now in hand by the Berwick Historic Monuments Committee.

*Cadster, near Chapel-en-le-Frith, Derbyshire.*—Mr. W. J. Andrew has conducted a slight examination of a stone circle recently discovered by him, which discloses unusual features. The excavations were limited to a sectional trench two feet wide, and to removing the turf which covered some of the principal stones. His report will appear in "Memorials of Derbyshire," and detailed plans and particulars will be deposited with this committee.

*Caerwent.*—The principal work carried out upon the site of Venta Silurum during 1906 consisted of the excavation of a large house of the courtyard type in the land lately bought by Lord Tredegar. The interesting series of finds includes some bronze objects of greater artistic merit than usual.

*Carnarvon.*—Excavations in the progress of building operations are revealing further traces of the Roman station of Segontium.

*Coelbren, South Wales.*—Colonel W. Llewellyn Morgan's excavations of the Roman camp have disclosed evidence of a remarkable use of timber in the construction of the rampart and berm, especially at the angles, where ballista and other heavy engines of war may have been placed. The shallow outer trenches seem to have been designed not so much as in themselves obstacles to hinder attack of the fortress as to provide cover for sharpened stakes of hard wood. Many of these have been discovered.

*Corbridge-on-Tyne.*—Extensive and systematic excavations have been made on the site of the Roman city of Corstopitum, revealing part of the plan of the town and unearthing interesting remains. The exploration has been conducted by the Northumberland county history committee, under the supervision of Dr. Haverfield, Mr. C. L. Woolley and Mr. R. H. Forster.

*Essex Red-hills.*—A survey and excavations of several examples in the parish of Langenhoe were conducted in the autumn of 1906, resulting in the discovery of relics belonging to the late Celtic period.

*Forglen, Banffshire.*—Mr. H. St. George Gray last year excavated the tumulus known as Rounie Law. A paper descriptive of the result will appear in the forthcoming volume of the Proceedings of the Soc. of Ants. of Scotland.

*Glastonbury.*—The final series of excavations of the lake village occupied seven weeks under the supervision of Mr. A. Bulleid and Mr. H. St. G. Gray.

*Grimston, Norfolk.*—The Norfolk and Norwich Arch. Soc. has excavated the site of a Roman villa under the advice of Mr. H. Laver, F.S.A.

*Kenderchurch, Herefordshire.*—Some excavation of the mound on Little Howton farm was carried on by Mr. T. G. Barnett in August, 1906, and will probably be continued this year.

*Lansdown, Bath.*—Further explorations of the site occupied by a Romano-British settlement have been conducted by Mr. T. S. Bush and others.

*London.*—In the course of excavation for the new Post Office buildings on the site of Christ's Hospital, portions of the wall of London have been found and many relics appertaining to Roman and later times were discovered. Numerous other excavations have yielded important evidence and have been summarised by Mr. Philip Norman and Mr. Francis W. Reader.

*Manchester.*—Excavations have been made by the local branch of the Classical Association on a site in the centre of the city, enabling the explorers, under the guidance of Mr. F. A. Bruton, to fix the line of the western wall of the Roman station of Mancunium.

*Manton, near Marlborough.*—In October last Mr. B. Howard Cunnington opened a barrow disclosing a skeleton and many valuable relics of the Bronze age.

*Melandra, Glossop.*—Further investigations of this important Roman station have been carried on by Mr. F. A. Bruton and Mr. J. H. Hopkinson, with interesting results regarding the plan of the headquarters building. The excavations have been conducted on behalf of the Manchester and district branch of the Classical Association.

*Middleham, Yorkshire.*—The Roman antiquities committee for Yorkshire has cleared the foundations of the Roman building and made a plan of the lines of structure disclosed. Some exploration took place many years since. (See *Journal*.)

*Newmarket.*—A tumulus of the Bronze age, on the hill

above Newmarket race-course, has been excavated by fessor T. McKenny Hughes.

*Newsstead, near Melrose.*—Excavations have continued without intermission, revealing much important information as to the conditions of life within the walls of this station.

*Penygorddyn, Denbighshire.*—The exploration of an ancient stronghold has been continued by the Antiquarian Society under the supervision of Mr. J. H. Gardiner.

*Pewsey.*—The area within the walls of this Roman fortress has been partially excavated by a committee of which Mr. L. F. Salzmänn is the secretary. Full details of the exploration will be published shortly.

*Ribchester.*—Mr. Thomas May writes:—"The results of the exploration recently directed by Mr. May at the centre of the well-known Roman fortification at Ribchester during two separate months, from November 12 to December 13 of last year, and from April 8 to May 9 of this year, were the uncovering of foundations and portions of the superstructure of the outer walls of the headquarters building (prætorium, or perhaps more correctly palace) for nearly their whole length upon the south-west and south-west sides as well as at the four corners, and there upon its other two sides."

*Silchester.*—Excavations, confined to the ground which occupies a considerable area near the middle of the Roman site, extended over six months, under the supervision of Mr. Mill Stephenson. It is hoped to bring to a conclusion the examination of the whole of the 100 acres within the town wall.

*Stoke Courcy, Somerset.*—Excavations of the barrow were carried on in April by Mr. H. St. George Gray, assisted by the Rev. C. W. Whistler and by Mr. J. H. Laver, Major, of the Viking Club. The barrow contained objects belonging to the Bronze age.

## CORN EXCHANGE, LIVERPOOL

THE committee controlling the Corn Exchange, Liverpool, entertained the idea of building new premises for the *Liverpool Courier*, and the splendid site offered by the George's Dock, so close to the present Exchange on Wick Street, has naturally attracted them. The site is now occupied are quite inadequate. They are cramped and entirely out of date. A change was considered inevitable, so irksome do the members of the present surroundings. The first idea was to rebuild on or near the present site, thus avoiding the question of a complete removal. This plan was much and at the time it was entertained the scheme was in this journal. There was a section, however, which favoured a bolder plan. The George's Dock was tempting. The example of the Cotton Exchange doubt has had some effect upon those who were in favour of forward movement. The matter has for long been in abeyance. The question of cost is a serious one. In the quarters there is a disposition to wait until a plan is found for the existing building, used as an exchange, question, however, could not be left open indefinitely. Consequently, the finance committee of the Corn Exchange have agreed not to deal with the site for some few years in order to give the corn trade an opportunity of rounding and making satisfactory arrangements for the building of a new exchange, which would not only increase and improved facilities, but concentrate the offices in one structure the offices of those connected with the Association. Although negotiations have not gone further than is here indicated, there are nevertheless the strongest hopes that a successful issue will be reached and that almost simultaneously with the rising of the Royal Liver Society's offices on the northerly site also be in progress the construction of a building which will be an honour to the city and a credit to whose enterprise and business instinct have produced the erection.

So greatly has the idea of a new Corn Exchange impressed the minds of those associated with the trade, it is understood that the Exchange Club are prepared to occupy a portion of the proposed structure when completed. The organisation, whose membership includes a large number of merchants in the city, is now housed in the Exchange Street. The building is not of a character quite in accordance with modern requirements. The club is a large and important one, perhaps second only to the leading political



The members have for some time been desirous of finding quarters more in accordance with modern ideas of comfort and convenience, and the suggested combination of the Corn Exchange in the projected scheme will amply secure everything they require. Of course, it is too early yet to speak of the design or the cost of the new building, but as plans will have—like the case of those of the Royal Liver Buildings—to be referred to the Corporation, there is every reason to hope that new structure or structures, whether occupied or separately by the Customs and Corn Exchange, will be worthy of the position.

## THE COUNTY HALL COMPETITION.

The following statement has been sent from the London County Council:—

The London County Council has received from Mr. J. Shaw, R.A., and Mr. W. E. Riley, F.R.I.B.A., the assessors appointed to act for it in connection with the competition for designs for the new County Hall, their report on the result of the preliminary stage of the competition.

The assessors state that there were sent in ninety-nine designs, the work of 152 architects, some of whom worked independently and others in collaboration. Of these architects, 107 were of foreign birth. To illustrate the designs, drawings were submitted.

The duties of the assessors were to select not less than 10 and not more than fifteen designs with a view to the selection thereof competing, with the eight architects already selected by the Council, in the final stage of the competition.

There was no doubt in the minds of the assessors that a maximum number (fifteen) of designs required could be found among those sent in. The names of the fifteen designs selected by the assessors are:—

R. F. Atkinson, F.R.I.B.A., Mr. H. J. Blanc, R.A., R.S.A., Mr. G. Washington Browne, Mr. T. N. A.R.I.B.A., Mr. M. J. Dawson, A.R.I.B.A., Mr. G. Fulton, Messrs. Gardner & Hill, Mr. W. Haywood, Mr. Houston, & Horne, Messrs. Jemmet & McCombie, Knott, Messrs. A. Marshall Mackenzie (F.R.I.B.A., A.) & Son, Messrs. Russell & Cooper, F.R.I.B.A., Warwick & Hall, A.A.R.I.B.A., Messrs. Clyde & E. W. Poley, A.A.R.I.B.A.

The names of the eight architects selected by the Council are:—J. Belcher, A.R.A., P.R.I.B.A., Mr. W. Flockhart, R.A., Mr. Ernest George, F.R.I.B.A., Mr. H. T. Hare, R.A., Mr. T. G. Jackson, R.A., Mr. E. L. Lutyens, R.A., Mr. E. W. Mountford, F.R.I.B.A., Messrs. Son & Corlette (Sir Charles Nicholson, Bart., M.A., R.A., and Mr. H. C. Corlette, F.R.I.B.A.).

Other architects of distinction were asked by the Council if they were willing to compete, but they were unable to accept the invitation.

The committee dealing with the matter desire, in the name of the Council, to thank all the competitors for the response made to the Council's invitation, and for the great amount of work and thought which has been expended in preparing the designs submitted.

Several competitors have written asking for explanations of the selection of their designs. To do this would practically require a report from the assessors on each design, and a departure from the ordinary course as the requests cannot be made.

## CROSBY HALL.

The following letter has been sent to every member of the Livery of London by Alderman Sir T. Vezey

*The Preservation of Crosby Hall.*

Sir,—The opportunity now offers itself to the City of London to show by their united action how fully they are in the universal desire that the beautiful old house known in the days of Shakespeare as Crosby Place, and more recent times as Crosby Hall, should be saved from impending destruction and secured for all time as the property of the nation in the City of London. The proposal that Crosby Hall shall provide a corporate home for the guilds (nearly fifty in all) as have been deprived of their halls in the course of the various improvements of recent years. The representatives of the

ancient guilds and modern associations could meet there for the promotion of the social, commercial and industrial interests of the community, which could nowhere be so appropriately focussed as in the City of London, and this grand old building would thus be dedicated to present and future purposes worthy of its great past. It is felt that it would serve a real need of the present time by providing a centre for the growing activities of the age, and so furnish another, and perhaps the highest, practical example of the adaptability of ancient institutions to modern needs. To this end it has been suggested that each member of the Livery should be asked to contribute a personal donation of one guinea, and every member of each Court of all the guilds should be invited to subscribe a personal donation of two guineas. If you are willing to concur in this scheme by making such a donation, and the suggestion is acted upon by every member of this great constituency, a sum of upwards of 8,500*l.* will result from this appeal alone—an amount valuable in itself, but even more important as indicating the widespread interest which is undoubtedly felt by this important body of citizens, who will be rewarded by securing for present and future use this priceless heritage, which has recently been described as "a Gainsborough or Reynolds in architecture."—I am, dear Sir, yours truly,

T. VEZEY STRONG.

Guildhall, E.C. : October 4.

All donations are to be paid to the account of the Crosby Hall Preservation Fund, Bank of England.

## BEAUTY IN ORGANIC FORM.

AT the opening course of lectures on physiology at Manchester University, Professor Stirling spoke on "Beauty in Organic Form and Function." He said beauty should be the equivalent of perfect health and a perfect organisation. Greek art was still referred to for our standard of physical beauty. For the representation of a divinity the finest models were sought, but the greatest artists did not confine themselves to copying the forms of beauty from any one person, for rarely or never was any body or even an organ faultless. He pointed out that the inner architecture of the bones of the human skeleton afforded to the engineer the solution of some of his most difficult problems, while the combination of stability and elasticity with perfection of function was nowhere better illustrated than in the mechanism of the human foot. The problem of floating in the sea had been solved by some of the lowest animals by means far more varied than those yet adopted by the physicists. Many of these surface forms, exquisite in their beauty in form and colour, held the secret of the cause of rhythmical beats. The expansion, growth and increase in size of a sea-urchin within its mathematically arranged calcareous box offered a problem comparable to the growth of the bones of the skull commensurate with the expansion and unfolding of the brain within. One of the highest triumphs of beauty, orderly sequence and co-ordination, was reached in the beats of the various chambers of the heart, the secret of which was to be found within its own walls. It beat before birth and before any nerve structures had grown into it. In its rhythm was to be found the secret of its power to keep on pumping in some cases long after the allotted span of three score years and ten. It did what many otherwise sensible people failed to do—it put in a period of rest, and therefore of recuperation, after every exertion. This year 1907 marked the centenary of the famous theory of colour vision by Thomas Young, which had made possible the reproduction of coloured objects by means of photography as exemplified by the Lumière Starch process.

The School of Art Wood-Carving, South Kensington, which now occupies rooms on the top floor of the new building of the Royal School of Art Needlework in Exhibition Road, has been reopened after the usual summer vacation, and we are requested to state that some of the free studentships maintained by means of funds granted to the school by the London County Council are vacant. The day classes of the school are held from 10 to 1 and 2 to 5 on five days of the week, and from 10 to 1 on Saturdays. The evening class meets on three evenings a week and on Saturday afternoons. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the manager.



## DEMOCRACY AND ART.

ON Tuesday the Bishop of Birmingham delivered an address to the members of the Society of Artists, Birmingham, on "Democracy and Art." At the outset his lordship remarked, according to the *Birmingham Daily Post*, that for about half an hour before the meeting he had been realising very painfully that he wished he were dead. One reason was he had to speak on a subject that, though he was chaplain of the Society, was not within his proper province. Another reason was, the idea he felt he would like to express when the engagement to address the Society was made months ago had become extremely hazy. It was not as though he were in the way of assisting the artist to live. In the present conditions of society the artist was, like some other people, in danger of being crushed under the wheels of the motor-car. Forty years ago, when the merchant or wealthy citizen built his villa at Edgbaston, the first necessity was that it should be well furnished, and that meant pictures. Therefore he patronised the rising artists, with more or less taste or success, according to his native faculty. Now the wealthy man bought cheap reproductions and motor-cars. His lordship felt nothing he could say could in any way alleviate the difficulty of the artist to make a living. The best he could attempt to do was only to contemplate an ideal which, he was afraid, at the present time was sufficiently remote from realisation to render it quite impossible of feeding any junior artist with the necessary bread. We were in a democratic age, but an age not distinguished by the possession of that sense of beauty which was meant by the title of his address. It was a good thing to realise our deficiencies. Art and democracy as an ideal was very far from us. In a great number of drawing-rooms they were confronted with the fact that in furnishing we were very far from anything except a mechanical uniformity of ugliness which, from every point of view, was the exact antithesis of art, which was individual as well as beautiful. They realised also that corporate bodies had not got at all near the point of thinking it part of their business to assist the artist to live. Corporations had done incredibly little for the encouragement of the artist.

*Ugliness in Churches.*

He was afraid, too, that almost the greatest of sinners in this respect at the present moment was the Church. They saw an amazing amount of brass in their churches—chandeliers and instruments for carrying light, altar rails, candlesticks, vases and memorial tablets. If art meant the use of some material so as to mould it to beauty and at the same time express some individuality of idea, all this profusion of brasswork was something quite opposed to art. There was no individuality about it all. If you examine a few price lists, said his lordship, you know exactly where each of these particular forms of ugliness comes from and exactly how much it costs. There had been, perhaps, some perceptible improvement in the matter of painted glass. They knew how extraordinarily exceptional were the windows in the cathedral church of Birmingham, because there they had the soul of a great artist expressing itself in colour. The idea that he had in his mind, the bishop continued, was expressed by Tolstoy:—"The artist of the future will understand that to compose a fairy tale, a little song which will touch, a lullaby or riddle which will entertain, a jest even which will amuse, or to draw a sketch such as will delight dozens of generations or millions of children and adults is more important and more useful than to compose a novel or symphony, or paint a picture of the kind which diverts some members of the wealthy classes for a short time and is then for ever forgotten." The region of this art was enormous, and was, as yet, almost untouched. There were certain spots in the world where we could still find, at least, the relics and remains of an art that grew out of the soil and expressed there upon the spot all the best and most sacred feelings that inspired the whole place. As an example his lordship went on to describe Bruges, which he recently visited, on account of the exhibition of the Golden Fleece. After a graphic description of the Flemish art of the fifteenth and sixteenth centuries, which, as visible in Bruges, was concerned with the common life of the people, domestic, civic and religious, his lordship pointed out that this was the artistic product of a people who, while commercially great, did not neglect the seemly and beautiful. He supposed, he continued, there was some art in seeing visions and dreaming dreams, but we were living in an age which seemed to have quite forgotten the duty of common life to the beautiful. Whatever had to happen

now must—and he rejoiced in it—represent the common life; but was the democracy to discard all on the whole, ridiculous, the idea of the duty of the life to be beautiful? Unless he was very much mistaken this appalling loss had actually occurred. Nine-tenths of the inhabitants of Birmingham thought it their duty to be rich if they possibly could, and that a man was so very near a fool if he supposed it was their duty to be beautiful.

*The Smoke Nuisance.*

If they were to have a new state of things, he thought they would have to go very deep, and that the change which lay at the root of such a possibility in our time involved some great changes. It involved the primary principle the duty of being clean, not only persons alone, but in the air. He did not believe they would ever get a civic sense of beauty until they had the respect which could only belong to a people whose atmosphere was clean. Year by year he wondered how people were content to live in an atmosphere of dirt without more vehement protests. He was informed a great part of the dirt which polluted the atmosphere of Birmingham could be prevented if only they cared enough. But they did not care enough; they kept the laws they had in regard to the smoke permissibly to make from their factories. Until they resolved to be clean they would not have taken the first step in the movement towards the duty of realising the duty of being beautiful. The first necessity was to be spacious. Then they should place beautiful objects and place them where they could see them. Further, if they were to have art in democracy, they must begin with common objects; they must start at the bottom and not at the top; and the art must be an expression of individuality. He knew what he was quite far off any practical realisation, but, from time to time, he thought it was legitimate to give utterance to a protest against the all-possessing dogma which degraded our common life, that it was the manifest duty of everyone to be as rich as he could at the expense of the common life. It might have to be trampled on in the way. The commercial cities of the Hanseatic League in the last moment thought it would be tolerable to prefer the ugly and not beautiful. He asked why it was not possible to recall ourselves to this ideal. If we were to recall to that ideal it must be first of all by laying broad the basis of the common human life out of which the art grows. There must be clean cities, cities of spaciousness, cities of beautiful public objects and cities of a dignified life.

Councillor Tonks, moving a vote of thanks to the speaker, said he had delivered an address such as had not been heard in the city for many a long day.

Mr. John Pratt seconded the vote of thanks, which was cordially adopted.

## BUILDINGS TO BE ERECTED.

THE Building Act committee of the London County Council have approved of the following plans:  
Theatre on a site abutting upon Praeger Road, St. Thomas Road, Islington (Messrs. F. Matcham & Co.).  
Enclosed porch and covered way in front of The Holland Park Gardens, Kensington (Messrs. H. Reinmann).

One-storey shops in front of Nos. 130 and 132 Green, Catford, Lewisham (Mr. W. Wilkinson).

Addition to St. Mary's Oratory, No. 32 Sydenham Road, Lewisham (Messrs. Johnson, Saul & Co.).

Additions to Blackheath High School for Girls, Blackheath (Mr. J. O. Smith).

Motor garage at rear of No. 28 St. John's Wood, abutting upon Lodge Place (Mr. H. Chatfield Clark).  
Bay windows, Northwick House, Maida Vale (Mr. Pilkington).

Buildings on western side of Brixton Hill, Lambeth town hall and Hayter Road (Messrs. Phillips, Walters & Williams).

One-storey shops in front of Nos. 1, 1A, Choumert Road, Peckham (Mr. W. L. Dowton).

Iron and glass shelter in front of the Wilton, No. 32 Wilton Road, St. George's, Hanover Square (Messrs. J. A. J. Woodward & Sons).

\* The names of architects or contractors who submit plans are in parentheses.



baptist church on western side of Bickersteth Road, Tooting (Messrs. J. Wills & Sons).  
One-storey building on the southern side of Coleridge Road, Fairhazel Gardens, Hampstead (Mr. C. Hall).  
Porch and offices at Archbishop Sumner's schools, Reedh Street, Kennington (Mr. A. H. Ryan-Tenison).  
Re-erection of Brockley cottages, Malyon Road, Lewisham (Mr. J. P. Briggs).  
Buildings on western side of Elmgrove, Peckham (Mr. Saunders).  
Iron and glass shelters along the Pantom Street and Linden Street frontages of the Comedy Theatre (Mr. Tomfield Jackson).  
Building on north-eastern side of Vauxhall Bridge Road, ending on north-western side of Edward Street (Mr. E. A. Taud).  
Buildings abutting upon Tottenham Court Road, Fitzroy Street, Whitfield Place and Warren Street, St. Pancras (Messrs. Seth-Smith & Monro).  
A building abutting upon Oxford Street, Duke Street Somerset Street (Mr. R. F. Atkinson).  
Addition to Clement's printing works, Portugal Street, 10 (Messrs. Emden, Egan & Co.).  
Addition to No. 2 Park Street, St. George's, Hanover Square (Mr. W. D. Caröe).  
Dwelling-rooms in Brunswick Hall, Whitechapel Road (Messrs. G. Baines & Son).  
House on south side of Smeaton Road, Wandsworth (Mr. G. W. Allen).  
Conversion of Rose and Crown, Acorn Street, Camberwell, into two dwelling-houses (Messrs. Style & Winch, Ltd.).  
Cartway and loading dock at Nos. 206-10 City Road, Nos. 1 and 3 Bath Street, Finsbury (Messrs. Lipton, & Co.), whereby the separation between Nos. 206-10 City Road, and Nos. 1 and 3 Bath Street, which together will hold 250,000 but not 450,000 cubic feet in extent, will in be by a horizontal floor.  
Uniting two factory buildings on western side of Cressy Road, Hampstead (Mr. F. S. Hammond).  
Openings in party wall between Nos. 8 and 9 Dover Street, Piccadilly (Mr. F. T. Verity).  
Additional storey to No. 8 Albany Street, Piccadilly (Mr. Willett).  
Building to exceed 250,000 cubic feet in extent on eastern side of Arklow Road, Deptford (Messrs. Stock, & Stock).  
Engine-room at the generating station, King's Road and Pitt Street, Camden Town (Mr. S. Baynes).  
Additional buildings in connection with St. Olave's Infirmary, Lower Road, Rotherhithe (Messrs. Newman & Vman).  
One-storey shops in front of Nos. 3 to 10 and 13 to 16 Edgale Parade, Garratt Lane, Earlsfield, Wandsworth (Messrs. T. Shepperd & Co.).  
Wood and tile porch in front of 41 Campden House Road, Kensington (Messrs. J. Barker & Co.).  
School hall, Oratory Girls' School, Chelsea (Messrs. Benson, Saul & Co.).  
Enlarged oriel, London, City and Midland Bank, Cornhill (Mr. T. B. Whinney).  
Buildings on site of Nos. 166 to 174 (even numbers) Acre Lane, Brixton (Messrs. E. J. Eadle & Myers).  
Addition to Home for Destitute Boys, Rectory Grove, Putney (Mr. G. E. Hutchinson).  
Building exceeding in extent 250,000 cubic feet in Evers Street and Alfred Place, Holborn (Mr. J. Slater).  
Erection of steps in front of 17 to 45 (odd numbers) Vera Road, Fulham (Mr. J. T. Brown).  
Building at Hythe Works, Willesden (Messrs. Hennell & Co.).  
Porches to twenty-nine houses in Danecroft Road and fifteen houses in Frankfurt Road, Herne Hill (Mr. W. C. Dard).  
Porch, bay windows and balconies, No. 1A Maida Hill Road, Paddington (Messrs. Taperell & Haase).  
Porch, 5 Cravenhill, Paddington (Messrs. Joseph & them).  
Porch and balcony, 25 Upper Brook Street (Mr. R. G. Hammond).  
Projecting columns, Bayswater, and balconies, 44 Curzon Street, W. (Mr. M. G. Hazell).  
Balcony and porch, 63 Brook Street, W. (Mr. G. T. e).  
Building over a portion of Adelaide Place, Strand (Mr. T. Wreathall).  
Two projecting circular bay windows to Nos. 4 and

6 Genoa Avenue, and projecting porches and sham half-timberwork to Nos. 4, 6, 8 and 10 Genoa Avenue, Putney (Mr. J. C. Radford).  
Buildings on south side of Oldridge Road, Balham (Mr. C. H. Cartwright).  
Building on south-western side of Swaby Road, Wandsworth (Messrs. Holloway Bros.).  
Building on eastern side of Auberon Street, Woolwich (Mr. W. Harris).  
Bay windows to Nos. 12 and 14 Beechill Road, Eltham (Mr. J. J. Barrett).  
Buildings on site of Nos. 708, 710 and 712 Old Ford Road, Bow (Mr. J. H. Bishop).  
Addition to St. Matthew's schools, Nelson Place, Islington (Messrs. Lovegrove & Papworth).  
Lift at rear of 28 to 34 Fortress Grove, Kentish Town (Mr. C. J. Shaw).  
One-storey building in front of 3 Pemberton Row, Great New Street, E.C. (Mr. R. M. Roe).  
Addition to Frognaal Rise, Hampstead (Mr. R. Unwin).  
Porch in front of St. John's Church, Plumstead (Mr. J. O. Cook).  
Building on site of No. 1 Chepstow Place, Bayswater (Mr. E. J. Stubbs).

### CONGRESS OF ARCHITECTS, 1908.

THE following preliminary programme of the International Congress of Architects, Vienna, May 18 to 24, 1908, has been issued:—

#### Monday.

Meeting in hall of the Architects and Engineers' Association.  
9 o'clock—Meeting of the permanent committee.  
10 o'clock—Distribution of circulars, cards, invitations, &c.  
From 12 to 2 o'clock—Public Opening of the Congress in the assembly hall of the Imperial Palace.  
3 o'clock—Excursions through the city; carriages, street cars by individual payments.  
8 o'clock—Reunion in the Künstlerhaus in the Fine Arts Palace; Entertainment by the Sculptural Society of Vienna.

#### Tuesday.

First Section in the hall of the Engineers and Architects' Association of Vienna.  
10 o'clock—Business meeting.  
Second Section in the Trades Union Hall.  
10 o'clock—Conferences with Professor Karl König and Mr. Bauer.  
3 o'clock—Visit to the Exposition of Prater. Excursion to Kahlenberg.  
Dinner given by the Austrian Society of Engineers and Architects.

#### Wednesday.

10 o'clock—Business meetings and conferences in the same halls in which the meetings were held Tuesday.  
3 o'clock—Excursion to Klosterneuburg and to the Chateau of Kreutzenstein.  
5 o'clock—Reception at the Imperial Court.

#### Thursday.

The entire day will be devoted to an excursion to Semmering.

#### Friday.

10 o'clock—Business meetings and conferences in the same halls.  
3 o'clock—Visit to the city library.  
8 o'clock—Reception in the Rathaus.

#### Saturday.

9 o'clock—Meeting of the permanent committee.  
10 o'clock—Closing meeting.  
3 o'clock—Promenades, visits, &c.  
8 o'clock—Closing banquet, the fee for which will be fixed later.  
The following subjects will be discussed at the Congress:—

#### I. CONTINUATION OF THE SUBJECTS CONSIDERED IN LONDON IN 1906.

1. State of Legislation on the Property Right of Design.
2. Organisation of International Competitions in Architecture.
3. The Legal Qualifications of an Architect.
4. Preservation of Public Architectural Monuments.
5. Reinforced Concrete Construction.



## II. NEW QUESTIONS.

6. The Public Administration of the Fine Arts; the Utility of, the Dangers of, and the Methods of Organisation.
7. To Safeguard the Artistic Interest in Municipal Building Ordinances.
8. The Modification of the Business Methods of the International Congress.

## III.—DISSERTATIONS.

The following dissertations and discussions have been announced:—

Prof. Karl Konig: The Influences and Tendencies of Modern Art on Architecture.

Mr. Leopold Bauer, architect: The Influence of Historic Styles on the Development and Forms of Modern Architecture.

Prof. Meydenbauer, Berlin: Measurements of Light.

Mr. Daumet, Paris: Discussion on the subject of Architecture.



## Further Strand Improvement.

SIR,—Though the improvements committee of the new London County Council have recommended that "no alteration be made in the present northern line of frontage in the Strand," and that the Council should refuse our offer for the right to erect a hoarding in order to demonstrate how buildings on that line of frontage would mar the thoroughfare, the Further Strand Improvement Committee cannot accept as conclusive the report submitted to the Council, and will continue its work until a more satisfactory result has been obtained. The work of the committee has already been extended over a period of more than four years, and has involved expenditure in excess of funds subscribed. To meet this and for the work yet before us we appeal for support to all who care for the future of our great Metropolis. Subscriptions may be forwarded to the honorary treasurer, Mr. Robert A. Smith, Palace Chambers, Westminster.—We are, &c.,

EDWARD J. POYNTER, President.

HENRY W. LAWRENCE, Chairman of Executive Committee.

MARK H. JUDGE, Honorary Secretary.

7 Pall Mall: October 8, 1907.

## Warning to Builders' Merchants.

SIR,—In the interest of merchants and others connected with the building trade, we should be obliged if you would kindly give prominence in your next issue to the following warning:—A man is going about falsely representing himself to be connected with this firm, giving orders for goods and instructions as to their delivery, and following on with a request for a loan of a small sum of money. We have had many complaints from merchants who have been victimised and put to considerable trouble and expense, and we should be glad to receive any information which may lead to the man's apprehension.—Yours faithfully,

GEORGE TROLLOPE & SONS AND COLLS & SONS, LTD.

5 Coleman Street, E.C.:

October 9, 1907.

## GENERAL.

Mr. William Orpen, A.R.H.A., has been appointed by the Department of Agriculture and Technical Instruction for Ireland as visiting professor of drawing and painting from life at the Metropolitan School of Art.

An Exhibition of about seventy water-colour drawings illustrative of the work of Mr. William Callow between 1840 and 1904 will open on Saturday, October 11, at the Leicester Galleries, W. Mr. Callow was born in 1812, and ceased work owing to failing eyesight in 1904.

Messrs. E. A. Woodrow & Horace J. Helsdon have removed from 67-9 Chancery Lane to 6 Raymond Buildings, Gray's Inn, W.C. The telephone numbers, 328 Holborn and 63 Finchley, remain unaltered.

The Surveyors' Institution will hold the first ordinary general meeting of the session on Monday, November 11, when the president, Mr. Thomas Taylor Wainwright, will deliver an opening address at eight o'clock.

The Dean of Winchester, speaking at Winchester Tuesday, said that he had received a serious reply from Mr. T. G. Jackson as to the condition of Winchester Cathedral. It had been impossible to obtain this information until the walls were opened, and it was now estimated that 86,000*l.* would be required instead of 60,000*l.* previously estimated. They had spent 24,000*l.*, and were 6,000*l.* in debt. They would do urgent work up to but after that dangerous parts would have to be left up unless the necessary funds were subscribed.

The Series of Lectures on William Blake, which was announced last week would be delivered under the auspices of Alexandra College Guild, Dublin, has been unfortunately postponed to a later date during the present session.

By the Will of the late Mr. John M'Kinney, of Glasgow, the Archbishop of Glasgow will receive 3,000*l.* for the new Catholic church at Crosshill, and the Very Rev. J. B. M'Luskey, of St. John's, Portugal Street, 200*l.* for the new Catholic church to be erected in Gorbals.

The Late Sir Wollaston Knocker, who for nearly 40 years was town clerk of Dover, has bequeathed to the Corporation of Dover all his old book-prints, documents and archives relating to the town and the ancient Cinque Ports.

The Works Committee of Aberdeen Harbour Commission recommend the appointment of Mr. Hugh Barr, a second assistant, to the position of assistant engineer in the room of Mr. William Simpson, who has been appointed engineer to the Sunderland Harbour Commission. His salary is 225*l.*, rising next year to 250*l.*

St. George's United Free Church, Edinburgh, has been reopened after being closed for a period of two years during which the interior has been entirely cleared and redecorated from the designs and under the personal supervision of Sir Rowand Anderson.

At a Local Government Board inquiry into an application of the Cardiff City Council to borrow 50,000*l.* for lunatic asylum, exception was taken to an expenditure of 2,000*l.* for a lodge and 1,408*l.* for a steward's house, which it was claimed was extravagance.

At the Last Meeting of the Court of Common Council was resolved that, in view of the great public appreciation of the special exhibitions held in the Art Gallery since the year 1890, it was desirable that an exhibition should be held in the summer of the ensuing year, and that the matter be referred to the library committee to make the necessary arrangements at a cost not exceeding 450*l.* The Chairman remarked that since 1890 exhibitions had been held every year except three, and the visitors had numbered 3,000,000.

The Cheshire Education Committee approved on Monday an estimate of the cost of providing a new college for ex-bursars which was presented. The estimate provided 3,000*l.* as the cost of the site, 6,000*l.* for the building and equipment of a college for 100 students at 60*l.* per head, and 3,000*l.* for the provision of a hostel for fifty students per head. A sub-committee was appointed to look for a suitable site for the college in Crewe or in the immediate neighbourhood.

The Provisional Committee for the preservation of Crosby Hall met at the Guildhall on the 7th inst. under the presidency of Sir T. Vezey Strong. Upon consideration of a communication from the Society for the Preservation of Ancient Buildings, the committee decided that a trust should be created securing for permanent public advantage the preservation of Crosby Hall and its use in connection with the advancement of the work of the City Guilds and other bodies having kindred objects. It was further decided that provision should be made for the building being open for public inspection under suitable regulations. The directors of the Chartered Bank of India and China granted an extension of time to the 15th inst. for the completion of the purchase, and it was decided in the meantime for funds to notify guilds and other bodies not later than that date of the circumstance.

Mr. W. F. Stanley, to whom architects and engineers are indebted for many useful instruments, received on Monday the honorary freedom of Croydon, in recognition of his munificence in founding the Stanley Hall and Technical Trade School.

Mr. Edmund Kirby will on Monday next deliver a public address to the Liverpool Architectural Society.

Mr. Philip Norman, F.S.A., will deliver a lecture on the evening at the Camberwell School of Arts and Crafts on "Old London Churches and Houses."







The Architect, Oct 11<sup>th</sup> 1907.







PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

INK PHOTO SPRAGUE & CO. 147, 4 & 5 EAST HARDING STREET, FENCHURCH LANE, E.C.

**PREMISES: FENCHURCH STREET AND ROOD LANE, E.C.**

E. B. ELLIS, Architect.





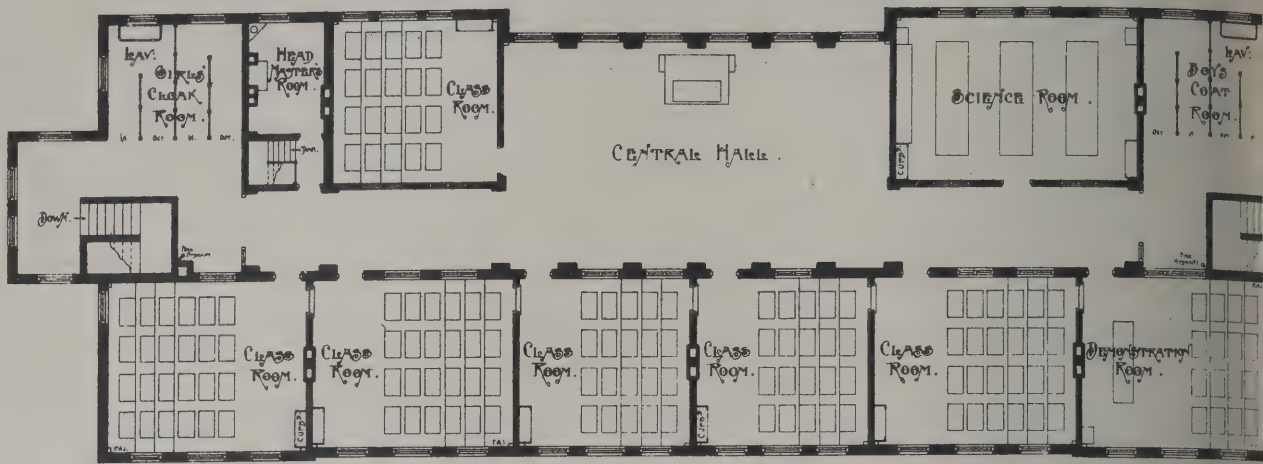




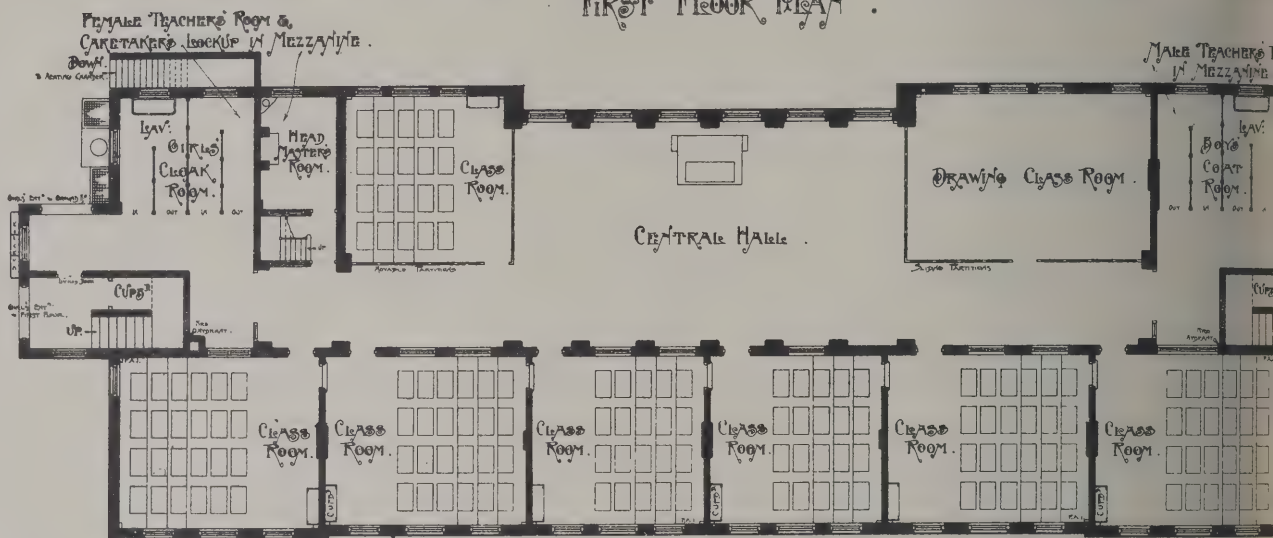


—: GEORGE PALMER COUNCIL SCHOOL — READING —:

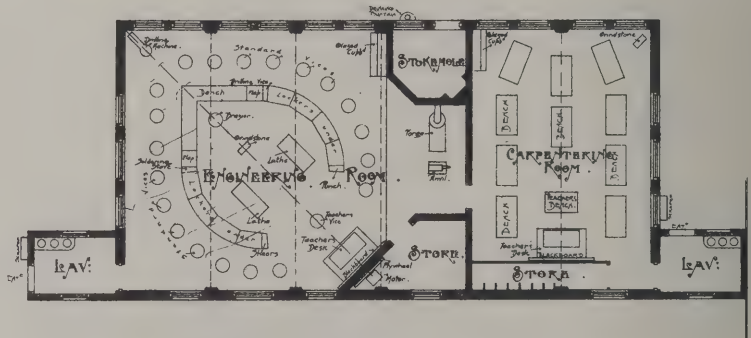
"INTERMEDIATE & SENIOR MIXED".



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.



MANUAL INSTRUCTION CENTRE.

CENTRE FOR THE TEACHING OF COOKERY, LAUNDRY AND HOUSEWIFERY.



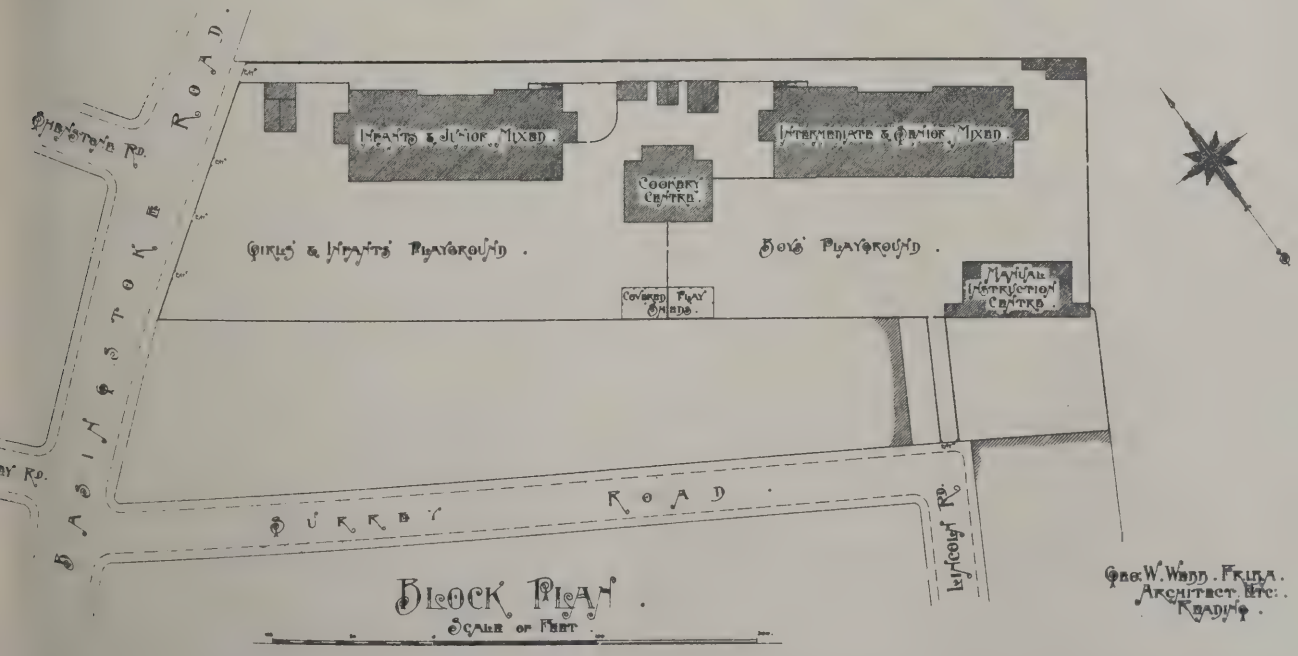
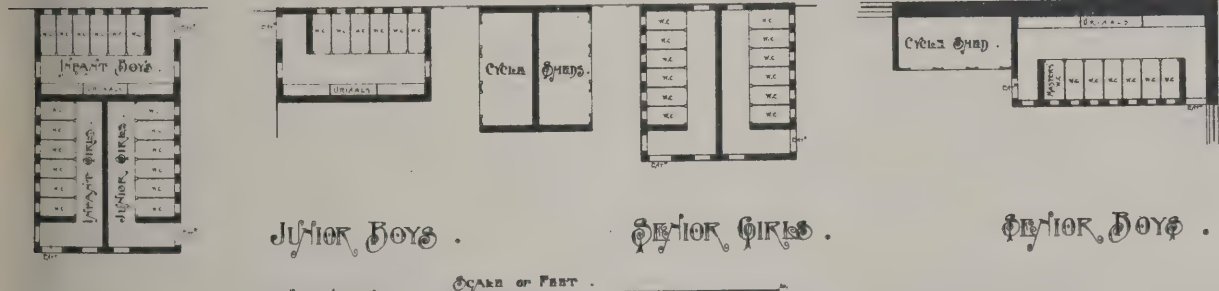
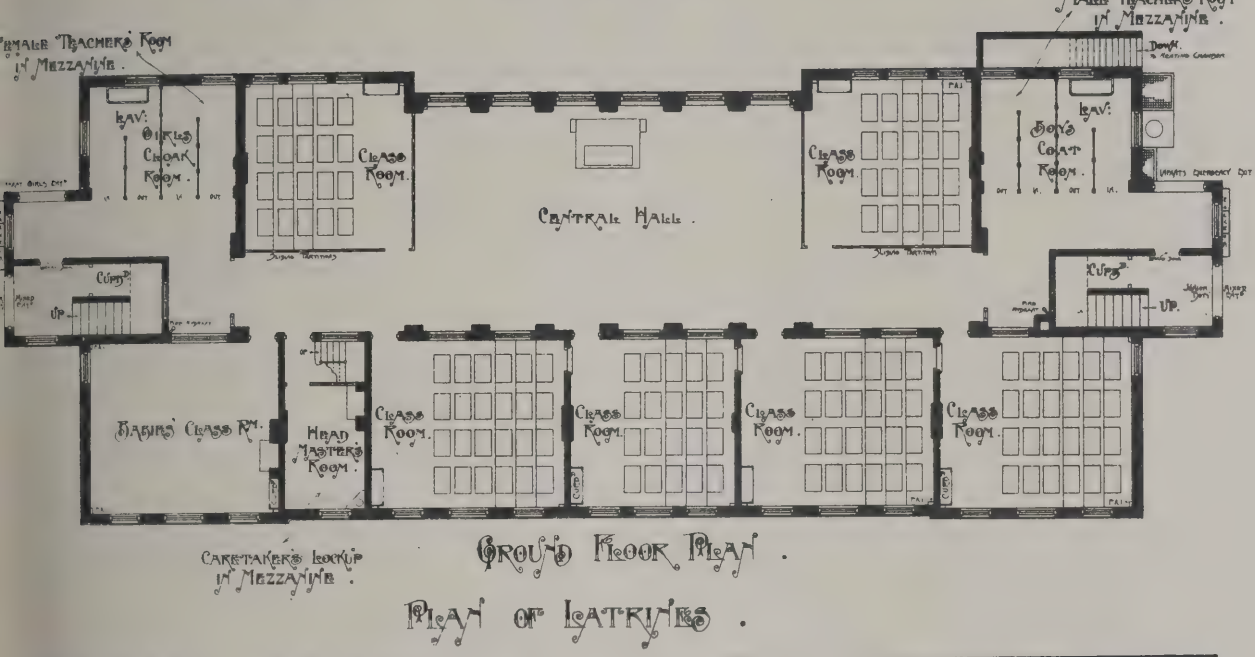
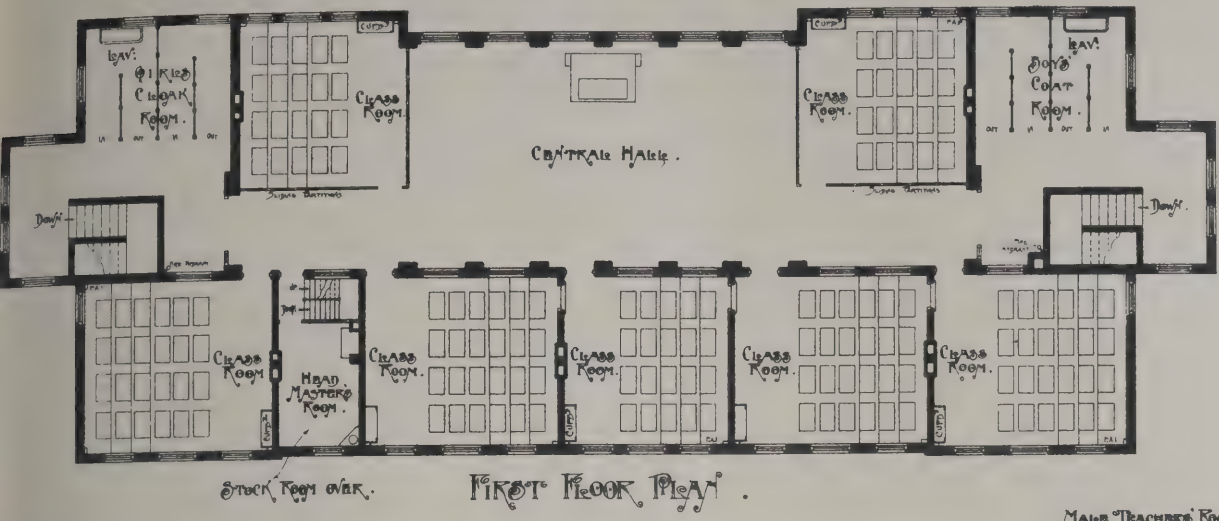
GROUND FLOOR PLAN.



FIRST FLOOR PLAN.



# "INFANTS' DEPARTMENT & JUNIOR MIXED"



Geo. W. Webb, F.R.I.B.A.  
Architect, etc.  
Reading.



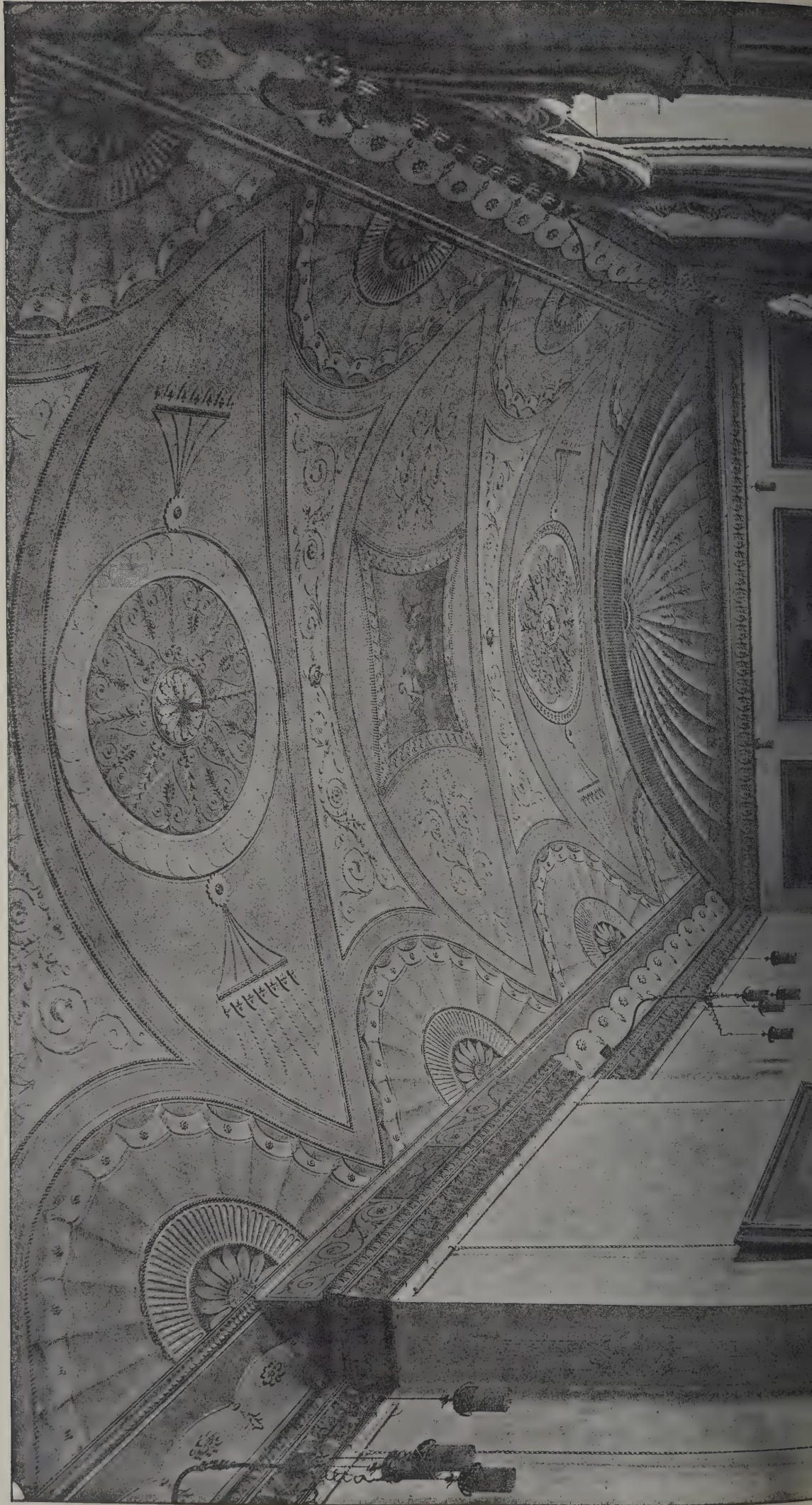








The Architect, Oct'r 11th 1907.







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"INK-PHOTO," SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

## RECEPTION ROOM, 22 PORTMAN SQUARE, W.

JOHN LANE, Architect.











The Architect, Oct'r 11<sup>th</sup> 1907.







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E. GUY DAWBER, F.R.I.B.A., Architect.







# The Architect.

## THE WEEK.

was general satisfaction in London when it was announced that a second French offer for the Crescent site had been accepted by the London Council. To have an area of 124,000 square ft upon out of the terrible wilderness which has long a time pained the eyes of all who pass was a thing which was almost enough to give rise to public rejoicing. Unfortunately, the second French offer has proved to be as unsubstantial as the first. All the offers seem to be satisfactory with the exception of one for £5,000 within a fortnight. The improvements were anxious to avoid another fiasco, and at last to time they extended the term for payment. But official patience has been at length exhausted, and on Tuesday it was resolved to rescind the resolution of July 23. It was asserted that one obstacle is to be found in the existence of the church of St. Mary-le-bow, but it will require a long struggle before that is sacrificed.

In 1898 the Metropolitan Asylums Board adopted a resolution to the effect that, provided the surveyors were to guarantee the accuracy of their quantities, bills of quantities form part of the contract in all building contracts. This was an exception to the usual practice, and at the time gave rise to some discussion. Opinions, of course, varied, for there can be no question that the connection between the bills of quantities and contracts is a subject on which neither architects nor contractors are all agreed. After nine years' experience the existing works committee have reached the conclusion that the resolution of 1898 should be rescinded. They declare that the treatment of quantities as part of the contract has not proved economical, and, moreover, it allows contractors to claim in instances where the quantities appear correct though they would not voluntarily give credit for there was excess. The change has been made only after serious consideration, and it will be supposed, be without its effect upon those who have arranged the arrangement most generally favoured by the public at the present time.

Perth Town Council some time ago arranged a competition for altering the town hall. Several designs were submitted, premiums were awarded, and one design was pronounced to be accepted. But the work was not carried out, mainly owing to the probable expense, which was the very small amount stipulated. The necessity for a new town hall became more evident, and it was decided to increase the amount available to £25,000. The plan is to include the cost of a large and a small hall, and furniture. Another competition is to take place which will be open to architects living in any part of the United Kingdom. The prizes to be offered are £500, £300, and £200. The authors of the three best designs in this first competition are to be invited to take part in this competition, and to receive £200 if he accepts. Mr. J. J. BURNET, F.R.S.E., is to be assessor, and will prepare the conditions. It is the intention of the Council in the course of the year to purchase the property surrounding the site, and to lay out new streets on either side as well as a square

works wonders," but it is not often so interesting. A year's work is accomplished as is to be seen at the Abbey. Soon after midnight on October 19, a fire arose in the Latham chapel, and on Saturday, October 19, 1907, the dedication service will take place. When we consider the work which was necessary in so important a

work of architecture and so historical a building, it is creditable to the architect, Mr. J. O. SCOTT, to Mr. ULLATHORNE, the contractor, and to the workmen that so much has been accomplished. It must not be supposed that the work was confined to the nave. In the other parts of the building much has been done, but it was thought desirable to utilise the nave for the ordinary services, and that aim has been realised. The restoration committee are so well satisfied with what has been done that it was lately proposed to restore the tower to a greater height than it had reached at the time of the fire. One of the incidents of the fire was that the clock continued working for about two hours, and not until the flames ascended to the works was there a stoppage. The time was 2.7 A.M. Towards the restoration a sum of about £36,000 has been obtained. But it is estimated that an additional sum of £12,000 will be required. The dedication will be an historic event, and it is doubtful whether at any other time so much restoration was accomplished within a year.

THE difficulty of carrying out the sections of the London Building Acts Amendment Act of 1905 has been again exemplified in the case of a building in Beech Street, which came before the Tribunal of Appeal on the 11th inst. Mr. P. B. TUBBS, the architect, said he was unable to obtain the consent of owners of the adjoining property to allow ladders or balconies as a means of escape to be erected. He had not adopted "smoke lobbies," as from his experience of them he did not believe in their efficiency. Reasonable means of escape had, however, been introduced. On behalf of the County Council it was said that the requirements of the Act were not complied with, and the Council's alternative proposals were not adopted. The members of the Tribunal of Appeal had examined the premises, and they allowed the appeal, awarding Mr. H. T. TUBBS 60 guineas costs. This, we believe, is the third case in which the Tribunal has allowed an appeal against the order of the County Council.

WHAT is known as the Isle of Purbeck is valuable in a geological sense, the stone being used for a number of purposes. At one time also the marbles were much employed in Gothic churches, but latterly they have been supplanted by foreign and other varieties. A case which was heard in Wareham County Court suggests that some old-fashioned customs still prevail in the district. The Bishop of WORCESTER claimed 50% from a quarryman at Swanage, on account of moneys due in respect of stone taken from quarries at Herston Farm, belonging to his Lordship. The defendant had been quarrying stone on the farm at three quarries, and he had not paid anything on the stone he had taken for a very long period. The quarrymen at Swanage claimed, by an ancient custom, the right of going on to the land of the plaintiff and of other landlords in the Isle of Purbeck and taking stone out of the quarries on condition that they paid royalties or dues, and defendant, it was alleged, had not paid any since 1887. Defendant, on being written to for particulars of the stone taken from the quarries since that date, first said that he could not possibly give the information, as the accounts had been either destroyed or mixed up with those relating to stone removed from another quarry. Subsequently, however, he wrote that his account of dues owing, "as near as he could get at it," was £31. 15s. 9d., which he paid into Court. In view of the defendant's admission, the judge said he must order the account to be furnished, and directed the Registrar to certify the balance due, the question of costs to be reserved until the next court in December. In the neighbouring island of Portland there are several privileges claimed by the quarrymen which are not in keeping with modern business arrangements. They are suggestive of a time when the stone was mainly used for local work, and owners therefore did not insist on their rights.



## INTERNATIONAL EXHIBITIONS.

WHEN the Board of Trade appointed a committee consisting of Sir ALFRED E. BATEMAN, K.C.M.G. (chairman), Mr. A. WILSON FOX, C.B., Mr. C. A. HARRIS, C.B., C.M.G., the Right Hon. Sir JAMES KITSON, Bart., M.P., Mr. ALGERNON LAW, Mr. MALCOLM RAMSAY, C.B., Sir SWIRE SMITH, Sir ISIDORE SPIELMANN and Mr. S. J. WARING to inquire into the benefits which this country derived from taking part in international exhibitions, and whether they were worth supporting and could be made to yield more advantage, the conclusions to be arrived at might easily have been foretold by anyone whose business it was to study such displays. In the first place, it cannot be doubted that as time runs on each exhibition shows signs of deterioration if compared with its predecessors. Human nature is weak, and to "do" an international exhibition is almost as onerous a task as reading through an encyclopædia. JOHN LEECH was able to turn the Exhibition of 1851 to account by suggesting how his languid swells derived gratification from such a revelation of industry. Yet in Hyde Park there was the great influence of novelty, which could not be repeated.

Shrewd entertainers were able to realise that the majority of people wished to amuse themselves, and in that way a large number of frivolous excrescences or "side shows" began to appear around the buildings which were devoted to science and art and the latest inventions. From the variety of people who were engaged it might easily be imagined that the promoters of an exhibition considered it was advantageous for visitors to go through a practical course of ethnology. Even when an effort was made to elevate spectacles that were often degrading by framing them in examples of ancient and barbaric architecture, there was little change in the character of the entertainments.

An exhibitor who had gone to great expense in sending machinery or costly products abroad could not help feeling mortified when he saw crowds of people watching the tricks of semi-savages while his own and other stalls no less interesting were neglected. Much of the prejudice which exists among exhibitors of the right class is due to the success of spectacles which are not evidence of progress. But the authorities of exhibitions, in defence, argue that the money derived from performances however contemptible is not to be despised, for it is necessary in order to supplement the rent received from people whose names are inscribed in the catalogue, in order to meet the enormous expenses which are inevitable. They also say that the public have become so accustomed to side shows no exhibition committee, however exalted, could refuse to exclude them.

Exhibitors—and we refer only to those whose productions are worthy of serious consideration—are also disappointed when they find that few orders are given to their agents. Goods may be of the highest quality and may be arranged with skill; they may also be admired, but real business is rarely transacted. We consider that the test is too exacting. In an international exhibition rivalry is on an extraordinary scale, and it requires some time for consideration before a decision is arrived at about the objects which are best deserving of selection. We speak, of course, of the classes of goods which are costly. Many exhibitors now realise that orders are not to be expected the moment a stall is examined. One of the witnesses before the committee was asked whether he derived any benefit from one of the numerous exhibitions in which he took part. He replied:—"It is impossible for me to say positively yes or no. We cannot trace anything directly to it. If you advertise in a certain paper, it is impossible to say whether you get any particular benefit from advertising in that particular paper; but you do get a benefit from advertising all round, most assuredly; it is the life of trade." Those who do not obtain orders immediately are disposed to undervalue exhibitions and to treat them as hopeless means of profit, although

involving considerable expense. But, on the other hand, it may be concluded that the eventual results are tenuous.

If exhibitions are to succeed it is absolutely necessary that a more perfect organisation should be than hitherto. It is impossible nowadays to do a business matter without introducing German methods. As Sir W. H. PREECE said, the German modes of business is far ahead of us, and that is carrying away so much of the trade from us. One witness related his own experience. He sent over valuable scientific instruments. The position assigned to him the heat was so great that some of his delicate thermometers burst. The Official Commission paid no attention to him and neglected the exhibitors all through. The committee, on the contrary, appointed a special man to look after similar objects, and he was at his long to give practical explanations. The witness not only his goods but his packing-cases were taken apart and he had to make long journeys in order to cover them. At Chicago the German Consular clerks put under him in order to act as exhibitors, and in consequence they obtained a great number of orders. Suppose a German exhibitor was to speak English and someone came to buy his goods, the clerks acted not only as interpreter but also as salesmen, and that without cost to the exhibitor. A witness who was a transport agent and a shipping agent, and as such was connected with several international exhibitions, and had taken part in the organisation of some of them, said that many of the firms would have taken part in the Paris Exhibition of 1900 if it had not been for the officialism.

The committee recommend that the Government should provide in future continuity of organisation from exhibition to exhibition. Sir H. T. DIXON said that it should be connected with the Board of Trade and that a capable man should be appointed as a permanent commissioner. He considered that the late Sir JOHN OWEN and Sir HENRY COLE were typical of the kind of men who were appointed. But to insure the success of international exhibitions the co-operation of the Society of Arts, the Chambers of Commerce is indispensable. The Government should be allied the principal manufacturing firms should happen to be outside those bodies.

The committee regard international exhibitions solely in the light of advertisements for the country. The same rule applies to empires as to individuals. They point out how "experience has shown" that in the case of firms with an established reputation and world-wide connections, attempts to do business by advertising have usually been followed by a large increase in the sales effected, and we cannot but think that neglect by Great Britain of one of the most powerful forms of national advertisement would be detrimental to her interests as a trading country." It can, therefore, be assumed that an international exhibition should be held in London, and that capital, Great Britain will be better organised for co-operation than in some recent cases.

It is sometimes said that this country has lost its position from exhibitions because foreign rivals have imitated English machines and other inventions, and that inventive power. That might have been true in 1851. But the industrial world has enlarged since that time. Foreign inventions are their own against British not only abroad but in this country. Indeed, a similar objection has been raised about Englishmen copying the inventions of foreigners. Besides, applications of power can be seen in places besides exhibitions. The public are on the look-out for novelties know them and are rarely disappointed.

The question of awards is one of great importance. Some exhibitors set a value on the medals while others can afford to be indifferent. There have occurred where medals of the



warded although the goods which were to have won them had not reached exhibition buildings. With so large a number of to be examined juries are often pressed for time, published firms receive greater attention than of inferior degree, although the latter may be ted by what is more interesting and valuable. be denied that in some cases agents profess not be able to obtain medals, but are willing to accept payment by result, a gold medal being a higher rate than one of silver or bronze. If was ten guineas for a bronze, twenty for a and thirty for a gold medal. But in spite of all tions, there are many who are in favour of the of medals. The Lord Chief Justice, who has twenty years' experience of exhibition com- declares there must be some recognition or dard of award, or else the manufacturers say, ily have nothing to show for any successful e have sent."

l be seen from the evidence printed on another t works of art are in a somewhat doubtful in the international exhibitions. When English were first seen in Paris French artists were not only at finding that Englishmen could paint, their pictures were purchased, and the British became more remarkable on the latter account the former. All the principal pictures were l in consequence the courage of English became exalted in the eyes of foreigners. eeding exhibitions had also to depend mainly s. Industrial exhibitors have never, to our ge, grumbled because English painters were not d to pay for the wall spaces occupied by their or it was believed that pictures, from their eness, were not without advantage to every of the English section. But it is now evident, remarks of some of the committee who have estigating the subject of exhibitions, that there be no exceptions. It is not, however, likely e future any change will take place. Painters ot pay; and there is less probability of the of pictures agreeing to be mulcted for helping d the reputation of Great Britain. The subject er, curious as suggesting the new spirit which ng up and by which all classes are placed on ty as regards disadvantages.

### FRENCH CATHEDRALS.\*

water-colour drawings of Mr. MARSHALL are ll known and merit the admiration they re- they display courage as well as artistic skill. e afraid to take any street in London and out ill make an attractive picture. This is not, solely due to the buildings. Much depends sky and on the figures in the streets. Mr. L is not to our mind an architectural enthu- e is satisfied with giving a general impression ding and does not labour over much on details. g may be the principal element of one of his , but it only, as it were, receives its due pro- f attention, for other elements have also to be ith justice.

therefore, a windfall for amateurs to receive than sixty reproductions of Mr. MARSHALL'S French towns, a cathedral generally forming a t feature in each. The originals were all y worked up to the extent we see on the for they retain an open-air look rather than oriousness. Another advantage they have is y suggest by their colours the sketch-book f the printing office. Modern colour illustra-

tion depends mainly on making a very few colours serve for the infinitude of nature, and in consequence a great many unsatisfactory appearances are produced. The plates from Mr. MARSHALL'S drawings are more pleasing than the majority of those which appear in modern books, indeed, it may be said that no two of them are suggestive of the same state of the atmo- sphere, and this variety is well adapted for such a country as France.

In the old days, when TURNER, STANFIELD, ROBERTS and PROUT brought out their beautiful landscape illus- trations, they were careful to avoid all responsibility for the letterpress of the "Annuals" in which they appeared. That work might be done by writers who were not on the same level as the artist. The reason is that, in spite of the appreciation of universality of knowledge and versatility in England, we believe in specialists. Like the Greeks, we expect the maker of sandals not to soar in his criticism beyond the feet of the statue. It may happen there will be a difference between the text and the illustrations of a book when two men are engaged in it, but that does not affect the value of either. Although TURNER was doggedly silent, he could not help exclaiming against the wonderful qualities which RUSKIN found in his pictures. It would perhaps have been better for us if TURNER explained how much was imaginative in his works, and why on certain occasions he took the privilege of endeavouring to go beyond nature. Architects would be pleased if Mr. MARSHALL frankly expressed his own judgment as a painter upon the French buildings he made the subject of his drawings, and he could not probably be over- detailed. As a rule he avoids giving what the majority of his readers would we imagine most desire. "Our business here," he writes, "is with the cathedrals and the historical side of the towns rather than with the lighter points of view." In literature the fullest freedom should be allowed, and there is no reason to prevent Mr. MARSHALL, if he cared, taking up the statistics of the cathedral cities as well as their histories. But by doing so the personal equation which is found in the drawings has to be absent in most cases. For the historical events he is compelled to depend on earlier writers, and when cathedrals are treated as examples of construction a great many architectural authorities have to be consulted and relied on. When OLIVER GOLD- SMITH imagined a time of rest for himself after his servitude to the publishers, his highest enjoyment was to relate to the people of his native village "all he felt and all he saw." Authors who are not professional should try to imitate him when they write. Mr. MARSHALL'S drawings are evidence of what he saw, it may be only by a hurried glance. If his pages would only suggest what he felt, his book would be perfect.

There are occasional paragraphs which indicate how well he could do what we desire. Take one example. Many architects have been puzzled when they first saw the ex-cathedral of Laon. But they have read so much about the enthusiasm of the builders who were able to accomplish so large a work in a short time, they have hesitated to say that it is not a building which is worthy of imitation. They will be more assured when they find that a painter of buildings was not fascinated by such massive uncouthness. Mr. MARSHALL'S impression is therefore worth recording:—

From the distance it has more the appearance of a chateau than of a church; its nave is low when compared with other Gothic naves, and its general outside appearance shows evidence of something brutal and savage; and as far as its colossal sculptures of animals, oxen and horses, which appear to guard the upper parts of the towers are concerned, they combine to give an impression more of terror than of a religious sentiment. One does not feel, as one regards Notre-Dame de Laon, the stamp of an advanced civilisation, as at Paris or at Amiens. Everything is rude and rough; it is the monument of a people enterprising and energetic and full of great virility. They are the same men as are seen building elsewhere in the neighbourhood—a race of giants.

*Cathedral Cities of France.* By Herbert Marshall, R.W.S.,  
er Marshall. With sixty illustrations in colour by  
Marshall, R.W.S. (London: William Heinemann.)



Mr. MARSHALL says his book was put together during five summers, and his chapters are not intended to mark out any definite geographical scheme. The course followed is therefore somewhat zigzag, and it would have been preferable if some recognition of the French schools of architecture had been considered necessary. But we need not say that no matter in what order they may be arranged in the pages, Rouen, Chartres, Périgueux, Sens, Bourges, Paris, Coutances, cannot fail to possess interest for the student of art as well as of history. But the history can be obtained in a great many books, while a traveller like Mr. MARSHALL is not met with every year, and it is allowable to desire that when he enters on authorship he should refrain from following in the steps of other men.

No doubt almost every cathedral town in France can offer a "strange eventful history." They enjoyed independence to some extent, and that was an advantage in one way, for it placed some restriction on the combativeness of the race. It also promoted emulation, and at the present time a provincial town in France can aid clever but poor inhabitants with subsidies to an extent which would not be allowed in England. The French cathedrals are instances of the benefits which arise from competition among rival districts. As a kingdom France may have suffered through the partial independence of the cities, but owing to the peculiar character of the race it is by no means certain whether consolidation would have been advantageous at a much earlier period either to the people or to their neighbours. At the present time the centralising power appears indifferent to the fate of the cathedrals, and the dioceses have so long been passive they now seem to be unable to take any measures for the protection of the buildings. But whatever may happen the drawings by Mr. MARSHALL will suggest how much beauty had survived in the exteriors of the cathedrals—for it is a peculiarity of his talent to neglect interiors—and how in the twentieth century people continued to assemble near their porches as if they were still refuges and asylums.

#### THE LATE W. L. WINDUS.

IT might be imagined that when an artist was described by Ruskin as one of the chief leaders of the pre-Raphaelite school, who might one day take highest rank among masters of expression, and whose works were said to be among those that will hold their own with the most noble pictures of all time, he was likely to attain prosperity. That was not, however, the fate of William Lindsay Windus, the Liverpool artist, who died last week at Denmark Hill, S.E. Dante Rossetti also was of opinion that his "Burd Helen" was the finest picture in the Academy exhibition of 1856, while Ruskin considered it was the second best. A year or two afterwards Windus withdrew from the world, and there was much surprise when three incomplete works by him were seen in 1896 at the New English Art Club.

In the *Liverpool Courier* is an interesting memoir of the artist (probably by Mr. Dibdin, the curator of the Walker Art Gallery) from which we take the following:—

Windus was born, probably in London Road or Monument Place, in 1823. His family had long been resident in this part of Lancashire, his great grandfather having been vicar of Halsall, near Ormskirk. His mother was a Scotswoman, not improbably of the clan Lindsay. Art apparently did not come by heredity. At any rate, until he was sixteen years of age young Windus knew nothing about it. William Daniels came to paint a portrait of his stepfather, and the lad looked on with much interest, which gradually grew into a desire to try what he could do. The stepfather's father, retired from active services in life, was readily available as a model, and the chalk drawing which resulted astonished the family, and even arrested the attention of Daniels. That erratic genius volunteered to teach him to draw, but young Windus found great difficulty in keeping him to his bargain; his convivial tendencies constantly interfered. The pupil, however, was receptive and eager, and by tracing his teacher to various Temples of Bacchus got many stray hints and suggestions which

helped him, and he also studied pictures which lent him.

After making considerable progress the young man entered the antique school of the Liverpool Academy, and attended the life school established by Herbert J. R. Herbert, R.A., who kept a colour shop in the city. As early as 1842 he exhibited a "Portrait of a Gentleman" at the Liverpool Academy Exhibition, and in 1843 he contributed his much admired "Black Boy." Meeting other clever young students he soon became a prominent promise in the Liverpool art world, and secured admission into the artistic circle of that famous art patron, Mr. Miller, who kept a sort of open house for artists more than any single man to bring about the period in the history of art in Liverpool which is regretfully spoken of as "the palmy days." Windus exhibited "Falstaff Acting King Henry" first of the romantic genre subjects which for a time filled his imagination. This was succeeded the following year by "Touchstone Denominating the Lie" and "The Little Loiterer," and in 1845 "Morton before Claverhouse at Tillietudlem" the last for which is in the Walker Art Gallery.

In that year he was elected an associate and the following year a full member of the Academy, his election to that exhibition being "Reginald Pole and Henry VIII. against the Divorce of Catharine of Aragon." This was followed in 1849 by "The Interview of a State, Shaxton, Bishop of Salisbury, with Anne Boleyn in Prison." In the two following years he exhibited "The Execution of Mary Queen of Scots" and "The Execution of Mary Queen of Scots." In 1850, at the suggestion of Miller, who to him, as to other young aspirants, was untiringly kind, he visited London, where, among other examinations, he visited the new pre-Raphaelite school, he saw "The Shop," by Millais. The *Times* found that picture "interesting and disgusting," but Windus thought otherwise, and on returning to Liverpool, he seems to have sown the seeds of revolt among the younger artists of the town.

Thus began that battle in Liverpool for the overthrow of Raphaelite heresy which had such momentous results. The prize in 1851, and again in 1853, was won by Holman Hunt, Millais had it in 1852 and 1857, and Brown received it in 1856 and 1858; while other prizes were Mark Antony in 1854, Egg in 1855, and "The Girl" in 1857 in combination with other circumstances brought matters to a crisis. Herdman, who was a member of the Academy, not altogether voluntarily, had influenced the Corporation, which withdrew its support. An exhibition was opened, and the two exhibitions were each other to make room for the Corporation authorities.

Reverting to the Academy's years of prosperity, Windus reappearing as an exhibitor in 1851 with his brilliant work "Darnley Signing the Compact with the conspirators previous to the Murder of Rizzio," now the property of Mr. A. Bain, of Glasgow. In 1854 he exhibited "Portrait of a Gentleman" and "A Scene in the Surgeon's Daughter": Middlemass's Interview with the Parents," of which Mr. James Smith, of Blundell, is the present owner. There is no distinct trace of Raphaelite influence in the Darnley, but the new school were sufficiently used to injure the prospects of longevity. Dante Rossetti is said to have remarked of Windus at this period, "He paints what he needs any change."

Windus next exhibited at the Royal Academy in 1856, his first appearance there, and the one which is generally regarded as his masterpiece, "Burd Helen." This was entirely pre-Raphaelite in all. It was badly hung, and Ruskin (or rather one should say underlooked) it. Rossetti, who had an eagle eye, pointed it out, with that Ruskin, in a postscript to his famous "The Great Hall at Hampton Court," amplest justice to what is certainly a wonderful picture. He classed it as "the second picture of the year, being higher and its reserved strength greater than any other work except the 'Autumn Leaves.' It certainly lavishes praise, considering that 'Autumn Leaves' and another picture by Millais were pronounced to be achievements which 'will rank in future among the best masterpieces.' A considerable measure of



ed. The picture was exhibited at Edinburgh in 1858, idly enough, it does not seem to have been shown in school. There is a legend to the effect that Windus withheld it in 1856 or 1857 lest it should injure the prospects of Brown or Millais. He did not exhibit it again until 1859, when his "Too Late" was shown. It had been at the Royal Academy. This is more senselessly pre-Raphaelite than its predecessor, and its approximation to the manner of Millais in colour may have been the occasion of its curt dismissal from the Academy as a failure. Millais just at that time was in disgrace with the peppery critic. Windus never exhibited at the Academy, and tradition declares he was stopped short in his career by so severe a rebuff from the critic he esteemed so highly. This is pure nonsense, or at any rate a gross exaggeration. The picture, however, remains that with the exception of one and exquisite picture ("The Outlaw," now possessed by the Albert Wood) shown in 1862 at Old Post Office he seems never to have exhibited again.

Incidents in the artist's private life were probably the real cause of his most regrettable defection from the art world. Windus married a sister of the artist Robert Tonge, of Preston. She died in 1862 after a long and terrible illness, leaving him with one daughter, who survives him. In health and broken in spirit, Windus removed to the Dale, near Preston, where his surroundings were such that for several years he did not find it possible to devote himself seriously to art production. When things improved the desire to paint had so dwindled that Windus again produced an important finished picture. Unfortunately, he had an income sufficient for his simple life, and for more than forty years past he accomplished his work although painting as a pastime was never wholly abandoned. Grown morbidly fastidious, he destroyed what he produced, and such fragments as remain to represent the production of four decades have been saved from destruction by commendable petty larcenies on the part of his friends. When, about a quarter of a century ago, Windus returned to London he made an immense bonfire of his sketches and studies, being of opinion that "nobody cared for them." Since then he has lived in seclusion, content with the society of his intimate circle and his books, painting in the humour and especially during his customary visits to his lifelong friend, the late D. A. William-Broughton-in-Furness.

In addition to the works of Windus already mentioned, his too scanty achievements in art include the exquisite colour "The Flight of Henry VI. after Rowton," "Mont Willie," "The Patrician, Anno Domini 60," "The Second Duchess," "The Young Duke" and many more, endeavouring to obtain a confession of guilt from Queen Catherine Howard." The study for this last picture, recently secured by the Walker Art Gallery, which, however, is still sadly in need of a more adequate representation of a man who in genius, if not in achievement, may safely be described as the greatest artist that Liverpool has produced.

## ARCHITECTURE IN LIVERPOOL UNIVERSITY.

The Dean and the Professor of Architecture have sent the following letter to the local papers:—We ask the favour of your columns to announce to parents who are thinking of starting their sons in life as architects a new course which the university is taking this session. It is for registering students for the first time for a distinct course in architecture entitled Bachelor of Architecture (B.A.). A similar degree is given in America, but only for a purely theoretical course. In this country the University of Liverpool has not hesitated to be the first to give such a degree. It has, however, also decided, with the approval of the Royal Institute of British Architects, to require from candidates not only three years of theoretical study in the university, but also a further period of two years to be spent in practical work, either as an articled pupil to an architect of standing or as an assistant in an office. Thus the course will correspond to the medical course, in which practical work in a hospital is the theoretical work in the university. The initiation of a new degree scheme will not, of course, bring to an end the ordinary professional two-years' course which has been conducted by the university, and on which certificates are awarded. It is intended for those students who are prepared to equip themselves by a fuller course and a more elaborate training.

The practice of giving architectural students, like the students preparing for other professions, a wide theoretical training in a fully-equipped school, before binding them by articles from which there is no release, is steadily growing and has the cordial sympathy of the leading architects. In London a large majority of young architects are thus trained. One London school, founded confessedly in imitation of the Liverpool school, already numbers eighty students taking a full two-years' course, while on the Continent and in America the same practice is almost universal.

The combination of theoretical training with articled pupilage, which the university is anxious to establish, presents many practical and educational advantages.

1. At the outset the student gains a wide view of the possibilities and nature of his art. He has the practical problems of construction and design explained to him in a way which is not always possible in a busy office, where he often has to be left to pick up his knowledge as best he can. Thus, when he enters upon his pupilage he is able to take the full advantage of his opportunities and to understand what is going on in a way that would otherwise be impossible.

2. In a school the student is taught to design a series of structures of graduated complexity. In an office for several years the untrained student is naturally able to do little beyond tracing the designs of his seniors. Every year pupils in offices present themselves at the university to attend one or two courses in the intervals of their office work, so to obtain some degree of the necessary theoretical training, but in this way they are seriously handicapped in comparison with students who are able to devote their whole time to their work. They have realised too late that practice is most profitable when it is based upon a sound understanding of theory.

3. The school course enables the student to discover in what direction his inclinations and talent lie, and he is thus able to choose a master for his period of pupilage who is engaged on the class of work in which the pupil is likely to be able to do well and to be serviceable to his chief. Students of exceptional promise are enabled, by means of travelling scholarships, to measure and draw at the end of their course the finest examples of architecture, and thus to improve their talent to the utmost before beginning to practice. Last year the funds thus allotted amounted to £1100, divided among four students, who will shortly proceed to Italy.

These very real advantages of a combination of academic training with office work are fully understood by architects. The chief architects of Liverpool have very warmly recognised them, and have agreed to take students who have gone through a university course of training at a lessened premium and for a shortened period of articles. But parents have scarcely yet realised them or grasped how much their sons will suffer if they miss the opportunity of a thorough theoretical training, and enter upon their office work without any clear ideas of its nature or principles.

## ART AND INDUSTRY.

THE new School of Art which has been erected at Burslem on the site opposite to the Wedgwood Institute, given to the town by the late Mr. Thomas Hulme, was formally opened on the 10th inst. by the mayor of Burslem (Mr. S. Gibson) in the presence of a large company.

An address was delivered by Mr. E. R. Taylor, formerly head-master of the Birmingham Art School. In the course of it he said art had fluctuated during the ages, some periods showing more beautiful results than others, but for nearly a century—and this was for the first time in the world's history—ugliness had been dominant, though mercifully not universal. Some of them could remember almost the beginnings of this ugly period, previous to which not only the country was beautiful, but also every town and village, from its cathedral or village church, its manor-house, its streets and cottages, to their furnishings and the articles of everyday use. Now almost every town was ugly, and nearly every village was marred by rows of workmen's houses and suburban villas. It might be urged that the things they had ventured to call beautiful were so because they were old and had absorbed some of the beauty of their surroundings. Fortunately there was no need to condemn all new work, but would the ordinary suburban villas or the rows of workmen's houses grow beautiful as they grew old? What had brought about this deplorable change? It was easy to blame the use of steam and



machinery, but was it not rather their misuse? It was easy to ascribe it to the demand for cheapness, but this demand was as old as the hills, and ugly things were found amongst expensive as well as amongst cheap articles. Moreover, people could not buy them if they did not first make them, for in these things supply must precede demand in the first instance. Some would throw the blame on our national prosperity, but the prosperity of the reign of Queen Anne gave us those beautiful houses and other buildings, with their furnishings, many of which were still undestroyed in London, Edinburgh and other places, contrasting greatly with the ugliness resulting from the prosperity of the Victorian era. Others attributed it to the loss of craft power in the workman, but there still survived an unequalled inherited craft skill in Coventry, Birmingham and the Potteries, to go no further, but there were few to make wise use of it, and it was dying out or was driven to other countries. How many manufacturers, having made a competency out of what they had learned to see was inferior and ugly, had set themselves to lift the artistic quality of their work, if they thought that by so doing it would entail a risk to their profits? And were there not some firms of long standing, whose predecessors knew and made beautiful work, who were now living on the reputation of their ancestors, making inferior work of similar kind, adding nothing to the real wealth of the world, and growing nothing, though they might spasmodically import something from outside? It was even asserted that we were not an artistic nation. We admitted that this side of our nature had been so long repressed and lain dormant that some of its recent attempts at utterance had been wild and uncanny, as in the vagaries of the "New Art," though these had been wilder on the Continent than in England, thanks mainly to our art schools. But who built not only our cathedrals, but the smaller houses and workmen's cottages all over the country? They were built and furnished locally and were occupied by the workman and the labourer. We were beginning to cherish and learn from these, for their right and comely doing was in the air and was expected from everyone. "They builded better than they knew—unconscious stones to beauty grew." He ventured to mention one cause of this change—this loss of power of seeing and right doing. It should be remembered that the change began with the Victorian era, and yet just previously the first national efforts were made to spread education. An El Dorado seemed open in commerce. Ugly and vile surroundings, greater extremes of poverty and wealth and dull and vicious lives for both rich and poor became accepted as essentials in modern life, instead of being regarded as incidentals to an imperfect social state. This assumption, that life was only a struggle for material supremacy over nature and our fellow man, ruthlessly destroyed the beautiful in nature and art, and made the conditions of living often worse than those of the savage, whilst the methods of commerce had tended more and more to cheapness and ugliness, sweating and trusts, and, for the large majority, the shortening and narrowing of life. The success of men who had risen from poverty to riches, the advantages of the black coat of the manager, the clerk and the commercial traveller over the shirt-sleeves of the workmen were the inducements offered to parents and children, so that the latter might "take to learning," with the natural result of wrecked lives from over-stimulated ambition, a glut of clerks and professional men, and the degradation of the workman and craftsman; apprenticeship began to decline, being no longer honoured; workmen's lives became divorced from their work, as the ambition was to rise out of it instead of rising in it, and manufacturers too often became exploiters and merchants instead of co-workers. The present dominant and persistent cry of German and American competition, written about and uttered at public meetings, from universities downwards, was only the same note internationalised. In the desire to feed a great organism the individual organic units had been made to suffer, and this had reacted on the greater organism, making life and its environment ugly and vicious. It would have been entirely so but that this outside pressure had been resisted by the teachers, who had often at risk of loss given real training for living; but too often the hard mechanical power of intellect had had to be fed at the expense of both body and feeling. The speaker quoted Herbert Spencer upon the stress of modern life and competition, and asked what was to be the end of this competition, which was largely a competition in cheapness and ugliness. They were trying to make a turn, and were beginning to realise

that literature and art were not unprofitable things in even to their occupations. Emphasising the importance of art training, he quoted also Bacon, who was near the mark when he wrote—"The education of the senses needs all after education partakes of a drowsiness and indolence it is impossible to cure." Tring, who said much for drawing as an essential in education, said:—"It is a great loss that the grand power of drawing has never found its place as a teaching power." Outside the art world the strongest plea for the development of the art faculty was the experience of a great scientist, Darwin, who, after the loss of it, his mind having become "a kind of machine for grinding general laws out of a large collection of facts." This faculty had been paralysed, dissolved, and in many cases killed because all the time given to education had been occupied in developing the other faculties. Darwin, using the word in its widest sense, was the surest and shortest way of developing this faculty, which opened windows of the soul not only to the facts of nature but to its beauties—"the mantle of an invisible God"—and to the work of that lesser creation, man; which taught us to make the best use of the work and life nearest us, of striving at all costs—physical, mental and moral—to become wealthy and dominant, which cultivated the strength which ennobled life and the work for daily use was in constant exercise, visually or by memory; was more than merely mental, though developed by mental exercises; was not primarily ethical, but was at least so far ethical that it gave an unselfish present life, increasing the more it was shared; stimulated sympathy, reverence, joy, admiration, and was the most fruitful of all pleasures; made literature many fold what it possibly be to those who had it not, and wove the pattern of life and toil into a beautiful pattern, invisible to those who merely possessed that microscopic vision which sees only so many threads and spent itself in adding to the number. They were becoming alive to its value in the industries. It was also of value in teaching other subjects, but there was just now a danger of its growth being spoiled by having to do this year's service. But he did want them to demand that art should be made an essential in education, co-equal—and co-equal in point of time—with those subjects now recognised as essentials, from the infant school (in which much work had already been done) to the university, instead of being partially admitted on sufferance, and the demand be made as an inherent right of every child. Its methods were doing, thinking, learning, not learning, thinking, doing. There was not a long drudgery; these could begin as was the case with many subjects, for our greatest teacher had said that he had not met a child who could not learn to draw. Ruskin said:—"Great men should write their autobiographies in three MSS.—the first their deeds, the book of their words and the book of their thoughts. Not one of these books can be understood unless one read the two others; but of the three the only one that is trustworthy is the last. The acts of a nation are made triumphant by its good fortune and its words made wise by the genius of a few of its children; but its art only shows its general gifts and common sympathies of the people." Speaking more especially to the students present, he said theirs was the emotional study of nature and art, and they should remember that though beauty defied analysis, it was not unhesitating canons of beauty. Technical power was often developed beyond the inner perception of beauty. This was our curse to-day. How little technical skill was seen in much beautiful Oriental work. He advised students to study to find the kinships in the styles of past art rather than differences; to study most the growing periods of styles rather than the fully ripe or decadent. Let them not be disheartened if at times they appeared not to be making progress, but remember that genius had the same struggles as themselves. Their work should be accurate, expressive, delicate, the expression of joyous vision, as in the best expressions of music and literature. Tradition should be subordinated to materials, use, personality and nature. Do not urge the value of still-life painting and recommend many short-time studies, a few lines only. All right drawing was memory drawing; it was thinking about what was seen and it added to knowledge. When they had been able to feel a sense of the beautiful the vision would in part be fixed and to this they could give expression when the beautiful object was away, but much of memory work was done in the memory of words of which the true meaning was not known. Let it only follow earnest direct study or direct development of mannerisms and emptiness, killing receptivity.



al drawing was also design. Both for composition design for manufacturers, line drawings of landscape and good architecture were excellent studies. Let them or solid geometry so as to read plans, elevations and ns. It was a universal language and was the entrance alike to art and to many sciences.

## SHEFFIELD SOCIETY OF ARCHITECTS.

The opening meeting of the session in connection with the Sheffield Society of Architects and Surveyors was on the 10th inst. in the Sheffield University, when the presidential address by Mr. W. C. Fenton, F.R.I.B.A., was

The President opened with a reference to the formation of the Sheffield Society twenty years ago, and reviewed its progress to the present time. They had now a membership of 1, being a net increase of forty-three on the year. In 1887 the architects and surveyors of Sheffield were to a great extent isolated units, looking upon one another with suspicion, he said, and if the Society had done nothing it had succeeded in bringing about a friendly feeling between members of the profession. It had also enabled them to speak with a united voice on all matters affecting the interests and that of the building public generally. The Society had also been the means of giving the profession a standing and influence in the city which it never possessed before. The municipal authorities had recognised its position, and had consulted them on many occasions in matters of interest to the citizens.

In speaking of the work the Society had done for the education of the younger members, Mr. Fenton specially referred to the inaugural work of Mr. E. M. Gibbs in connection with their classes, and the interest he had shown in the Board of Architectural Education and the university. He had been untiring in his efforts to bring about a formalised course of architectural education to be carried out by the university in conjunction with their Society. At night they met on the eve of the first session in the department of architecture. The master and lecturer had been recommended for appointment, and it only remained to give the youth of the city and their parents to take advantage of the opportunities offered in the university. As far back as February 1903 the building committee of the university had decided to allot a room to them, but they had only entered occupation that night. He sincerely hoped the innovation would be utilised to the fullest extent, and that the efforts of Mr. Gibbs and his co-workers would be crowned with the success they merited.

Referring to the proposed new city by-laws as to streets and buildings, the President said they did not yet know what was being done relative to the practical objections against these by-laws which had been put forward on behalf of the Society. But there appeared to be a distinct tendency on the part of the authorities to draw the reins tighter and tighter, and thus increase the cost of building to an extent which would have a prejudicial effect upon the building public. In view of the agitation in the country for better housing of the working classes at reasonable rents, it was important to note that the proposed by-laws would have the effect of increasing the cost of cottage houses by 10 per cent., a result which he was sure would not be received with equanimity by housing reformers. Taking into consideration also the proposal to limit the number of houses to the acre, the outlook for the erection of houses of that class at anything like a reasonable rent was not at all bright.

The speaker emphasised that Councillor Tom Shaw, in his report to the estates committee on the proceedings of the recent International Housing Committee, had urged that the need had been proved for more elasticity in the application of by-laws with respect to new streets and buildings. In the proposed new by-laws, however, no attempt appeared to be made to meet objections which had been raised from time to time as to harassing details and like, and which the Congress had pointed out as unnecessary. If important modifications were not made in the proposed by-laws in several important directions, then Sheffield could not expect much further success in the solution of the housing question excepting at great cost to the ratepayers. But he hoped wiser counsels would prevail, and that, instead of fixing a maximum quality of construction and work, a minimum would be fixed to prevent jerry-building, and not penalise the man who did the work. Their

Society did not represent the property owners, but viewed the matter purely from the point of view of good materials and construction and the benefit of the whole community. They were anxious at all times to work amicably with the Corporation authorities, and if the "sweet spirit of reasonableness" were exercised on both sides many difficulties would vanish which now caused considerable worry and useless irritation.

Though the Corporation were understood to be advised that houses at 5s. per week could not be erected without loss, Mr. Fenton went on, in dealing with another phase of the housing problem, the result of a recent competition had shown that such a scheme could be successfully carried out. The duty of the Corporation was certainly greatest toward the lower-paid artisan, who was less able to look after himself in the provision of a house at reasonable rent. But as to whether the Corporation should go in for an extensive scheme of building houses or whether that should be left to private enterprise, all he could say was that if private enterprise would produce good, comfortable and sanitary houses under reasonable regulations and proper supervision, there was no need for the Corporation to take over that class of work as part of their trading concerns. What good work had been done in that direction would no doubt prove an incentive to private enterprise, and the housing exhibition at Wincobank gave examples to meet a variety of tastes.

On the subject of town planning the President made an ironical reference to the more or less distinguished amateurs who were going to undo all the evils of the past and "make the desert bloom as the rose." The fact could not be denied that in the past there had been far too little method in laying out towns, but some of the most interesting and picturesque cities in England and on the Continent would never have existed had some of their amateur town planners had their way. A committee of the Association of Municipal Corporations had reported that over 13,000,000l. had been spent in street improvements and the provision of open spaces during the last thirty years which might have been saved if local authorities had exercised foresight in the development of their districts. It was anticipated that at least that sum would be saved during the next thirty years if town planning powers were granted by Act of Parliament and wisely administered by local authorities.

On the motion of Mr. W. J. Hale, seconded by Mr. E. M. Gibbs and supported by Messrs. H. L. Paterson, J. Smith, J. R. Wigfull (hon. secretary), A. F. Watson and W. G. Buck, the President was accorded a vote of thanks for his address.

## EARTHQUAKE AND FIREPROOF BUILDINGS.

THE British Consul, Frederick van Dyne, of Kingston, reports that, profiting by the experience in the earthquake and fire in that Jamaican city in January last, the new building law provides that in future, so far as possible, earthquake-proof and fire-resisting buildings only shall be erected. Some of the requirements are as follows:—The framework of buildings may be of steel, iron or wood, every member securely, rigidly and durably connected with every contiguous member, and must be covered externally with hard, durable and fire-resisting material, securely attached to the framing at all points. No timber-framed building shall contain more than two storeys having an aggregate height of 25 feet, or have a cubical content exceeding 100,000 cubic feet, nor shall any timber-framed building be erected or used for any other than residential purposes. All members of a steel or iron framework of any building shall be of the same material, and no cast-iron shall be used in any part thereof. The walls of buildings may be constructed of brick, concrete, stone or other hard and incombustible material, and they must be built on a foundation of cement concrete. Walls built of brick, dressed stone or other similar material must be solidly put together with Portland cement mortar, and be reinforced by hoop or band-iron not less than one inch wide and one-twentieth of an inch thick. Walls of cement concrete shall be composed of Portland cement, clean sand and clean broken brick or stone, and shall be reinforced by steel or iron bands, bars or wires. Roofs must be covered externally with hard, durable and incombustible material. Iron and steel framing specially manufactured for the construction of buildings and Portland cement are exempted from duty until April 1, 1909.



## NOTES AND COMMENTS.

At the meeting of the West Sussex education committee last week it was recommended that the architect, Mr. HAYDN P. ROBERTS, be paid a salary of 200*l.* per annum, rising to 300*l.* by annual increments of 20*l.*, to date from October 1, 1907, and that an assistant to the architect be advertised for, that he be paid a salary of 100*l.* per annum, and that a sub-committee be appointed to consider the applications and to select candidates for the post, and that as a matter of urgency the building sub-committee be allowed to make the appointment at their next meeting. Some of the members objected that the terms were too liberal, and that it would be better to pay a salary of 200*l.*, with an increase of 20*l.*, for the first year, leaving any subsequent increase for reconsideration. There was, it is said, an enormous competition for such positions, and if there was a vacancy there would probably be 300 applicants. The Dean of CHICHESTER maintained that as a county body they could not do less than pay their architect a living wage, and not go in for sweating that profession on account of the large number of unemployed members there were in it. A majority of the members was opposed to the recommendation, which would enable the committee to be sure of the services of their present architect who had carried out his work in a most efficient and economical manner. It was also resolved that the salary of the assistant to the architect should at first be 80*l.* instead of 100*l.* The abundant supply in the market cannot be ignored, and the West Sussex education committee have taken advantage of it. They were fortunate in obtaining a few years ago an architect at a salary of 120*l.* a year, and some of the members believe that many other able architects would gladly accept a similar salary.

M. RODIN, the sculptor, had arranged to exhibit about 300 of his drawings from the nude at the Autumn Salon, but they are now to be seen in one of the dealers' galleries. It is a peculiarity of them that they show instantaneous movements with as much fidelity as if the outlines were due to some photographic process. The models were not posed in the ordinary way, but were allowed to move as they pleased, and the sculptor with his pencil and a water-colour wash endeavoured to record the changes. They are, consequently, likely to be useful to a sculptor who represents movement, and they are also evidence of the skill with which M. RODIN can show changes from moment to moment. They have consequently some analogy to the studies which the late PAUL BAUDRY prepared, and in which several outlines of the same figure appear as if they were corrections of the original contours, but which were intended to recall to him slight changes of pose in the figure or the appearances presented by a slight shifting of the point of view. When BAUDRY allowed his drawings to be reproduced, it was in the expectation that they would be serviceable to artists. Painters and sculptors, rather than amateurs, are likely to understand and appreciate M. RODIN's studies.

Mr. WILLIAM CALLOW, a selection from whose drawings can now be seen at the Leicester Galleries, was born in 1812, and may be regarded as the NESTOR of water-colour artists. In his youth he was taught in Paris, and became teacher of drawing in the family of LOUIS PHILIPPE. In those days he was likely to be acquainted with LOUIS GRATIA, the pastellist, who was born in 1815, and ERNEST HÉBERT, who was born in 1817, and was afterwards director of the French Academy in Rome. M. GRATIA is a candidate for the occupation of the country house at Montlignon which Madame JULES COMTE has made over to the Society of French Artists. He first exhibited in 1837 with three pastels, and at the present time he still successfully

practises that branch of art. Madame COMTE had had erected near the mansion several ateliers for painting in which the residents can follow their art under favourable conditions.

## ILLUSTRATIONS.

CHURCH OF ST. ALBAN, BOURNEMOUTH.

THE foundation-stone of the above-named church was laid on October 8 by the Lord Bishop of SOUTHAMPTON. The church will be built upon a site, with a considerable fall from west to east, and the architect has taken advantage of this, and has placed large crypt vestries under the chancel and chapel, connecting same with the church by a broad flight of steps. The plan of the church consists of a nave 93 feet 6 inches in length and 30 feet 6 inches in width, adjoining north and south transepts, that on the north side having accommodation for eighty-four adults, and on the south side for seventy-eight adults, and having an archway opening into the passage and staircase leading to the vestries, and a large archway opening into the organ chamber, having ample space for a large organ front facing towards the chancel and part facing towards the west. A musician's gallery is placed on the north side of the chancel. A lofty arch carried to nearly the height of the roof divides the nave from the chancel. The chancel is 38 feet 6 inches in length by 27 feet 6 inches in width, and convenient passages for returning communicants are placed on either side. The nave is designed to have five bays, with an archway opening at the west end opening into a baptistery, having an entrance porchway on either side. The side walls of the nave rise to a height of 27 feet, and the apex of the roof is 45 feet from the floor. The roof runs at a level throughout the nave and chancel and is of the or wagon form. One of the chief features of the church will be the tower and copper-covered spire rising to a height of 160 feet from the ground, placed at the north side of the church at the west end of the transept, the base of the tower forming the principal entrance to the church. The church is designed to accommodate about 700 adults, and the present contract consists of the chancel, vestries, transepts, chapel and two bays of the nave, the cost for which is 7,435*l.* The materials to be used in the erection of the church are Purbeck stone for the exterior walling and red and yellow brick facings internally with Bath stone dressings. The builders are Messrs. BOWMAN & SONS, of Stamford, and the architect is Mr. GEO. H. FELLOWES PRYNNE, F.R.I.B.A., of 6, Anne's Gate, Westminster, S.W.

CONVALESCENT HOME, HIGH BEECH, EPPING FOREST.

SUNDERLAND LIBRARY COMPETITION.—FIRST AND SECOND PREMIATED DESIGNS.

WE publish in this issue the designs placed first and second in the competition for the new library to be erected in Villette Road, Sunderland. It will be remembered that the architects, Messrs. I. CRATNEY & SONS, of Sunderland and Wallsend, secured a unique record by securing the second premium as well as being placed first for the two local libraries published the designs which were placed first and second for the Church Street Library in our issue of August 9, 1907. The library committee have selected the second premiated design in each case, and have adopted the suggestion made by the architects that the elevation to Villette Mount be made the same as the elevation to Villette Road, thus securing a symmetrical exterior. The whole of the drawings are by Mr. I. CRATNEY. Tenders are about to be obtained.

CATHEDRAL SERIES.—SOUTHWARK: THE NAVE, LOOKING EAST.



## ENGLISH MEDIAEVAL ARCHITECTURE.

introductory lecture to the course on "English Mediaeval Architecture," which will be delivered by S. Prior, F.S.A., in University College, London, was on Friday last. Mr. Prior said English Mediaeval architecture loomed before us, at first vast and magnificent, we came up to it we were able to note its external and to analyse its intricacy, as well as the many of interest uniting the opening perspectives, the of detail and the dizzy heights it had attained. But were all external features, and as such they had been and collated. Research and investigation had in some instances the details had been taken horizontally, and in others the points had been treated vertically afterwards the changes were arranged into periods. had traced the developments from the foundation All that was very good and satisfactory, all at as knowledge, but it was concerned only, as already with externals, and was outside the great mass of architecture. There was no opening by which they see what was the purpose of all that vast intricacy in work, and they could not, therefore, get inside, ere, of the art. But they could, so to speak, raise lves to the windows of some of the buildings and ps and limited views of the conditions. Thus it at the different phases and aspects of Mediaeval ture had been recorded. The lecturer said he d taking them to one of those windows and ur to show the relations which existed between ction and style and how out of construction grew By the aid of a chart which was exhibited Mr. Prior he advance of Mediaeval architecture horizontally tically. One side of the chart were the centuries, her the details, a third section gave the outlines by periods of Mediaeval architecture were distinguished. ost prominent events were enumerated. The first conversion. Mediaeval architecture was a Christian ture, and in its primary phase came the conversion er modes of building. A period of 466 years elapsed, r, before the Conquest, i.e. the Norman Conquest. a sense made the greatest change which ever took e course of architectural history in any country. Conquest brought Mediaeval building into the general ture of Europe, and the lecturer said he would to show that it did not make it Norman but e course of English art into the general course opean art. Then 142 years went by, and the age was reached. This made a certain point in ry of English Mediaeval architecture, and the change t, instead of its being a part of the architecture of urope, it began to take a line of its own. It became use insular, and that was brought about by the al events of the time. A further 141 years elapsed y came to the next important event, the Black Death. exceedingly fatal in England, and the effect on ture was very extraordinary. It brought to an end progress that had been going on up to that time. o years passed by and they came to the Dissolution. as the last event it was necessary to notice in the of English Mediaeval architecture. It practically put o church building. Another aspect of the subject by the lecturer was the connection between the of other countries with English art, and finally he tion to the personal atmosphere—the influence of ole who were chiefly responsible for all that archi- as well as the conditions which affected the arts first way and then in another. The points were sum- as construction, style, action and the personal . At the outset of his course of lectures Mr. Prior thought it would be well to give some definition of is used. Construction, he said, required no explana- architectural students, but style was a somewhat us term. The relation between style and construc- ally took them into the most intricate parts of architecture. The style of Mediaeval work was a idea, and could be compared to a composite aph of many elements. In this way the style a catalogue of external features and could be ed with construction. Style could be taken as ary of architecture. They could speak of con- as the life of architecture and style as its . Style, however, could be a cloak upon natural ction, and, like a cloak, could be stuffed and padded. could misrepresent construction. Styles might not tter from one another in forms, but also in the in which they clothed various facts. The art of the

Middle Ages rose chiefly and directly through its science. They therefore spoke of the proof of Gothic, and it was that characteristic which gave value to the study of Gothic by architectural students. A finished building was still the test of good architecture. The lecturer said he believed that the study of a Mediaeval work was the best primer for the young architect. In the course of the lectures he was about to deliver Gothic and Romanesque would be considered as one style. In both there was always the same movement and the same way of expressing construction, and he would endeavour to explain the continuous advance of Mediaeval art by establishing one central idea and a series of secondary ones.

Lieut.-Col. A. C. Preston (master of the Carpenters' Company), who presided at the meeting, proposed a vote of thanks to the lecturer.

The Provost said he wished before they dispersed, on behalf of the authorities of the University, to express the deep debt of gratitude that they owed to the Carpenters' Company for the assistance they gave the University in carrying on the work of the architectural department. But for that assistance the special evening course would have been impossible. The evening courses which were instituted in the University some fifty years ago were the pioneers in technical education, and so was the new series they were undertaking. There was nothing like it elsewhere. They had given up the lighter work, which was now being done satisfactorily at the polytechnics and other institutions, and they were introducing the higher continuation in architectural work. In conclusion, he expressed the thanks of the University to the Master of Carpenters' Company for presiding at the meeting.

Professor F. M. Simpson seconded the vote of thanks. Of all the great City companies who supported by their funds the advancement of the crafts for which they were originally instituted, he thought the Carpenters' Company stood first. In the liberal support it had for many years given to the architectural class in University College, to the way in which it ran the Crafts School in Great Titchfield Street, and in many other ways it continued to do very much the same work as it did originally. And it was also the members they had to thank for the interest they took individually in such work, and this was exemplified by the presence of the master there that evening.

Lieut.-Col. Preston briefly replied, and said the Carpenters' Company endeavoured to do the best they could with the funds at their disposal, both with regard to technical education and purposes of charity.

## LIVERPOOL ARCHITECTURAL SOCIETY.

ON Monday evening Mr. Edmund Kirby, president delivered the sessional inaugural address to the members of the Liverpool Architectural Society, whose diamond jubilee is about to be celebrated. There was a large attendance. In the course of his address Mr. Kirby said:—The public works on the George's Dock have been completed or passed for erection. In my opinion, this is one of the best improvements on the George's Dock estate. It emphasises the crying want of continuations of improvements of the Pierhead further along the river front to the north. The faded white brick wall should be speedily removed and replaced by stone arcades and colonnades, with waiting-rooms, &c., placed at right angles. Nor should the improvement stop opposite the George's Dock. The south end of the Prince's Pier ought to be similarly treated. And to make the architectural effect of the river frontage continuous and the connection of the George's and Prince's piers complete, I would suggest the erection over the present floating bridge of a covered way in the form of a beautiful permanent bridge of stone, forming an arch of peace as a centre to what might be conceived as a beautiful and noble gateway to the city. Then the central site be devoted to the amusement and convenience of the public by the erection of a combination of one-storey buildings comprising a café and restaurant on a grand scale where all classes could be regaled in a style equal to the best Swiss railway buffets; a hall or lounge for music and a winter garden. This would complete a haven of rest and of pleasure—a picture of the true socialism in a real people's palace. In another portion of his speech Mr. Kirby said it was necessary for the city to obtain control of the speculator and prevent the indefinite and unguided growth of its suburbs. Having emphasised the fact that Berlin has no slums and no slum-like population, Mr. Kirby



suggested that if the Lord Mayor-designate (Dr. Caton, chairman of the housing committee) would take the city Council, magistrates and other leading citizens in procession through the slums, these insanitary areas would soon be swept away. In conclusion, he expressed a high appreciation of the pioneer action of the University of Liverpool in instituting the degree of Bachelor of Architecture and of the value of the School of Architecture.

On the motion of Mr. Thicknesse, seconded by Mr. Huon A. Matear, thanks were cordially tendered to Mr. Kirby.

### THE SOCIETY OF ARCHITECTS.

THE twenty-third annual report of the Council states that fifty-four new members and seventy-one new students have been elected. One member has been reinstated and two transferred to the "retired" list, so that, after allowing for deaths, removals and resignations, the total membership stands at 844, an increase of sixty-eight over last year. A question which has received consideration is the advisability of closing the membership after a given time to all except those who qualify by examination, but the Council felt that the time was not yet ripe for such a step.

The first year's working under the revised articles of association has shown that while a great deal more work has been thrown upon the members of the Council in regard to interim committee meetings, the business of the Society has been greatly facilitated, and it is clear that it would have been impossible to properly cope with the work under the old conditions. As regards details affecting the members several have taken advantage of the "retiring" clause, and the Society thereby still retains their personal support which it would otherwise have lost. No foreign member has as yet compounded for his subscription, though it was at the request of these members that the alteration in this respect was made.

The result of placing the students upon a definite footing and giving them certain powers in their own section has resulted in various schemes being brought forward, all tending to the development of the Society.

The half-yearly examinations have been held as in previous years in Manchester and London, and arrangements have been made for centres in Johannesburg, Pietermaritzburg and Cape Town, under the auspices of the South African branch of the Society. The examination syllabus has been revised, particularly in regard to the facilities afforded to students of the Society, who are now able if they wish to take the examination by sections, and to secure in connection therewith sectional certificates exchangeable in due course for the full membership certificate. Another innovation in the syllabus is that the subject for design is to be taken on the last day and announced on the first, so as to give candidates more time for consideration of the problem set.

The students' committee met early in the session and appointed Mr. C. H. Mead (member of Council) as its chairman. A form of "return" was afterwards sent to every student with a view of eliciting opinions as to the best method of developing this section, with the result that a suggestion was made to the Council for the organisation of correspondence classes leading up to the Society's examination.

This was approved in principle and referred to the examination committee on points of detail, and a scheme was brought forward for a three years' course and adopted, subject to sufficient support being forthcoming from the students, the examiners appointed being the chairman of committee, Mr. C. H. Mead, and Mr. J. Bartlett, a member of the board of examiners. The first year's course has already commenced.

The Travelling Studentship Competition attracted twenty-six competitors, the subject set being a church to cost not exceeding 5,000*l.* The winner was Mr. J. Drummond Murdoch, of Edinburgh. The president (Mr. Albert E. Pridmore) again gave a special prize of the value of 3*l.* 3*s.*, which went to Mr. Hubert Savage, of Muswell Hill, N. Mr. Edgar M. Leest, J.P. (member of Council), offered a prize of the value of 3*l.* 3*s.* for a design for a bungalow to be built at a cost of 500*l.* The notice given for this competition was necessarily somewhat short, but there were twelve entries, and the prize was awarded to Mr. C. H. Hudson, of Islington, a second prize of the value of 1*l.* 1*s.* being awarded by the Council to Mr. H. W. Smith, of Oxford. The designs were subse-

quently on view at the Society's premises, and were exhibited at the Guildhall, Devonport, through the efforts of Mr. Leest, when nearly one thousand persons during the two days when the drawings were on view. The Mayor and other prominent townsmen took part in promoting the success of the exhibition.

The competitive examination for the Archibald Scholarship 1907, of the value of 10*l.* per annum, for three years, was held in May in London, Liverpool, and Shrewsbury, the winner being Mr. G. M. Maddox (a pupil of Mr. G. Dickens-Lewis of that town).

Books in considerable number have been added to the library by gift and purchase, and upwards of 330 have been issued from the loan collection during the year. The Society's collection of lantern slides has been augmented by members and has several times been used for lectures, &c.

The register has proved a useful medium in a number of cases for the filling of vacancies, but the number of assistants is greatly in excess of the demand, and always suitable candidates wanting places. The Council would confer a practical favour upon students and the public by notifying the secretary at once of any vacancy in the office.

Early in the session the attention of the Council was called to the action of the Incorporated Association of Municipal and County Engineers in circularising local authorities throughout the kingdom, asking them to support the Registration Bill on the grounds that clauses (28) was intended to deprive local authorities of the advice and assistance of their officers on matters connected with buildings and building plans, and that it would increase the expenses of administration and produce complications without any corresponding advantage.

The Council thereupon addressed a letter to the local authorities with the object of showing the true position of the clause in question, asking them to suspend pending a conference between representatives of the Association and of the Engineers. The matter is now under consideration by the parties concerned and the Council endeavours to meet the views of its opponents. It can be done without sacrificing the principle of the Bill. In the meantime the Bill is in the hands of Mr. Atherley Jones, K.C., M.P., who has undertaken to support it at the first favourable opportunity. Other opponents of the Bill came from the Institution of Civil Engineers, Ireland, who circularised their members on the grounds that it was detrimental to their interests. The reason, however, for the opposition of the Engineers is not that neither section of the community represents the professional bodies referred to were scheduled in the Bill as being permitted to carry out such architectural work as comes within their province, as is the case with the Institution of Civil Engineers and the Surveyors' Society. The Council, while giving every consideration to the objections made to it by interested parties in regard to the Bill, is not in any way relaxing its efforts to secure its progress through Parliament, but is using everything in its power to bring about the passage of the Bill. The Council followed up its circular to the local authorities by writing to those who had been asked to support the Bill, which a number of them undertook to do, and to others who had previously pledged themselves for the ballot offered their support in other ways. Various social gatherings of the Society at which members of Parliament were present have been made the occasion of enlisting their sympathies with excellent results. The Council is informed that the measure is everywhere more sympathetic treatment than before at the hands of members of Parliament.

Among various points considered by the Council in connection with the proposed amendment of the Building Act was the procedure adopted by the County Council when giving its approval to plans for means of escape in case of fire, requiring details of all balconies and outside ironwork to be submitted for approval under Part VII. of the Act. In the opinion of the Council these staircases are not temporary buildings or structures, and therefore do not come under Part VII. of the Act, but should be dealt with by the district surveyor under Part I. of the Act. The point is an important one for the architectural profession, in view of the additional work involved without adequate remuneration, and equally important to the public as ratepayers in view of the large



London County Council must employ to deal with these exhibitions, at a cost which would not be covered by the fees received. A resolution embodying the Council's views has been submitted to the London County Council and the matter has been referred to the committee dealing with the subject. It is hoped that in due course the London County Council will see its way to give effect to the Society's suggestion.

The Council urged upon the London County Council the expediency of altering the scale of the plans to be prepared to 1/16 to 1/32 feet to 1 inch, for convenience both as regards draughtsmanship and subsequent handling. It was suggested, however, that such an alteration could not conveniently be made.

Although not strictly a matter in which the Council, as a body, is concerned, it has pleasure in recording the fact that, on the initiative taken by the President and the Secretary some months ago, a meeting of masons connected with the Society was called, with the result that an application was made for a warrant for a lodge to be called "The Masons of Architects' Lodge," the president (Mr. Albert E. Poynter) being unanimously nominated as the first Master. The application was approved and the warrant granted, and the lodge was duly consecrated on October 16 at the Great Eastern Hotel by the grand secretary (Sir Edward Letcher) and other grand officers. The Society of Architects' Lodge No. 3244, is the first Masonic lodge identified by the architectural profession or with any architectural institution.

## INTERNATIONAL EXHIBITIONS AND ART.

THE witnesses who gave evidence before the International Exhibitions Committee was one of the members, Sir Isidore Spielmann. In the course of the evidence he said:—

Chairman: What have you to say as to art as a centre of attraction at international exhibitions?—Art is invariably regarded as one of the most attractive features at an international exhibition. There can be little question of the educational importance to students of art as a means of comparison, to say nothing of its great interest to the general public. Other countries eagerly participate in the art section at international exhibitions, and Great Britain cannot well afford to abstain. International exhibitions are international competitions, and the success of any country, in art or in any other section, reflects its prestige in the public estimation. Moreover, the names of artists who elect to be represented are kept before the public while those who are not to be found in the catalogue are likely to be forgotten.

Chairman: Have you to say about the past and present methods of exhibiting art sections?—The art section is always a "live exhibit." At the earlier international exhibitions the art section contained works that were mostly loaned from private owners, and were termed "loan exhibitions." These sections were, as a rule, good in themselves, but were not representative of British art of the time. Commencing with the Brussels Exhibition of 1897, and since then, the tendency has been to make the British art section representative of the art of the time. In recent years very searching selections are made not only of the works to be represented, but also of the works they send, so that the British school in its various branches may be shown at its best, and by the most representative art that can possibly be procured.

Chairman: You mean that there has been a limit of time laid down and that you would not allow us to send early pictures as a rule?—As a rule the limit is laid down at ten years. I am of opinion that if contests of nations are entered upon the fact should be faced that it is our manifest duty that we should rigidly and fearlessly exercise our power of selecting works for exhibition, and not be invidious and distasteful that task may be; and that the arrangement of the works in the section, more especially if the space be limited, should be displayed on a basis of merit, free of any influence of fear or favour, to the very best advantage, in view of our success in the competition. Unless we are prepared to act up to this standard I think all competition will be declined as likely to lead to disappointment, if not to humiliation, from a national standpoint.

Chairman: Do you say as regards the space which has been allotted to Great Britain?—The space allotted to Great Britain for art at the last four international exhibitions may be described in the following manner:—At the Brussels Exhibition, 1897, well situated but insufficient; at the Paris

Exhibition, 1900, well situated but insufficient; and at the St. Louis Exhibition, 1904, it was very badly situated and very insufficient.

Why was that?—Because Germany and France had been there in advance, and had secured the best positions and an amount of space quite disproportionate to ours. At the New Zealand Exhibition, 1906-7, the art section was well situated and sufficient. I would like now to refer to passages in the two reports on the Paris Exhibition and the St. Louis Exhibition which bear on this subject, which really is the most important point in my evidence.

You mean as to your not getting space enough?—Yes. Sir Edward Poynter in his report on the art section to the Royal Commission for the Paris Exhibition said:—"To Great Britain, in the section devoted to painting, drawing, engraving and architecture, there were allotted 475 lineal feet, as against 900 feet to Russia, 880 feet to Germany, 780 feet to Italy, 600 feet to Belgium, 580 feet to Spain, 490 feet to Switzerland and 400 feet to Portugal.

Mr. Wilson Fox: That was probably because we came in last?—Yes.

Was it not, in fact, our own fault?—No.

It was not the fault so much of the people who allotted it as it was our fault in only turning up when there was no cake left to eat?—We must also remember that at many of these exhibitions they do apportion the space originally to certain countries, and only have to await the reply of the various countries to the invitations issued.

Mr. Algernon Law: Perhaps, too, we required more space in other sections?—No, this refers to the art section at the Paris Exhibition, and I am only dealing with that section, of course.

But may not the explanation also be that the space we required in other parts of the exhibition was so great that to compensate the other countries they gave them more for art than they did to us?—I do not think so.

Chairman: Do you think we were unfairly treated?—I do, and I want to show how it worked out.

Mr. Malcolm Ramsay: That statement which you have just read to us is Sir Edward Poynter's, is it not?—It is signed by the Duke of Argyll and Sir Edward Poynter, the president and chairman of the art section. In the end, after a great deal of trouble, we succeeded in getting 783 lineal feet, equal to about 22 square feet per exhibitor. In comparison with the 22 square feet per exhibitor in the British section, France had 45 square feet, Austria 24 square feet, Belgium 51 square feet, Denmark 30 square feet, Germany 27 square feet, Holland 31 square feet, Italy 52 square feet, Russia 49 square feet, Spain 57 square feet and Switzerland 31 square feet. So there you see we were very low down as regards the amount of square feet per exhibitor.

Mr. Harris: May not that have been due partly to a lingering illusion that the British have no art worth exhibiting?—I do not think so, coming after the Brussels Exhibition of 1897.

Do you not think that perhaps that lesson had not been sufficiently learnt?—They knew perfectly well that if we participated we should make a very strong display.

You think they did know that?—Yes.

Mr. Malcolm Ramsay: Are the square feet per exhibitor a very trustworthy test?—I think so.

In this particular case did you have to refuse a large number of exhibitors in consequence of not getting the space?—No. What we had to do was to hang our works very high, and the whole of the effect of the section had to suffer in consequence.

Mr. Malcolm Ramsay: You had it crowded more or less, and on the sky line?—Yes, we had it crowded. Then as regards the St. Louis Exhibition, not only was the space inadequate but it was very badly situated.

Mr. Algernon Law: Was any remonstrance made?—Yes. "A strong effort was made by the chairman to secure two additional rooms, but with only partial success, although it was understood that these had originally been promised to us."

Chairman: Was that on account of the lateness of the application?—I should say so, partly. We might have had space situated in a very much better position in the fine art section in Paris if we had made earlier application; still, they must have known perfectly well that Great Britain would participate.

The lesson that you would draw is, I take it, that we must apply earlier?—Yes.

What is the course taken in the selection of the artist exhibitors and works?—The usual course is to invite the most eminent artists from very carefully prepared lists to



participate. Special works also are invited from the very best that have been produced during the previous ten years, irrespective of the standing of the artist.—works in oil, water-colour, sculpture, architecture and in black and white. The ten years' limit is usually a regulation of the exhibition. This system of selecting special works, though excellent in theory, is very difficult to work in practice. It is invariably determined that no art society should be invited to exhibit as a body, but that all works should be invited as the work of individuals, and not as representing any institution.

What is your method of obtaining works of art from owners and artists?—The success of an art section largely depends upon the willingness of private owners and of artists to place their works at the disposal of the art committee. It is becoming increasingly difficult to borrow works from private owners, especially for exhibitions at a great distance from England. This is partly owing to the frequency with which these exhibitions occur. In 1897 but little difficulty was found in borrowing such works, but it has since then become more and more difficult.

Next, I think you want to deal with the collecting, packing and transport of the art exhibits?—Yes. Art exhibits have to be collected from all parts of the country, and it is at this stage that injury to them sometimes occurs. When received in London they are packed by fine-art packers in zinc-lined cases and forwarded from London to the art gallery at the exhibition, each consignment being in charge of a special officer. At the termination of the exhibition repacking and redistributing the works and winding up generally occupy a considerable time. In the event of awards being given, their receipt and their distribution still further delay winding up. The decoration of the section, as well as its installation, the preparation of the catalogue and the sales of works on behalf of artists are undertaken by the country participating.

I suppose you have to pay the customs duty when they are sold, in America, say?—Yes. The exhibition being regarded as a bonded warehouse, things sold pay the duty as they leave the exhibition. It is usual that the buyer pays the duty; it has nothing to do with the seller.

Insurance is a considerable item in the cost, is it not?—Yes. Insurance for a very large sum has to be effected at an early stage, and before the insurance market is adversely affected, and this is one of the largest items of expenditure in the cost of the art section. The art exhibits are insured against all risks—fire, marine, theft, damage or total loss; and this is invariably done free of costs to private owners and artists. We always find it very difficult to insure our sculpture exhibits, as the premium is very high; and as regards works in plaster, we do not send them unless we send them at the sculptor's own risk.

Because they are damaged so easily?—Yes. As a rule very little damage occurs, the chief claims upon the insurance companies being for broken picture glasses and damaged frames.

Can you give us the ordinary picture premium and sculpture premium?—On the works sent to the Brussels Exhibition we commenced at 17s. 6d. per cent., and we went up to about 20s. per cent.

Mr. Wilson Fox: Would that cover every risk?—Yes. For the Paris Exhibition we commenced at 20s. per cent., for St. Louis we commenced at 30s. per cent., and before we had finished the premium had gone up to very nearly 50s. per cent. owing to the very large amount that was being covered at Lloyd's by other exhibitors. On bronzes we had to pay 3l. 3s. per cent., and on marble about 5l. 5s. per cent.

Mr. Algernon Law: Did you insure each individual picture?—Yes.

Then you do not insure *en bloc* in the sort of way that Cook's, the tourist people, apparently insure luggage; they apparently insure to a large amount, and then, when you insure with them, they give you a certificate?—What we usually do is to take out a policy, say, for 100,000l. or 200,000l. as the case may be, and then we insure every work separately with our insurance brokers. Whatever we do not take up, whatever we do not cover, is struck off. I have here the statement of expenditure. As regards insurance, at the Paris Exhibition in 1889 the premium was only 1,225l., at Chicago in 1893 it was 4,438l., at Brussels in 1897 it was 1,200l., at Paris in 1900 it was 1,400l., and at St. Louis in 1904 it was 2,898l.

Mr. Malcolm Ramsay: Can you tell us what proportion the insurance bears to the total cost?—I could not strike the proportion for New Zealand, because I have not got all

the other figures. The insurance for St. Louis was and the total expenditure was 12,188l. At the Exhibition the insurance figure is one-third of the cost.

Chairman: Now we come to the installation; would you say to us about that?—At the Brussels, Paris, St. Louis and Christchurch exhibitions all the pictures hung and everything was complete in every detail on the opening day of the exhibition in the British art section. The only catalogue to be had in the art palace on the opening day at each of these exhibitions was that relating to the British section. For a considerable time after the opening of the St. Louis Exhibition ours was the only catalogue in the art palace. Not even was the American catalogue ready; it appeared only in June or July, I think. At the Christchurch Exhibition the hanging was done in advance prior to the works being despatched, and carefully planned showing the positions which the pictures were to occupy on the walls were sent out with our representatives, and this arrangement was strictly adhered to; the work of hanging was thus not left to chance.

Have you any figures that you could put before us in reference to the sales of British art exhibits?—The experience gained at several international exhibitions is of opinion that many of our British artists fix the value of their works at figures which do not encourage purchase. Foreign artists of the first rank fix the value of their pictures at these exhibitions at more moderate prices, consequently their works, as a rule, more readily find sale. At the Brussels Exhibition but few pictures were sold; at Paris hardly any; at St. Louis we sold 7,000l.—an amount that approached the total value of the British section in all the other foreign sections—while at New Zealand we have sold for close upon 17,000l. This I believe to be by far the largest amount ever taken for modern works of art at any international exhibition.

Were the prices fixed by the British artists low?—Yes, I think, in New Zealand. Have they learnt their lesson?—For that exhibition works were purposely of moderate size and of moderate price. I do not know whether that has had anything to do with the sales, but the sales have been exceptionally large.

Mr. Wilson Fox: Some were bought for 100l. each, were they not?—Yes. I have here the details of the sales, which I can hand in.

Chairman: Perhaps you can tell us now what the expenditure of the art section was at each of the exhibitions?—At Brussels in 1897 the total expenditure was 3,380l., and that was perhaps the best and strongest section of the whole lot. But I ought to say that I acted as hon. secretary, which reduced the cost of the section, as they usually have a paid secretary, and that their office expenses on that occasion; consequently the expenditure was exceptionally low.

Mr. Malcolm Ramsay: Does the figure you give us include general expenses?—It includes packing, transporting and redistributing the works, insurance, decoration of section and installation, wages, &c. The salaries and wages (which were at Brussels in 1897 only amounted to 400l.)

Mr. Algernon Law: Do you see any reason why the expenditure should not be charged on sales, so as to make the expenditure incurred by the Government in the art section?—Do you mean deducting it from the total sales?

Clearly money has been gained through the installation of the exhibition, and I should think that the 17,000l. would make the Treasury officials' mouths shut. I ought to say that from that 17,000l. 10 per cent. was deducted by the exhibition authorities.

Mr. Wilson Fox: What for?—It is the rule in every international exhibition to do that in order to meet their expenses.

Chairman: And you think it would not be fair to take another slice?—It would be most unusual.

Mr. Wilson Fox: They tried it on in New Zealand, the income tax, did they not?—They tried to take a further sum for the income tax, but that was opposed, and it has been dropped.

Chairman: Was it the Treasury out there who suggested that?—Yes.

I would like to say with reference to the New Zealand Exhibition, where we made the strongest display, that we think we have ever made abroad, that the Chancellor, Mr. Edward Poynter, on his own account induced the Government to give 1,500l. towards a special grant, and he and I collected 1,100l. from our personal friends, which



cit of 785*l*, which the London Chamber of Commerce from the Government grant that they had received.

A Government grant they had for the general purposes of the exhibition?—Yes.

The London Chamber of Commerce managed the exhibition at Brussels, did they not?—Yes.

You consider, do you not, that the cost of the art section must be defrayed from a Government grant or from a special fund?—Yes.

Considering the great effect produced, art sections at exhibitions are neither costly to note nor expensive to maintain; but inasmuch as artists never contribute to their promotion in any country, the cost of the art section has invariably to be defrayed from a Government grant or from a special fund.

What do you say about the constitution of the juries?—The constitution of international art juries, the exhibition regulations usually specify that the country in which the exhibition is held should be represented by an overwhelming majority of jurors. Thus in the art section of the Paris Exhibition in 1900, the jurors in Class 7 (Painting) numbered 100 members, of whom 39 were Frenchmen, no other country being represented by more than two jurors and the majority only one. Sometimes one juror is appointed for every hundred exhibitors represented, but this is not often the case. It is obvious that when jurors are brought to examine a work, seen by most of them for the first time, it is difficult for a crowd of 60 or more clustered round a picture to judge efficiently the merits of a work of which they can obtain glimpses.

Should think that is quite true?—Moreover, uncertainties are inevitable in international contests of this kind, where the majority of the jurors are probably ignorant of the careers of most of the artists, and have to form an opinion upon the respective merits of the works, or it may be of a single work, they see before them.

Do you think you consider competitions for awards should be abolished?—The matter of awards presents some advantages, but also many disadvantages. The younger artists are always eager to obtain them, because they have yet to establish their reputations. In the case of other artists whose reputations are already made, who have perhaps received the highest honours which their own and foreign countries can bestow upon them, and who may possibly be conceiving works executed at a period of their lives when they cannot be considered as painting at their best, they at least should not be forced to submit works to the international jury. It can hardly be expected that justice is always done at these international exhibitions. Artists of established eminence may very possibly be represented, frequently are, by works of minor importance executed in the declining years of their fame, which may not justify their claims in the eyes of foreign judges unacquainted most probably with their life's work; whilst, on the other hand, an artist of inferior worth may happen to be represented on the occasion by a work of greater effort and attractiveness. At the St. Louis Exhibition, for instance, it was not permissible by the regulations to withhold individual works from competition.

Do you think in every exhibition you could mark an exhibit as a *concours*?—They could not there, and the result was that we had to withhold the entire section; there was no alternative. France also withheld her section for the same reason. At the St. Louis Exhibition—this is rather an interesting point—a loss to the British art section was the absence of the works of many eminent artists who were prevented from exhibiting with this country by virtue of their American nationality; and many of them actually brought their works to the American section, thereby competing against us. If we had been competing for the awards, we should have had some of our most eminent artists, including a few Royal Academicians, competing against the French. In the matter of awards, it must not be forgotten that awards given in the art section have a totally different value to awards given in the industrial sections. In the industrial sections, where every exhibit is the subject of an award unless it is an absolutely bad one, awards given in the art section are but few in number, and are consequently of greater value. The most ordinary award in the art section is the gold medal, but the silver medal is considered a very high and very important award. Many of the French artists of the highest importance have never received anything like the *grand prix*, which is a very exceptional award in the art section, and is usually given in consideration of an artist's whole career, and at the supposed period of his greatest attainment.

What system of conferring medals is adopted by the international jury?—International art juries employ one of two systems of conferring medals. The one system is not to limit the number conferred; the other system is to limit the number to be awarded. The first course is the fairer; but to my mind the latter course is not only objectionable, but in many cases most unfair. The limitation of awards tells very seriously against an exhibition where there is remarkable uniformity in the average of excellence in the works exhibited, and to allot the few medals at their disposal to a few selected pictures, leaving others of equal merit without awards merely because there are no more medals to give, is unjust and absurd.

When they limit the number of medals do they award so many to a country, and let that country decide how to place them, in order to do away with any international intrigues for getting medals?—I do not think they award any specific number of medals to any special country. They decide at the start that they will give, say, twenty or thirty gold medals, and then they apportion them by vote among the various countries represented. The system that is followed in many cases of deciding how many medals they will give as the starting-point is a very bad one and, I think, is another reason for withholding the section from competition.

Do you mean that you would like to have no medals given in the British art section?—After some experience of international exhibitions and the methods of awarding medals in connection with them I have great doubt of the advisability of our entering into competition for awards at all, although I have none whatever as to the value of a nation's participation in the exhibition, and I come to the conclusion that we should best consult the dignity of our artists by withholding the entire art section from competition. For although a competition with other nations may be interesting, I hold that it is hardly dignified that artists of world-wide reputation should be competing among themselves for medals. It is not the custom for scientific men and other eminent professional men to compete for awards, and our artists should, in my opinion, follow their more dignified example.

Perhaps we may now turn to what you have to say about the results?—With reference to the results achieved in the art section at international exhibitions, I would say that it is impossible to gauge success merely by the value of sales. Its success can only be measured later, if at all. The new reputations made, the new seed that has been sown and the lessons that have been taught and learnt, have also to be taken into account. There are many reasons why British artists should participate in these international exhibitions, quite apart from the question of the sale of their works or from the question of awards. As a result of international exhibitions, works by British artists have been purchased for the picture galleries of the Luxembourg at Paris, for Berlin, Düsseldorf, Munich, &c., while art galleries of Australasia have sent their representatives to select and purchase works at the recent New Zealand International Exhibition. As the result of exhibiting a portrait in the British art section at Brussels one of our eminent artists received a commission to go over to Brussels to paint the portrait of a distinguished lady, and this commission led to many more and at English prices. As a result of the British art display at the St. Louis Exhibition, modern British pictures are now better appreciated in the United States. In proof of this I may quote the following telegram from the *Times* of March 16, 1906:—"English Art in New York.—Our New York correspondent telegraphed last night: 'Sir L. Alma-Tadema's *A Sculptor's Studio* was sold at an auction in New York last evening for 23,100 dols. (4,620*l*). Recent sales here have shown a growing appreciation of modern English pictures.'" That, we think, was the direct outcome of our participation at St. Louis. I think the most important result of all of a successful art section is that it frequently helps to score a success for the British section as a whole—I mean when the industrial section is perhaps a little weak. I have some further notes with reference to the results of the New Zealand Exhibition. This is an extract from the *Lyttelton Times* for April 15, 1907, which gives more information of the exhibition than any other paper:—"British arts and crafts will have a lasting effect in the homes of the people of Canterbury, at any rate. . . . Quite a large number of people have written to the manufacturers in England with the object of obtaining articles such as those displayed at Christchurch. . . . From all points of view the gallery has been a great success. The attendance compares very well



with that at the St. Louis Exhibition, and the colonial public has expressed its admiration for the gallery's treasures in a most practical manner, the sum of 15,362*l.* having been spent in purchasing pictures and other works of art." This is referring to an earlier date than my own figures go down to.

It is 17,000*l.* I think you said now?—Yes.

What suggestions for improvement have you to make?—With reference to possible improvement in organising British art sections at international exhibitions, any change that would prevent the delay in organising an art section in its initial stages would greatly assist any commission or committee charged with its formation. At present the delay very seriously threatens the prospects of a successful result. To prevent this in future I would suggest that a permanent department should control all the British sections, including art, so that the moment the Government decides to participate in an international exhibition, the art committee could at once get to work and secure good and ample space. The chairman of the art committee should always be the President of the Royal Academy for the time being, and his committee should have full control of the art section and of its financial grant, as heretofore. A special department exists in France for the organisation of art sections at international exhibitions. I have references here to that French department which I will put in with your permission.

Do you want a standing committee or a special committee appointed for every exhibition?—I should not have a standing committee, especially for art.

You mean that you would not have a special permanent committee?—No, not a special committee for art. I may say that the French Government has a permanent office for art under the control of the Minister of Fine Arts, but that again is controlled by their department relating to international exhibitions on the Continent.

And, I take it, it would be outside the *société* or *comité* that we have heard of which contains most of the commercial people and the other sections?—It is quite outside that. The time required to organise an exhibition is considerably greater than it takes the exhibition to run, and the process of winding up is an equally long operation. The time between the closing scenes of the one and the opening scenes of the next is often very short, so that a permanent department, if one were established, would not long remain idle. It might even be utilised for other purposes in between. If it can once for all be decided that it is beneficial to this country to participate, or if we decide that our country cannot afford to be the only one to hold aloof from great international exhibitions, then we should start fair at these exhibitions in competition with other countries. Another possible improvement in organising the British art section is one which I tried with success in connection with the New Zealand Exhibition. On that occasion, when I acted alone, I measured the lineal space, and carefully calculated the amount that might fairly be apportioned to each school of painting in the oil and water-colour sections. I then enlisted the assistance of the presidents of each art society. The presidents being intimately acquainted with the members of their societies and their best works, were thereby able to offer suggestions with respect to artists or their works.

Was that the way that you got most of your pictures at the last exhibition?—Yes.

You were very successful with the others; how did you get the pictures then, generally speaking?—As a rule it is the large committee, the art committee, which determines who should be invited and which work should be invited. At the New Zealand Exhibition I rather subdivided that work, and I got each president of each society to help me in either nominating the artists or nominating their works—each art society formed a sub-committee, as it were.

I suppose you have a number who volunteer and who are not always the best?—Those always come before the committee. They have to be judged and the great bulk of them, of course, rejected.

Mr. Wilson Fox: Following up what you have said about the New Zealand Exhibition and the way in which you prepared the art exhibit, did you not find, as a matter of fact, that when you managed it and practically organised it, the path was rather smoother, because there was less jealousy of a man like yourself who is not an artist taking it up than there would have been if a particular art society had endeavoured to run the getting up of the exhibit?—I think that possibly facilitated my work.

You were in a more independent position, and there would not be that jealousy when anybody in your position

was acting which there would have been if an art society had been acting?—Perhaps.

Mr. Harris: With reference to the commercial result, do you not think that it is questionable how far we have been justified in giving a number of our artists an opportunity of getting a special sale for their pictures at the expense?—From the commercial standpoint I think that is an open question, but as it always helps to make an exhibition attractive, and as the artist is not usually a man who can afford to pay much, if anything, towards the institution, I think it is an advantage that cuts both ways, and that it helps the exhibition quite as much as the artist.

It seems to me pretty clear from your evidence that the artist appreciates it, because I notice from the figures you gave that the artist exhibitors have been rising in number as compared with the loan exhibitors—in New Zealand, for instance, you had some 400, I think?—That we had 475 artists exhibiting and only about 30 private owners. But that may be on account of the very distance, and because private owners are unwilling to send their things go so far.

Do you not think that probably what influences the artist is that he really feels that he has got exceptional advantages which perhaps he would not get elsewhere? That may influence him sometimes, but we also occasionally the greatest difficulty in inducing an important artist to send, and then we have to fall back upon a private owner if we want a representative work of a particular artist.

Has it struck you that in selecting for exhibitions, particularly abroad, you take a considerable risk in this way that the committee composed of the President of the Royal Academy, and so forth, select what appear to them to be the best things, but that it does not necessarily follow that the pictures rejected will not be the things that really would tell abroad—I mean, tastes differ?—Yes; but then the committee consists of so many members of different views that they are all likely to prevail in some instances, and care is taken now to send representative pictures by members of the New English Art Club and of the impressionist school.

That brings me to another point that I was going to mention to you about. You speak of the difficulty that you had at St. Louis owing to the regulations which compelled an artist to submit his works to the jury; but could not that selection have made it possible beforehand to avoid the difficulty of that sort? Should you not, I mean, have been able to avoid the two difficulties you have mentioned—of all, taking the works of a man at his worst period, then, secondly, of taking the works of a man whom you really did not like to put in competition at all?—At an early stage at St. Louis we tried to induce the exhibition authorities to concede that point, that we might be allowed to withhold works of certain artists who would not compete, but they would not give way. Thereupon we said if that was the case the whole section must be withheld from competition.

Was that before you went out?—Yes; it was before we invited artists to participate.

So that was quite early?—Yes.

Mr. Malcolm Ramsay: Is there any charge made for space in the art galleries to the artists?—No.

To the section?—No.

I cannot find it mentioned in the accounts.—You would not.

There is a charge in the industrial section, but in the art section you say the space is given by the exhibition authorities?—The space is given free, but the rooms are given in an unfinished state, and we have to decorate them and finish them at our own cost.

Returning to the question of payment, is it not the case that a comparatively small charge to each exhibitor would have made the art section practically self-supporting at the recent exhibitions?—I do not think you would be able to do it.

Perhaps you can tell us what the cost per exhibitor has been at the last four exhibitions we have been particularly considering?—At Brussels, 1897, the cost per exhibitor was 13*l.* 1*s.*; at Paris, 1900, 19*l.* 1*s.* 6*d.*; and at St. Louis, 17*l.* 5*s.* 3*d.* I have not yet the completed expenditure for New Zealand, so that I cannot give you the figure for that exhibition. I may say that at the Chicago Exhibition which was held in 1893, the cost per exhibitor was 22*l.* head.

So, assuming that the State thought it reasonable to make the artist pay something towards his free advertisement



ent—I am putting it in a brutally Philistine way—a sum of 5*l.* to 10*l.* would go a very long way toward paying the cost of the British art section?—It would, but it would be an innovation, and I doubt very much whether they would refuse to participate.

### MARSH'S LIBRARY, DUBLIN.

ADJOINING St. Patrick's Cathedral, Dublin, is a library founded by a former archbishop, but the funds for its upkeep are inadequate. At the annual visitation on Saturday, the library keeper presented the following report:—

It is to be regretted that some adequate provision cannot be made for the maintenance of this most interesting monument of old Dublin. The will of the founder, Archbishop Marcissus Marsh, provides only about 9*l.* per annum for repairs, and, although some at least of the librarians had acted in a public-spirited manner in the matter, the building was, according to W. Monck Mason, "rapidly approaching a state of utter ruin" when he published his History of St. Patrick's Cathedral in 1820. However, in 1862 Sir Benjamin Guinness munificently undertook the restoration of the library fabric, as well as of the cathedral, and also provided further endowment for books and repairs. This fund, so far as repairs are concerned, brings in now a little over 100*l.* per annum. Last year we had from all sources 175*l.* 5*s.* for repairs. If the fabric were quite new this might suffice for painting and keeping the roof in order. But a house over 200 years old is in constant need of such permanent repairs as may be called restoration; for example, last July, the pointing and restoration of an outside wall cost 24*l.* 6*s.* 3*d.* Since 1902 the library keeper has paid out of his own income over 80*l.* towards repairs, including more than 20*l.* last year. This is reasonable and fair, as there is no other means of meeting an ordinary deficit. But at no distant date the complete reconstruction of the roof will become a pressing necessity. This may cost anything between 200*l.* and 300*l.*, and there are no funds to meet such a demand. It is a pity that an institution which served Dublin well as its only public library for over 150 years, and which is still a mine of literary and antiquarian interest, should be in such straits. Last year reported the recovery to the library of a portion of the correspondence of Dr. Elias Bouhereau, the first public librarian of Ireland. I have thoroughly sorted and arranged these letters, and by their aid have prepared a memoir of his life, which I trust may be printed before long. In this connection I have to thank M. de Richmond, archiviste of La Rochelle, for valuable information and suggestions, and also the officials of the Public Record Office, Dublin, for their kindness in helping my researches there.



### How Architects Get Work.

SIR,—In your issue for September 6 the interesting contribution under the above title has brought some consolation to my troubled soul, albeit the writer stops short of real dealing because he wholly misses the one and only method of getting work.

When, twenty years ago, the late Mr. Piers St. Aubyn was signing my papers for membership of the Institute, he inquired what I was going to do about the practice I intended to start, as I had no friends to "influence" work. My reply was that I knew no more than that if a "job" came I would carry it out to the best of my ability, and so let my work be a recommendation for other commissions. He assented, but warned me that I should have "an uphill road." It was and is still uphill work, yet during these twenty years I have had a fair share of work, and among the commissions good many public buildings, as you will see by the enclosed list, which I do not want you to publish lest such a free advertisement should bring me such a shoal of commissions that I should want an army of clerks to cope with; or, on the other hand, the architect-employing public might think I had made a fortune and need no more work, which would be a grievously erroneous conclusion.

But now, after all these years of steadily holding before my mental vision the ideal of good work as the only legiti-

mate means of getting other work, I am roundly upbraided for not "mixing" in society so as to get more commissions; yet I go on, and shall go on, believing that as with the shoemaker so with the architect. If the former makes a pair of shoes which are a perfect fit and a pleasure to wear, the wearer recommends him to other "clients." Likewise the architect who does a good work—putting his soul into it—gets recommended to other work. It is the only way.

But you tell us that "the best agency for becoming known, the one that has an effective part in the upbuilding of every architectural reputation in these days, is nothing more nor less than the printing press." Now please turn to the volume of *The Architect* for, I think, 1894, and you will see how the printing press, as exemplified in your pages, helped my reputation. There you will see the names I was called in the notice of my "London Rookeries and Colliers' Slums." It was hardly the kind of recommendation to lead to architectural commissions. Yet I am unrepentant, and of that little work and of many other "socialist" brochures I am as proud as I am of my best work in stone.

But you have done me the *amende honorable*; you have published one of my Egyptian jobs, without my asking you to do so, in the very number containing the article on methods of getting work, which free advertisement will, doubtless, help me to reap my share of that "effective part in the upbuilding of every architectural reputation in these days" afforded by "nothing more nor less than the printing press."

As regards my own practice the aim which I have steadily kept before me *does* bring me work. It was thrown at me the other day "that while my work was known I was not known personally," and it was explained to me that to be personally known brings work. Yet within a few days of this utterance I had a letter from an old client for whom I had successfully carried out a difficult work, informing me that a possible client would like to see me in a distant town. Result—sketch plans made, approved, and within four weeks the excavations commenced for a building of six storeys covering 900 square metres. Besides this, although I am just now forced to be 3,000 miles away from my British practice, I have two commissions at home which have come through nothing but the endeavour to put my heart into the work entrusted to me, even as I promised my old friend and employer Mr. St. Aubyn.

For the man who joins a club, becomes a Freemason, goes to afternoon teas, gets to "know everybody" that he may rake in a commission or two, I have the profoundest contempt. I am ready to lend a hand to any practitioner who needs the help and sympathy of an older man, but to follow the dubious practice of using the occasion of social amenities to get work I set down as reprehensible, if not improper, conduct on the part of an architect. If it be true, the one blot on the character of one of our finest architects, lately deceased, was that he said he "got more commissions in a dress-coat than in any other." It was a paltry use to which to put a dress-coat; the waiter in his dress-coat accepting his tip is more honourable.

Now let me tell you something. Advertising for a post in *The Architect* twenty-seven years ago brought me, indirectly, what was far better than a post or commission, namely, a partner for life, who, though she knows an architect with ideals must perforce remain poor, yet believes that no goal that is worth reaching can be reached by other than the way of Truth. And, mind you, drawbacks notwithstanding, the path which I have chosen is strewn with the flowers of love and joy in one's work, and through which, as one fares along, one meets with that fellowship which William Morris truly describes as "heaven." It is a jolly road, and I recommend it to all young architects.—

Yours,

ROBERT WILLIAMS.

St. David's Buildings,  
9 Cherif Pasha Street, Alexandria.

### Crosby Hall.

SIR,—In the *Penny Magazine*, December 1832, is a minute account and engraved view of this famous hall, described as the "only considerable monument of domestic architecture of the fifteenth century now remaining in London; the finest and most magnificent specimen of her old civic palaces." If at that time, in 1832, a committee was formed to preserve it from decay, is it not a thousand times more urgent to arrest its destruction at the present crisis? To Charles Knight, the once well-known publisher, the antiquary and historian have long been indebted, and the *Penny Magazine*, though seldom seen in



this progressive age, did a good work in chronicling the historic sites and houses which have gained for England a merited repute from many a distant clime.—Yours,

S. W. KERSHAW, F.S.A.

#### Education in Architecture.

SIR,—Would you permit me through the columns of your valuable paper to add my testimony and warm tribute to the practical utility of the Liverpool Central Municipal Technical School, and the benefits derived by its students in the practical branches of the building trade? A series of recent examinations have taken place, and the competitors next May will have an opportunity of competing for the scholarship at the University of Liverpool. It is most gratifying to architects whose pupils have received certificates. Master Robert Parry, who is serving his articles with me, has been successful in passing six examinations (being the number he entered for), with the following results:—1, Ordinary grade of masonry, first-class pass and prize value 2s. 6d.; 2, ordinary grade of brickwork, first-class pass and prize value 2s. 6d.; 3, ordinary grade of plumber's work, first-class pass and prize value 2s. 6d.; 4, building construction, second-class pass in stage 2; 5, practical plane and solid geometry, second-class pass in stage 2; 6, mathematics, second-class pass in stage 1, and lastly, a best homework prize value 3s. 6d. in brickwork and masonry class. Doubtless it will tend to inspire architectural students with the ambition to take the degree of B.A. (or a diploma) in the Honours School of Architecture. As Ovid says:—

The applause, the favour of our fellow men,  
Fans even a spark of genius to a flame.

The above honours can be fortunately obtained in our local university, presided over by the erudite Roscoe Professor C. H. Reilly, M.A. A deep and lasting debt of gratitude is owing by the members of the profession to his accomplished and unassuming predecessor, Professor Simpson, and *inter alia* Messrs. Willinck & Thicknesse and Mr. Henry Hartley, F.R.I.B.A. (in conjunction with our city fathers), who have striven to raise the status of our profession "by providing for architects professional education of a university standard side by side with the students of other professions." It is not generally known that the "Picton Reading-room" adjoining contains a priceless store of rare and choice tomes anent all the above subjects second to none outside the Metropolis, and that every assistance is rendered by the courteous and able staff of assistants (under their worthy veteran chief, Mr. Cowell), and to whom I am greatly indebted during my antiquarian and historical researches during the last four lustrums.

The ultimate effect and benefit of technical schools will be to bring about a better condition of building construction. Every artisan that enters them will be stimulated to take a greater pride in his work. The master mason will revel in setting out arches with traceried cusped tympanums, groined arches and capitals. The master bricklayer will advocate a better bond of brickwork, and we shall see more of "old English bond" and "Flemish bond" and less of "garden bond" in our buildings, and certainly more 14-inch main walls and less of 9-inch ones, as the latter never can make weathertight gables, and, above all that, he will see that the walls rest on a solid foundation and not on made ground.

The master plumber will take a greater pride in seeing that the lead water joints are properly wiped, which are considered to be a work of art in their egg-like form when rightly shaped. The gasfitter will use our worthy diocesan architect's air pump (gauge) in testing gas piping after completion, instead of the rule-of-thumb method of blowing down the pipes, as defective gas piping (and fittings) is a fruitful source of death, and they will see that gas hooks are used, and not allow iron-floor brads to be substituted in fixing the pipes.

It is to be hoped that ere long the architectural profession will become a close one, and that no person can assume the title of architect unless qualified to do so. It is most regrettable during one's practice to interview improperly-trained youths applying for situations, and when interrogated as to their qualifications they admit that they cannot prepare an estate plan, survey the site and level same, and show a system of drainage with inclinations, working from the Ordnance or other approved datum, in order to pass the local authority. All that they really can do is to prepare drawings of houses from sketches and

make tracings. Many of them are not able to distinguish the difference between a Corinthian capital from a Tuscan one, much less point out the transition periods of Greek architecture, or distinguish between the salient features of the Elizabethan or Queen Anne styles.—Yours, &c.

J. H. M'GOVERN, Architect.

Liverpool: October 14, 1907.

#### GENERAL.

M. J. Bréasson, of Paris, has obtained the first prize in the international competition for the University of Sofia.

**Considerable Damage** is threatened to the fabric of Southwark Cathedral by the emission of noxious fumes from the neighbouring factories, and the chapter clerk is approaching the Borough Council, in the hope that the authority will take whatever measures are necessary to prevent the emission of the fumes.

**The Estate** of the late Mr. Henry Calcott Brunning of Brighton and London, stockbroker, has been valued at 115,000*l.* Mr. Brunning bequeathed to the nation such of his pictures as may be selected by the trustees of the National Gallery.

**Steps are being Taken** by the Nationalists' Club with a view to the creation of a memorial on Flodden Field, near Berwick-on-Tweed, to mark the spot where King James VI. of Scotland fell. There is at present no monument of the great battle. When a site has been secured a national Anglo-Scottish committee will be appointed to carry the matter through.

**The Old Church** of St. Thomas, Park Lane, Liverpool, is to be removed and a new one similarly styled is to be erected at Ashfield, Wavertree. The committee have decided upon plans for the new building, the design of Mr. R. W. Owen having been selected out of a number of competitions by Professor Reilly, the assessor.

**The State Architect** of New York, Mr. G. L. Heins, died on September 25 in his forty-ninth year. He was appointed by Mr. Roosevelt in 1899. He was formerly a member of the firm of Heins & La Farge, the architects of the cathedral of St. John the Divine.

**Dr. Charles Waldstein**, Fellow of King's College, University Reader in Classical Archæology and formerly director of the FitzWilliam Museum, was on Tuesday re-elected to the Slade Professorship of Fine Art. Owing to recent changes in the statutes governing the tenure of that professorship Dr. Waldstein now becomes permanently professor, and it is understood he will resign the Readership in Classical Archæology. Since the spring of 1880 Dr. Waldstein has lectured on classical archæology in the University every year, and with few exceptions (while he was exploring in Greece) every term.

**A Sculpture Gallery** has been added to the Watts picture gallery at Compton, Guildford, and was opened to the public on Wednesday. Two notable works of the new gallery are the originals of the statue "Physical Energy," and of the statue of Tennyson, which latter occupies a corner of the Minster Green at Lincoln. There is also a bronzed plaque of the Bishop of Lichfield taken from the bronze in Lichfield Cathedral, and there are a number of studies, including drawings and paintings, which adorn the walls. Mrs. Watts is making arrangements to allow students to have access to the gallery and work there in the mornings. It will be open to the public daily, except Thursdays.

**The American Institute of Architects** will hold their forty-first annual convention in Chicago, November 18-20, in the Art Institute. The programme in full is not yet published, but it has been decided that, as nothing of an ornamental nature can be scheduled, the leading papers and most important discussion shall be devoted to the consideration of reinforced concrete construction.

**The Committee** having charge of the erection of the Liverpool Cathedral report that "considerable damage" has been recently done by persons visiting the works, and that there have been instances of the appropriation of pieces of the building as souvenirs. For these reasons, and having regard also to the congested state of the site and the presence of machinery in motion, the committee find it desirable to considerably restrict the number of visitors to be admitted. Large parties cannot at present be allowed, but individual applications will be considered and granted on a distinct understanding as to strict observance of regulations. An anonymous benefactor has offered 10,000*l.* towards the erection of the Liverpool Cathedral.



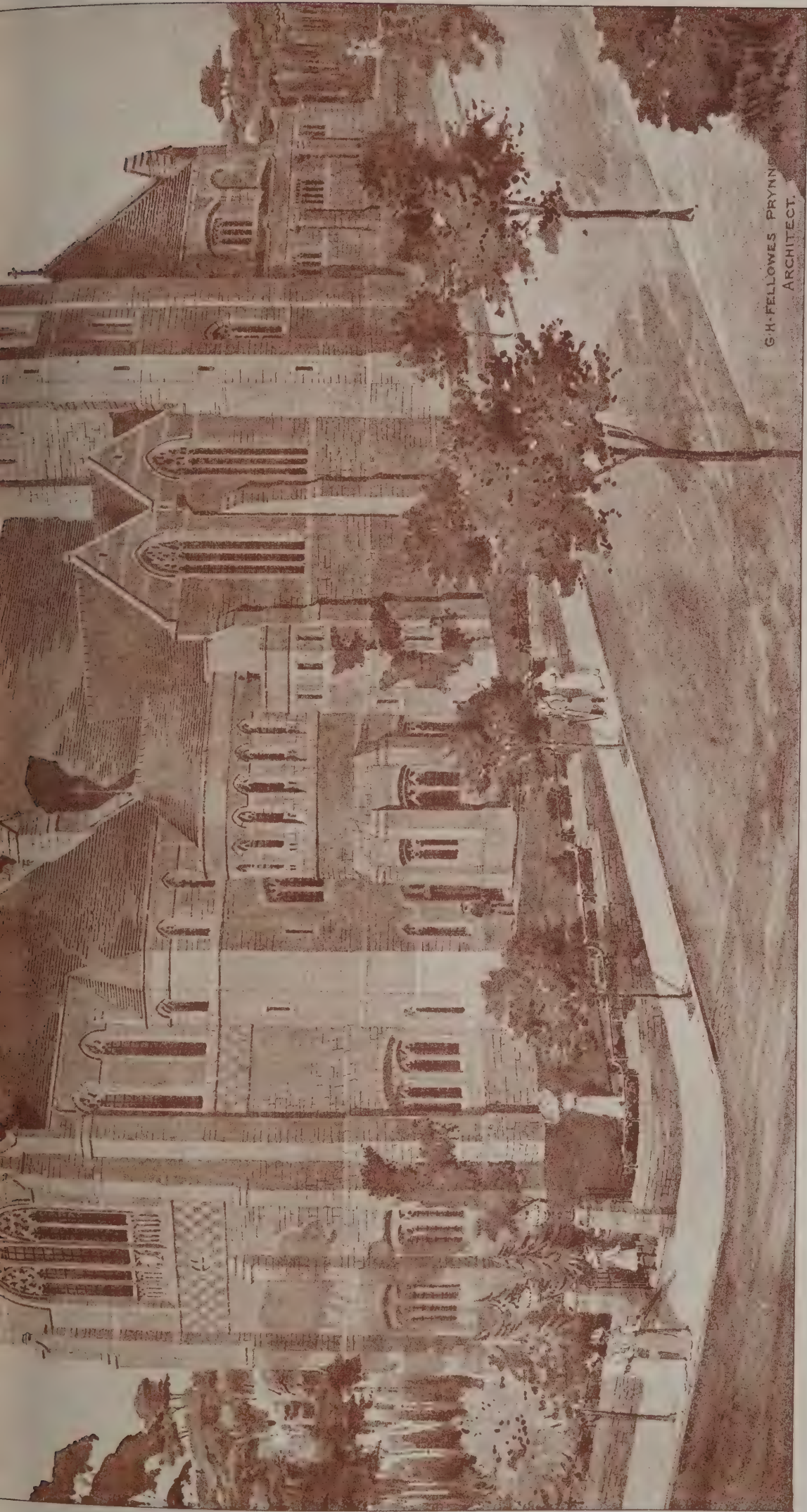




*The Architect, Oct r 18<sup>th</sup> 1907.*







G. H. FELLOWES PRYNNE  
ARCHITECT.

INK-BLOCK, SPRAYED & COLOURED BY EAST HARDING STREET, FETTER LANE, E.C.

CHURCH OF S. ALBAN, BOURNEMOUTH.

G. H. FELLOWES PRYNNE, F.R.I.B.A., Architect.

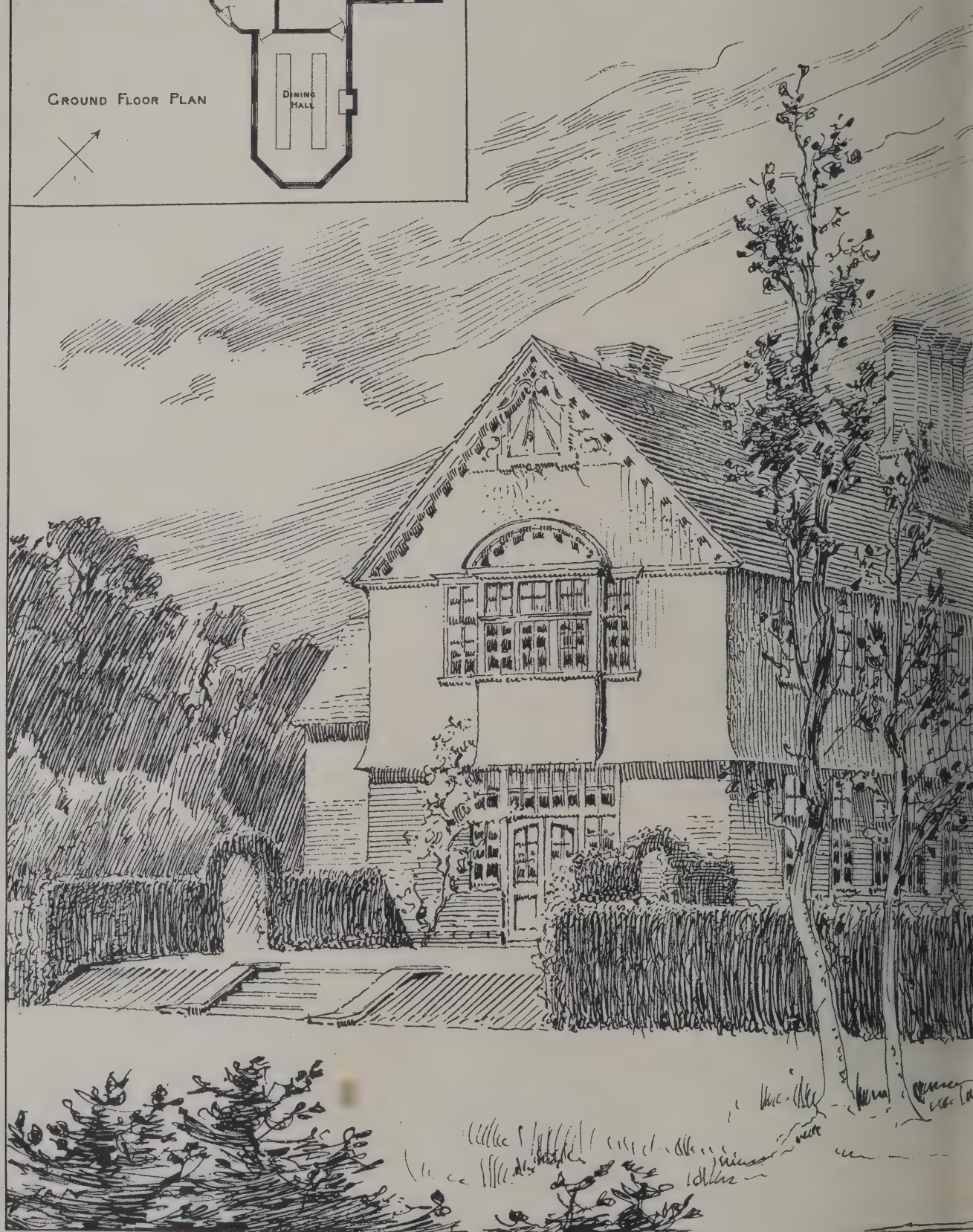
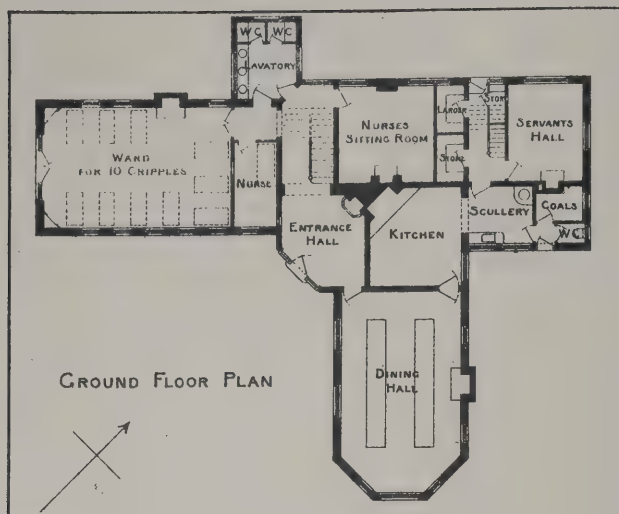














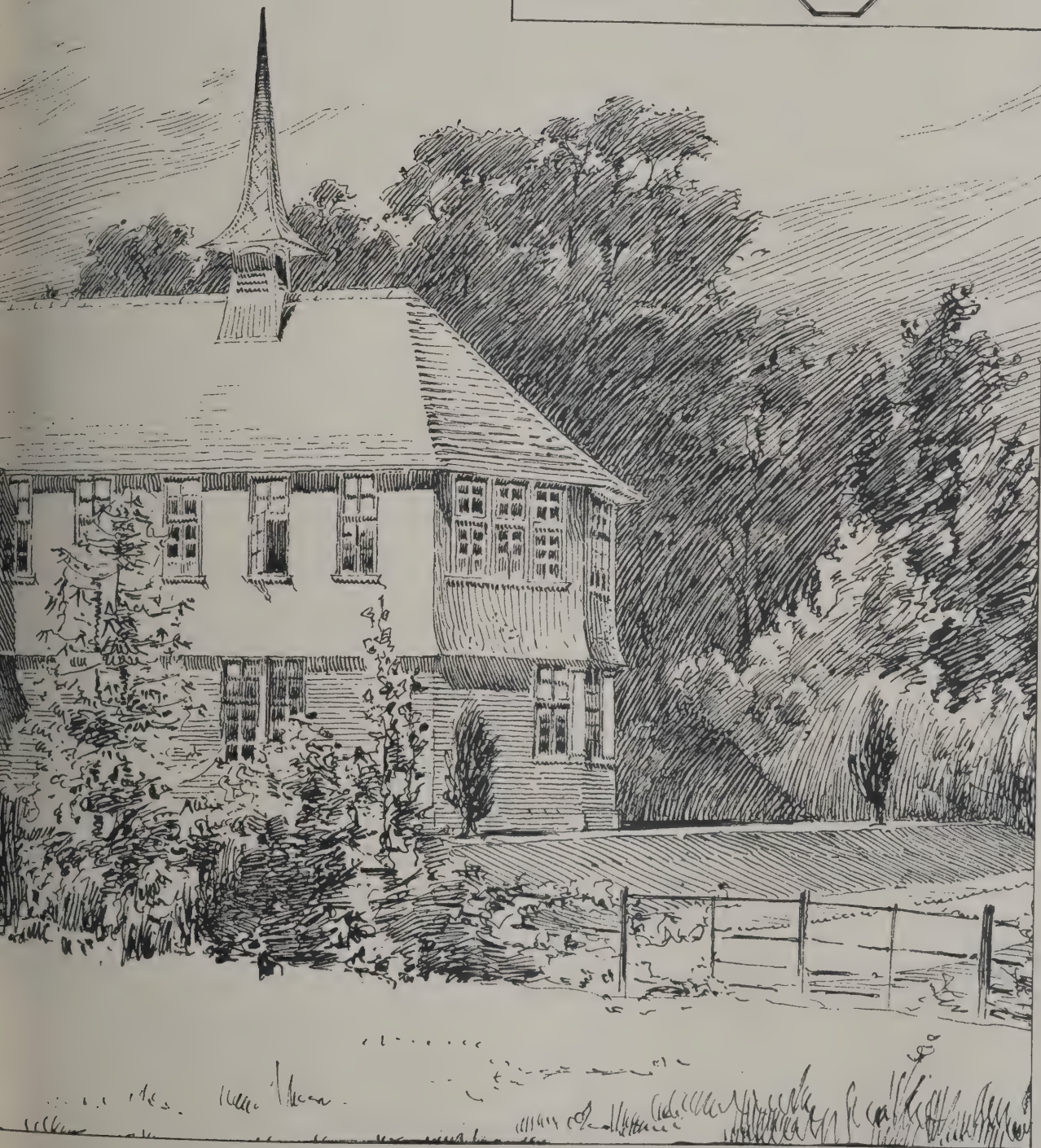
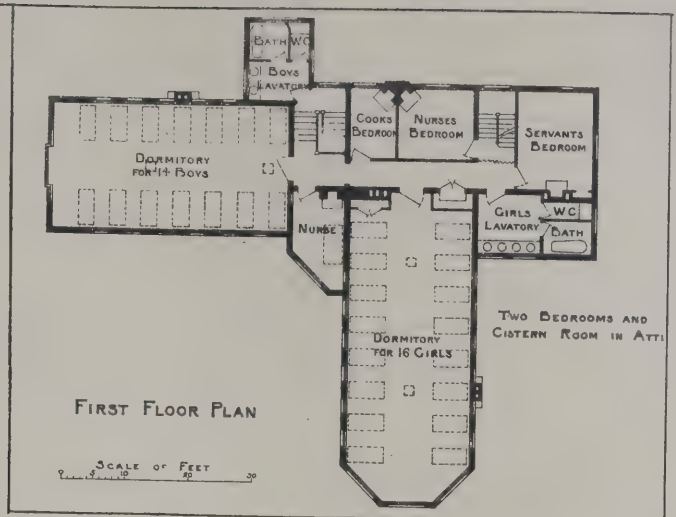


PHOTO-LITHO. SPRAGUE & CO. L. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.







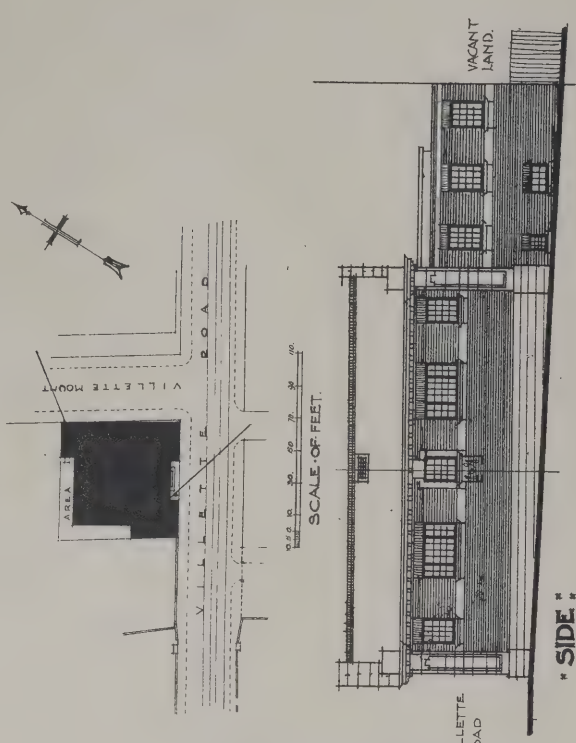




BRANCH LIBRARY  
VILLETTE ROAD

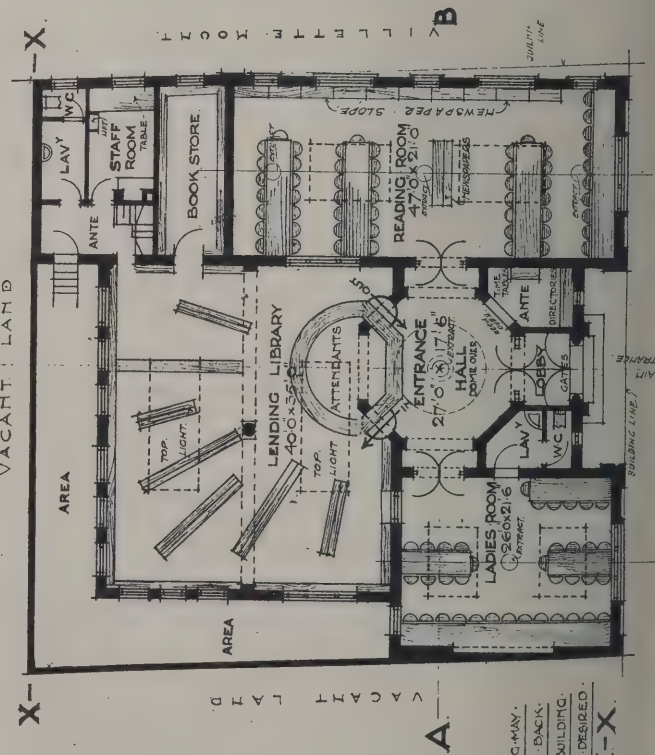


FRONT ELEVATION  
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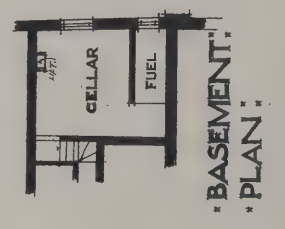


SIDE ELEVATION  
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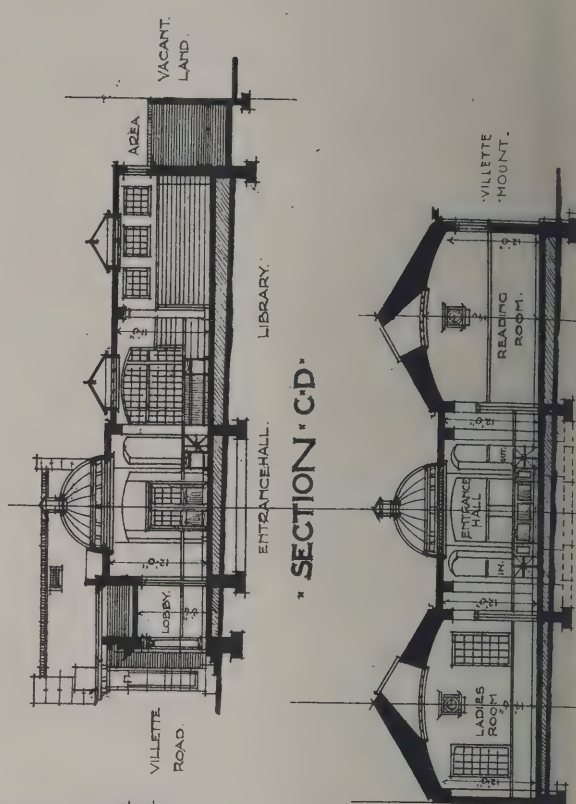
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READING RM	NO OF MAGAZINES 55
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LADIES RM	NO OF READER 37
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BOOK STORE	NO OF VOLUMES 4040
ENTRANCE HALL	DIRECTORIES 2
TIME TABLES	1



NOTE:  
BUILDING MAY BE SET BACK UPON BUILDING LINE IF DESIRED AT X-X



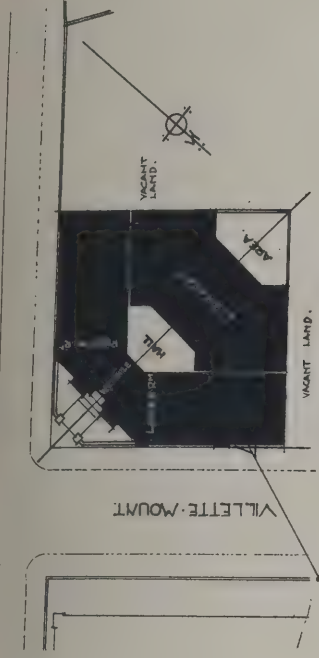
BASEMENT PLAN



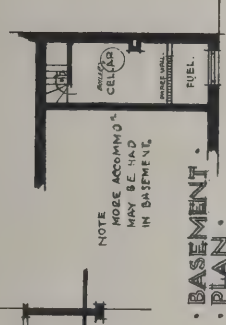
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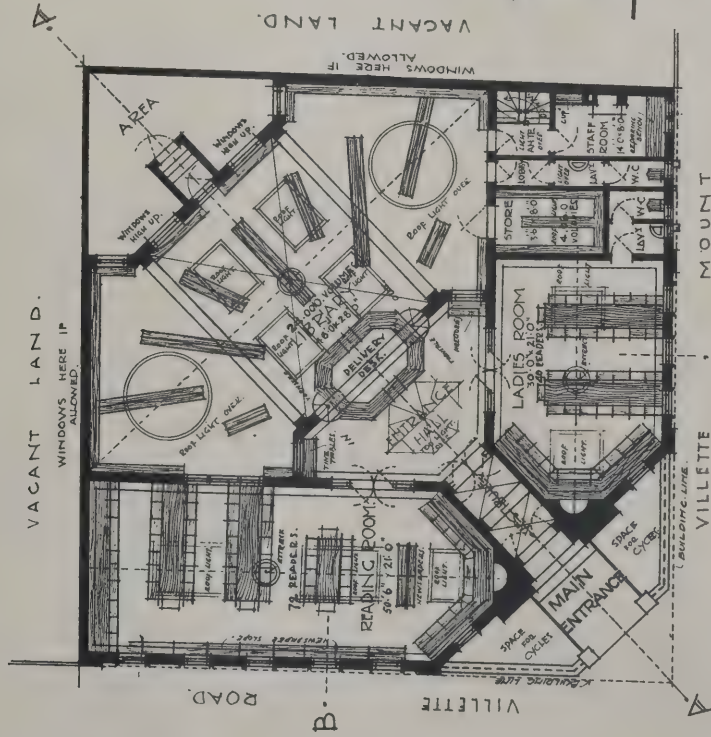
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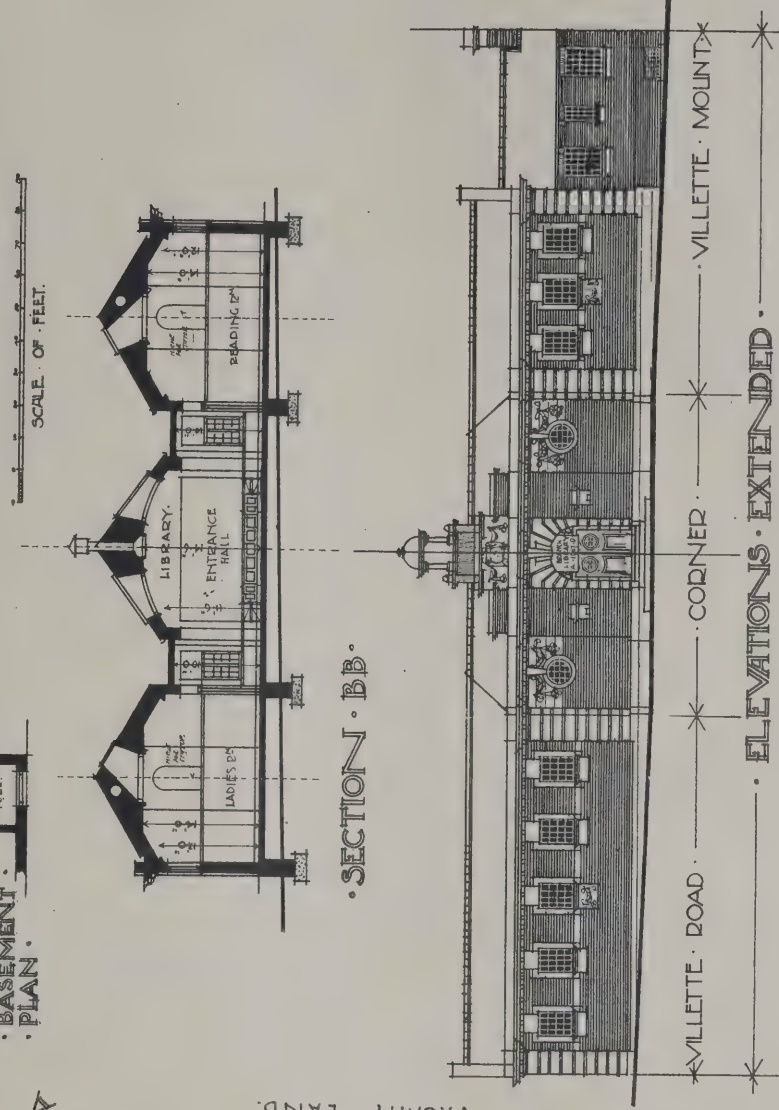
# SITE PLAN.



• BASEMENT  
• PLAN.



# GROUND PLAN:



# ELEVATIONS • EXTENDED

SCALE OF FEET.

PHOTO-LITHO. SPRAGUE & CO. L. 4 & 5, EAST HADONG STREET, FETTER LANE, E. C.

**SUNDERLAND LIBRARY COMPETITION: FIRST AND SECOND PREMIATED DESIGNS.**

By Messrs. DAVIDSON & CRATNEY.



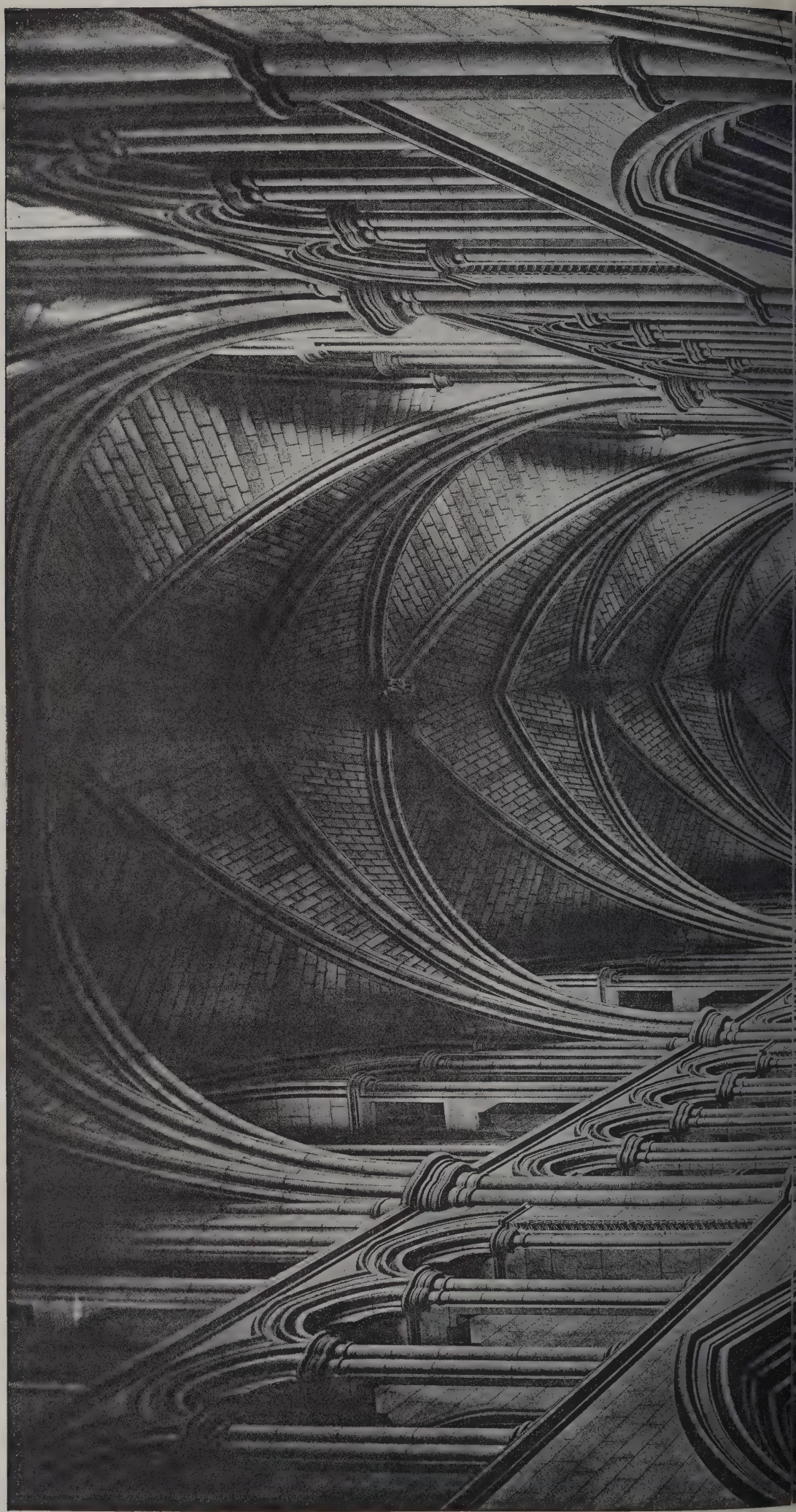




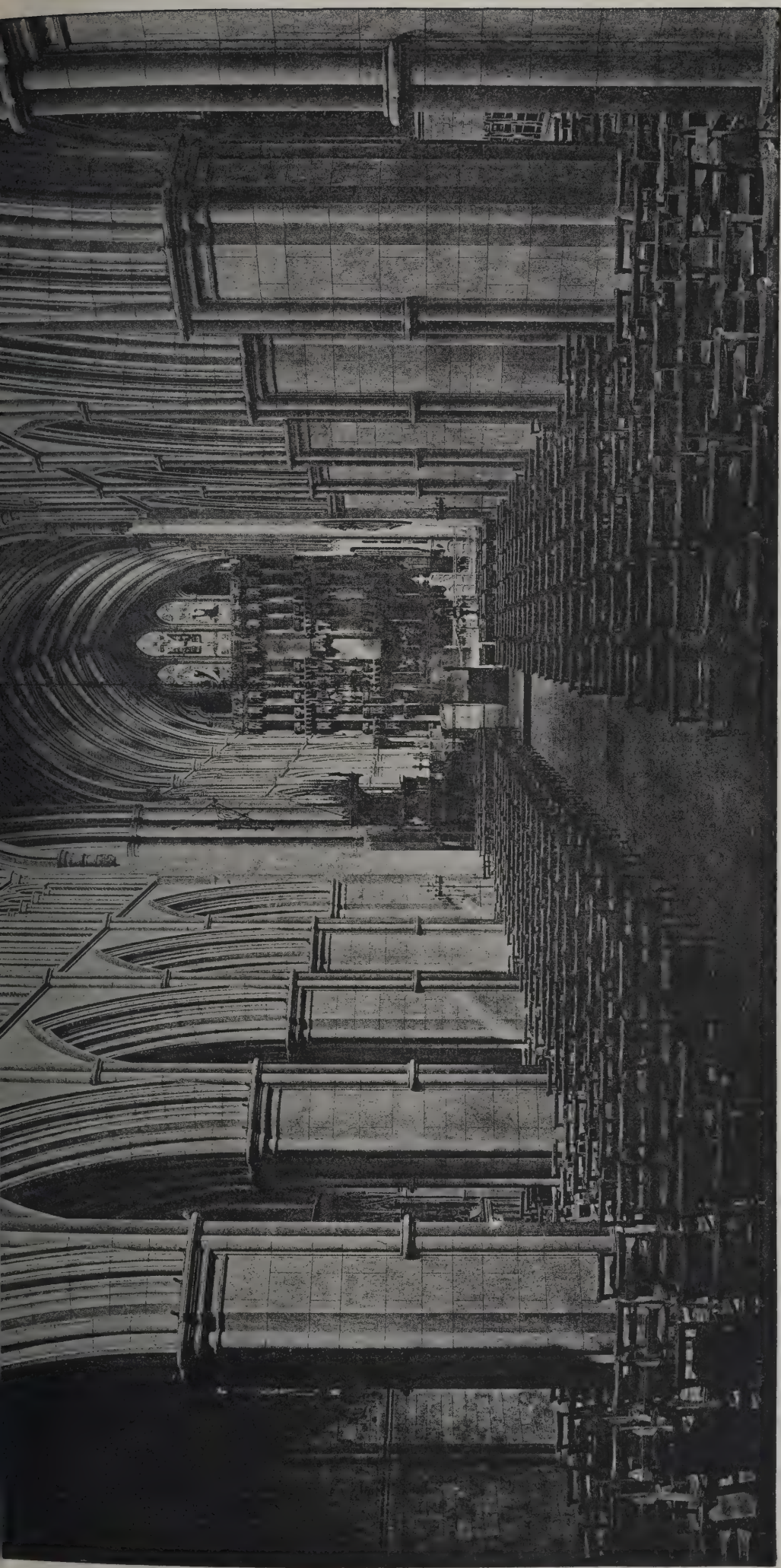




*The Architect, Oct r 18<sup>th</sup> 1907.*







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

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CATHEDRAL SERIES, No. 614.—SOUTHWARK: THE NAVE, LOOKING EAST.







# The Architect.

## THE WEEK.

seventy years have elapsed since the Polytechnic Institution was established. It was a bold attempt to popularise science, and needless to say many promoters lost a large sum. Of late years as a technical school there can be no question about its value. Some of the leases will soon expire, and applications have been made to the trustees of Lord HOWARD DE DEN, the freeholder, for a renewal. The whole site is about 25,000 square feet. A lease for eighty years without premium has been offered on reasonable conditions, but it will be necessary to the part of the premises facing Regent Street, the outlay is estimated at from 50,000*l.* to 60,000*l.* The Governors have applied to the London County Council for a grant of 20,000*l.* towards the cost. It is estimated that 10,000*l.* can be raised by subscription, and 10,000*l.* can be obtained by loan at 4 per cent. It was proposed to arrange the ground floor so as to obtain 100,000*l.* from which a rent of 1,000*l.* a year is expected to be received. By the new financial arrangements it may be possible to largely extend the utility of the building. But if the County Council decline to support the Governors the education would have to be discontinued or it would be necessary for the institution to be closed. The educational committee have approved of the arrangement, and there is little doubt they will grant the money required.

Legal action brought by Messrs. PEARSON against the Corporation of Dublin has been recommenced in accordance with the decision of the House of Lords, by which the Corporation was ordered. It will be remembered from reports already given that the plaintiffs claim compensation for loss sustained by them owing to imperfect main drainage works. A wall was shown by the Corporation which was supposed to serve as the foundation for the new wall of a reservoir. But when PEARSON attempted to utilise it it was found to be without the requisite solidity. The first trial was before the Lord Chief Baron, who directed a verdict in favour of the Corporation. By a coincidence an application was made in his court for a subpoena. His Lordship expressed the hope that he would not have to hear the case, although he was to hear jury cases in the morning. He considered it would be more satisfactory if the present Judge presided.

In the fifties of the nineteenth century, besides the Royal Academy and the British Institution, there were some others for drawing and painting from the living model. There was the Artists' Society in Regent Street; the Life Academy in Margaret Street; the school founded by SASS in Bloomsbury; CHARLES LUCY's school and the General Practical School of Art, with J. M. LEIGH as master, in 75 New Street, Oxford Street. The last has survived, under the name of HEATHERLEY's, has attained an international reputation. According to the original advertisement:—"This school offers to artists, designers, draughtsmen the practice of elementary, geometrical, and perspective drawing; drawing from the antique and the model (male and female) and modelling; with a special examination in anatomy and lectures on other branches of art. A select library for circulation amongst students. Morning class for ladies or gentlemen, particulars of which may be obtained at the Gallery. Evening class for gentlemen every evening from seven till nine. Elementary, geometrical and perspective drawing, drawing from the antique and life, study of anatomy and modelling. Terms 7*s.* 6*d.* per month, or quarterly 2*5*s.**." THOMAS HEATHERLEY was one of LEIGH's pupils, and under his control the school became a

London institution. He was succeeded by Mr. CROMPTON, whose name is well known to modern artists. The school is about to be removed from No. 75 to No. 79 Regent Street, and under Mr. H. G. MASSEY's direction we hope it will enter on a new era of success. HEATHERLEY's has been long enough established for the creation of traditions, and earnest students will, under more favourable conditions than their predecessors, be able to supplement the knowledge they derived from other sources.

ACCORDING to the newspapers Mr. EDISON has found relaxation from his inventions for the employment of electric power in endeavouring to solve the cheap cottage problem. It must be said there is not much novelty in his proposals. Several years ago walls were constructed by pouring in concrete between a framing or double lining of boards which were afterwards removed. For boards Mr. EDISON would substitute cast-iron moulds. His concrete would consist of one of cement to three of sand and five of crushed stone. The concrete would be poured into the moulds until they overflowed, an operation which is supposed to occupy twelve hours; and after six days the cast-iron could be removed. A concrete which is so fluid is not likely to commend itself to builders, although Mr. EDISON, we suppose, has made experiments with the material. He estimates that the cost of a three-storey house, 25 feet wide and 45 feet deep, could be erected complete for 200*l.* That would be less than 2*d.* a cubic foot. Cheap houses are, no doubt, desirable in other countries besides the United States; but it is doubtful whether the proposed castings would be as economical as is imagined.

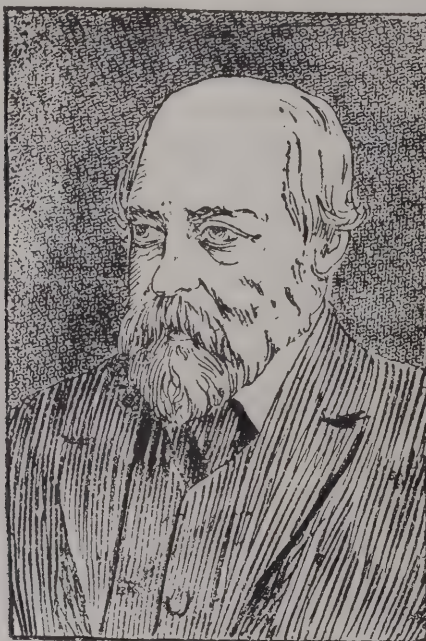
It appears that complaints are common concerning the number of copyists who obstruct the visitors in the picture galleries of the Louvre. According to an official return no less than six hundred and sixty-six men and women have the privilege of setting up easels before the paintings. For a large work it is necessary to have a sort of platform attached, and the easel is therefore cumbersome. In reality the inconvenience is far less than is imagined. The six hundred copyists are never congregated on any day in the Louvre; sometimes one-tenth of the number are not to be seen. As they have to work at a distance from the originals, they do not intercept the view of the majority of visitors. There are, however, people who take a pleasure in creating a grievance. The authorities of the Louvre must also be aware that the copyists serve as honorary guardians. The paintings which lately were damaged are among those which are never copied for any public or private collection.

THACKERAY was disillusioned when he arrived at the Giants' Causeway. "Mon Dieu!" he exclaimed, "and have I travelled one hundred and fifty miles to see *that*? I declare, upon my conscience, the barge moored at Hungerford Market is a more majestic object, and seems to occupy as much space." The Americans apparently esteem the basaltic formation more highly, for they have commenced the transport of the columns to Philadelphia. The first consignment will weigh about 200 tons. It will be asked whether there is no power in Ireland to protect the Causeway. Although at one time it was supposed to be the work of the giants who abounded in Ireland, and to whom a piece of construction about a furlong in length would be child's play, it is not in a legal sense an ancient monument. The Irish Courts decided that the stones belonged to a company, and since that time the causeway or pier cannot be seen without payment. It may therefore be assumed that the disposal of the basalt is a legal transaction. America is fast becoming a great museum, and it will be incomplete unless several of the natural as well as the artistic "curiosities" of Europe are to be found somewhere in the States.



## GEORGE FREDERICK BODLEY.

AFTER more than fifty years of labour an architect who endeavoured to impart so much of his individuality to his works as the late GEORGE FREDERICK BODLEY would welcome repose as his reward, but he would no doubt have been solaced if he were assured of seeing the cathedrals in Washington and Liverpool, with which he was associated, advanced to a stage that would be suggestive of their future impressiveness. Although so much happiness was denied him, GEORGE BODLEY could look back on completed works which are not only creditable to his own and his partner's skill, but which are assertive of the power of Mediæval art in comparison with experiments in other styles. He could claim to be inspired by the Gothic spirit not only in his designs but in his conduct. Every one knows of the obscurity which surrounds the architects of that period. It is rarely we can say with any certainty who was the designer of a cathedral or church which enforces admiration from all lovers of art. The architects might have anticipated FLAUBERT in believing that "L'homme n'est rien, l'œuvre est tout." In the nineteenth century artists, however modest, have to submit to the demand for publicity, but, as far as was possible, GEORGE BODLEY endeavoured to escape from it. His was a retiring nature, and he could say the fierce light often evaded him. There was no architect of his eminence in England about whom so little was known.



THE LATE G. F. BODLEY.—A SKETCH.

He was the son of a physician in Brighton, and was born, it is believed, in 1827. As the first pupil of the late Sir GILBERT SCOTT, whom he joined when eighteen, he had the advantage of participating in some of the struggles of the Gothic Revival. In those days apprenticeship lasted during five years. That was a sufficient time for SCOTT's system to become evident to a less able youth than GEORGE BODLEY. It was so perfect it seemed almost mechanical. Enthusiasts were therefore not fascinated by the applicability, for it is a remarkable fact that several of SCOTT's pupils, when they entered on practice, treated Gothic in a manner which was almost a condemnation of their master's work. SCOTT's ideal was to be found in Salisbury Cathedral, and it was well adapted to a time when machinery, and workmen who were little better than machines, were to give expression to Gothic forms. GEORGE BODLEY, on the contrary, sought an ideal in French Gothic, and it was exemplified in the original form of his first church, St. Michael's, Brighton. It was recognised as a novelty and its variety was found to be economical. In con-

sequence commissions for many churches came. In 1854 he was an exhibitor for the first time at the Royal Academy. His contribution was "New and Master's House, Cheltenham." It was characteristic of him that during the succeeding nineteen years no work of his was to be seen there. When he appeared in 1873 it was with the design for his office of the School Board offices on the Embankment. It was evident that French influence had not lost its hold over him or his partner, THOMAS GARNER, who was a fellow pupil with him in SCOTT's office, and during a great many years so loyally co-operated with him, that it will hereafter be difficult to distinguish between their respective shares in churches and buildings.

It was not to be expected that an architect skilful in designing detail should always adhere to Cistercian simplicity. SCOTT considered that the difference between his churches and those of the STREET was that in the latter what is generally considered as ornament received more attention. After a similar difference from the type of SCOTT was present in the churches of BODLEY & GARNER. For the nineteenth century work reassumed importance in their hands which could not be anticipated by anyone who considered the Brighton church as a confession of style. Indeed, it was as an upholder of English Gothic maturity that BODLEY considered he had any claim to the gold medal of the Institute. The words he used were well deserving of attention, as expressive of the contentment of his mind:—

I think I owe this honour of receiving the gold medal more especially to my great love for that style of architecture which I have always held, and do hold, to be the most beautiful style—I mean the English Gothic of the thirteenth and fourteenth Ages. I believe that this style is like Greek work in its great refinement and great delicacy. Architecture reached a perfection of which we have hardly a parallel now. Our work is so confused, so mystified by the styles. In old days there was unity of feeling, and we must but think that the more we can hark back and try to get one style the better it would be. This may be Utopian, but it may be impossible; but what a thing it must have been those days not to have muddled in selecting a language to speak in. There was one language; for, after all, there was only one language. If a Frenchman has anything to say he says it in French, if an Englishman in English, a German in German, and so forth. And now we think so much of styles and do not think enough of what we have to say, what we have to tell the world, that is, that nature is right, nature is beautiful, architecture and all the arts have been established and built up, generation after generation, by the traditions of

When we speak of detail it would not be fair to lay on our part if the circumstance were ignored that many architects vigorously condemned Mr. BODLEY in connection with a manufacturing firm or commercial enterprise, the production of "art workmanship." It was the example of so prominent a man was likely to have pernicious effects, especially with any member of the profession who regarded architecture mainly as a means of possibilities of money-making. Gothic men particularly condemned him. It could be said that there were some precedents for the practice. But the circumstances of that time and of ours make it dangerous for any architect to combine the offices of judge and tractor. There was never the least shadow of suspicion that with Mr. BODLEY a client suffered in anything through his commercial enterprise. The numerous commissions he received from bishops and clergymen were sufficient proof of the confidence in his honour.

It would need several pages to do justice to his works. He conducted the restoration of Peterborough Cathedral and latterly of York Cathedral. He especially gave rise to the customary contention about altering the character of the building. He was successful in the competitions for the cathedral at Truro and Liverpool. In the second competition for the latter Mr. BODLEY was associated with Mr.



in judging the designs. When Mr. GILBERT's design was selected he engaged to give him of his long experience in conducting the work, we suppose enough has been done to realise attention. Mr. BODLEY was also associated with HENRY VAUGHAN for the new cathedral of London at Washington, and we lately published their opinion of what was contemplated. The cathedral part has been carried out from BODLEY & GARNER's. Another cathedral with which he was connected was of San Francisco. In both Oxford and Cambridge many important additions were made by the firm of colleges, and it is generally believed that the works were mainly controlled by Mr. GARNER and the latter by Mr. BODLEY.

Among the churches carried out by the firm may be mentioned St. Michael's, Camden Town; Holy Trinity Church, Kensington; the Eton Mission Hall at Hackney; All Saints, Ecclestone; Clumber Church, for the Duke of NEWCASTLE; Ecclestone Church, for the Duke of WESTMINSTER; the church for the Society of St. John the Evangelist, Cowley; St. Augustine's, Pendlebury; churches of St. Germain and St. Saviour at Cardiff; church of Holy Angels, Hoar Cross; church of St. John, Tuebrook, Liverpool; All Saints, Cambridge; St. Martin's, Scarborough. In these works Gothic was treated with freedom, but in a manner which suggested a recognition of the true principles of the style. Most of them have the advantage of realising what was attempted. The unfinished look which unfortunately is not uncommon with modern English churches is generally absent from them, and the satisfaction which the visitor feels on entering one of the churches is not without its effect when judging of the work either as a whole or in its details. GEORGE BODLEY loved colour, and he endeavoured as often as practicable to employ it. He sometimes aided in the mural painting of his churches. His colourwork is skilfully arranged, and with more moderation was usually exercised in Mediæval buildings. His principal mansion which can be credited to his firm is Pynwell Grange, belonging to the Earl of PLYMOUTH. BODLEY was elected an Associate of the Academy in 1882 and six years ago he became an Academician. In building he selected to represent for his diploma was St. Mary's, Clumber. After 1881 the firm was to exhibit, and designs sent in later years were under BODLEY's name. It may seem strange that an artist of his standing did not obtain the distinction until he passed his seventieth year. But this must be attributed to the seclusion in which he lived for the greater part of his life. He endeavoured to depend on his own abilities without any aid from friends or from fellowship, and it must be owned that he was successful. He loved music and literature, and a few years ago hazarded the publication of a volume of poems so that his retirement was not without compensating influence. GEORGE BODLEY could be considered a survivor of the band of architects who took the lead from PUGIN and kept it burning for sixty years. His style is not yet extinguished, and there are strong reasons to carry it on to a new generation.

## THE ANCIENT ROMAN HOUSE.

It was an example of good sense when, at the meeting of the Classical Association on Saturday, a paper was given by Mr. WARD FOWLER on "The Decay of the Roman House-life shown from the History of the Roman House." That is a subject which has been generally neglected. At the time of the Renaissance when new interest was taken in the Greeks and Romans, it was, we suppose, only natural—or it may be professional—for the scholars to endeavour to exalt the position of both peoples. What then happened was that to what has been seen in Ireland for at least a century. The revival of old legends and an examina-

tion of carved stones and metalwork made the Irish people imagine that they were the descendants of races who lived in buildings with wonderfully carved ornament on the walls, and wore garments which were held together by most elaborate brooches. The Italians also were enslaved by their imagination, and all the representations of ancient life which were produced by their artists presented the noblest buildings that could be devised. The character of the houses in which Greeks and Romans lived was not investigated. Later ages could not repair the neglect. As a consequence there are two opposed theories on the subject among archæologists. According to one, the cultured Greeks in Athens lived in tumbledown houses, which the wretched dwellings in the semi-civilised countries of Eastern Europe are believed to recall, while in Rome the people were supposed to live in the small rooms of badly-built houses erected in the narrow streets. Others maintain that people who were able to display so much architectural skill in their public buildings were not likely to be satisfied with mean dwellings. VIOLLET-LE-DUC was not afraid to adopt the latter theory, and in his *Histoire d'un Maison* he has introduced views of imaginary Greek and Roman dwellings which are beautiful and luxurious.

In dealing with the Roman house the difficulty is to know when to begin. ROMULUS, like a great many other ancient worthies, is to some German scholars little more than a myth. But the Romans believed in him, and for a great many years they preserved a house in which he was supposed to have lived. No doubt it required regular renewals, which were probably carried out in secret, in order that simple people might believe he was the son of MARS, and as he had become one of the gods was able to uphold his earthly dwelling-place. Apparently it was a simple hut such as shepherds use, for cattle ranches in sociology had precedence of agricultural land.

It is impossible to determine when farming was added to the raising of cattle and when trade superseded bartering. But if we may judge from Roman literature and from what is recorded of several of their great men, the love of farming continued to be almost an instinct during many centuries. The longing for the country and a rural life forms one of the great differences between the Greeks and the Romans. The Greeks had country houses and farms. But we do not find expressions of desire to find peace there, as in works of Roman writers, nor do we hear of statesmen and warriors looking to the country as the refuge from all cares.

It was not, however, the change of air or the pleasure of sharing in rural sports which the Romans alone sought after. For the time being they wished to be patriarchs, to be surrounded by descendants, kinsmen and retainers who looked up to a landowner with more or less reverence. The farm was also a place where, if he belonged to a good family, a man could be inspired by the memory of his ancestors, and, indeed, feel as if they were present. The Romans recognised that progress was a law of the world. JUVENAL describes a visit to his own farm by his friend PERSICUS. He points out that the place is very homely, but the satirist also reminds his visitor that, such as it is, the house and its furniture would at one time have been thought luxurious by many of the ancient worthies.

It would be impossible at the present time to give a description of an English country-house which would be suitable to all. We need not therefore be surprised if there are differences between the accounts which have come down to us of the rural retreats of Roman gentlemen. In reading about them it is very difficult for us to eliminate from our minds a belief that all classic buildings resembled minerals, and were arranged in a specific way from which there was no deviation. Apparently the Roman added to or altered his buildings to suit his own convenience and requirements. There is little use in



going to the Pompeian examples for evidence of the ordinary arrangements. There, as in our own seaside towns and watering-places, land was very valuable and residents were compelled to make the most of sites with limited areas. There was probably an atrium or uncovered hall in a country house which served for a great many purposes. There had to be dining-rooms and bedrooms, and we cannot suppose that such a proprietor as CICERO could be happy unless he had several exedrae with hemicyclia where he could hold conversations with philosophers and politicians. But it is absurd to imagine that ordinary citizens would demand basilica, bibliotheca and pinacotheca. The villa of PLINY would no doubt serve for a man who claimed to be omniscient and was as ostentatious as the majority of philosophers. It is not, however, to be concluded there were many groups of buildings similarly arranged in the neighbourhood of Rome.

Roman life, it is well to remember, long retained its early simplicity. If ever there was a people who were faithful to the maxim "Early to bed and early to rise," they were the Romans. They were compelled to adopt that course because artificial illumination was in a primitive and imperfect condition among them. Beautiful lamps and candelabra are to be seen in some museums, and lawgivers about art point to them as evidence of the love of form which was general among the warlike Romans. They were very pleasing to look at, but the light the best of them afforded was far inferior to any which can be obtained by a modern workman by putting a penny in the slot. As they could not be expected to sit in the dark all classes tried to sleep when evening approached. Sleep was subject to disturbances; sometimes men were kept awake by the flogging of slaves in adjoining houses, and much of the discontent of the Romans was owing to insomnia. They rose early, but they never found a substantial breakfast awaiting them. War exercised much influence on Roman habits, and a citizen often contented himself with a small portion of bread in the morning in his town or country house, as if he were engaged in a campaign. There might be more than one dining-room in a Roman house, for there was classification of hospitality; but they were rarely used except for one meal in a day, and it was generally arranged for some hour when such work as was necessary had been performed. Neither in town nor country was a Roman gentleman much occupied with domestic affairs. He could meet clients or friends in his atrium. But the business of every day was not so exhausting as ours. A man like PLINY probably was engaged in a number of duties, and it was therefore well that his two villas should be arranged with many rooms. But the ordinary gentleman's house in the country appears to have been much more simple in its planning than an English house.

The people who lived in Rome or in one of the cities, like modern town dwellers, occupied houses which were adapted to their wealth. It is difficult to understand all their domestic arrangements. Where did they lodge the slaves? We can understand a man keeping 10,000 slaves, as is recorded, if his estates extended over a large part of the country. But in Rome it was different. There were, it is true, no regulations enforced like those for modern common lodging-houses, and owners were allowed to keep slaves underground. Yet, with all the laxity, to have 400 slaves attached to a single establishment—for that was the number executed at one time on account of the murder of an owner—suggests an appropriation of a site of which few land agents would approve. Some believe that the Roman houses were carried to a great height, and one Greek orator said that Rome consisted of cities above cities and if it were spread out it would cover the whole of Italy. On this subject, however, it cannot be said that Roman writers all agree, although they have many allusions to the defects of the buildings.

Rome was undoubtedly the centre to which men from all parts of the civilised world gravitated. The

people discovered it was necessary to be there wished to become powerful; and power or office was not only distinction, but enriching oneself to the extent desired. Foreigners found it was a place for the exercise of talent of any kind. A miscellaneous population was collected more for its character than was hitherto found in one place. It was a wide for them the ingenuity of builders was taxed, and the fact that as early as in the time of AUGUSTUS it was necessary to make a law limiting the height of buildings to 70 feet suggests that the national single-storey buildings were out of place within the walls of Rome. Some rooms were likely to be smaller than an attic garrets in London, Paris, or Strasbourg. They must have been constructed of unsuitable material when a fire arose it was difficult to prevent its spreading. Under such circumstances it is not surprising that the old family life fell into disrepute, and that many people were murdered without compunction.

The moral of Mr. WARD FOWLER'S paper is the close connection between population and housing. Artists and archaeologists who prepared views of Rome in which nothing was to be seen but temples and palatial buildings could not have troubled themselves about the problem. They are not to be blamed for this. Many modern cities an inquiry about the places where the poor men live is generally met by a shrug and a shake of the head, as if such information were only a matter of notice of officials and of the police. The proletariat were very numerous, but the great workers did not trouble themselves about where they came from or where they met in public assemblies. Their influence, especially in Rome, was, however, worth taking into account. The same is true of other classes also who are recognised as belonging to higher grades, of whom we have insufficient knowledge. In fact, the mass of the population of Rome was treated as if it consisted mainly of ciphers who were entered in large numbers in tables, but whose lives were beneath the attention of philosophers.

#### THE SOCIETY OF ARCHITECTS.

THE following officers and members of Council for the year 1907-8 were elected at the meeting:—

President: R. F. Vallance, F.R.I.B.A. Vice-President: G. E. Bond, G. A. T. Middleton, A.R.I.B.A. Secretary: Ellis Marsland. Honorary Treasurer: Tucker. Honorary Librarian: R. G. Bare. Members: Henry Adams, M.Inst.C.E., James Bartlett, F.W.C., F.R.I.B.A., J. B. Corby, F.S.I., T. W. Cotman, Milnes Emerson, H. E. Hawker, F.S.I., Cholton, F.R.I.B.A., W. J. Jennings, J.P., F.S.I., Col. F. S. R.E., H. W. Matthews, C. H. Mead, E. J. Scott, F.R.I.B.A., Anthony Scott, W. Scott-Deakin, F.R.I.B.A., J. Fletcher Trew, T. F. Tickner, F.R.I.B.A., Percy B. F.R.I.B.A.

The Bethnal Green Borough Council have accepted the recommendation of Mr. H. T. Hare, the assessor, in the recent competition for municipal buildings, that the authors of design No. 39, Messrs. Percy Robin and W. Alban Jones, of Albion Street, Leeds, and the authors of design No. 65, Messrs. Wills & Anderson, of 24, Abchurch Lane, London, E.C. 4, be placed first and second respectively. There were ninety-seven designs submitted.

The General Board of Studies, Cambridge, will proceed to the appointment of a Reader in Archaeology in succession to Professor Waldstein. The annual stipend is 300*l*. Candidates are requested to send in their applications with such testimonials as they think fit to the Vice-Chancellor on or before Tuesday, November 10th next.

An Extraordinary General Meeting of the property of the Liverpool Royal Institution on Tuesday approved the suggested heads of agreement between the Institution and the Liverpool Corporation with reference to the Collection, and authorised the committee to affix the seal of the Institution to an agreement carrying the same effect. The agreement provides for the loan of the Collection and casts for forty years from September 1, 1908, for care, renovation and insurance being laid on



### DUNSTABLE.\*

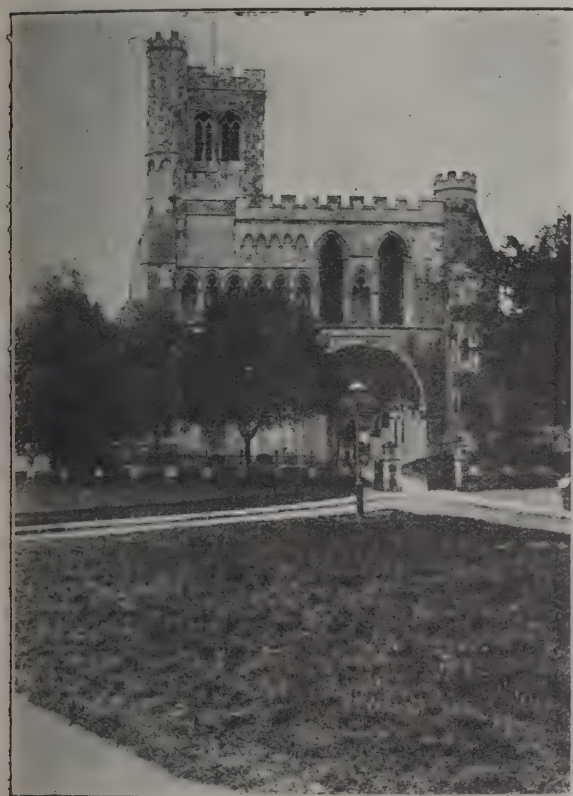
DUNSTABLE is situate in the Hundred of Marshead, on the southern border of Bedfordshire, where the ancient Roman road known as Watling Street and the ancient British road known as the Icknield Way intersect. Dunstable was really named after a person, although till quite recently it was taken as meaning "the market place by the hills." It is very probable that there was a small Anglo-Saxon village on the old Roman site called "Duro-brivæ." But the Charter of Henry I., dated 1132, first marks the establishment of Dunstable as a place of some importance in the ecclesiastical and civil history of England. Dunstable is not mentioned in Domesday Book, although very many of the surrounding villages are.

Dunstable is built on a thick stratum of chalk, which is held sufficient to account in great measure for the dryness and healthiness of the place, while the water supply is unusually excellent as regards both quality and quantity.

The existence of this stratum of chalk accounts for the fact that the district has yielded so many well-preserved remains of the various inhabitants in far distant periods. Not only is the glacial period strongly in evidence, but

Dunstable district. Maiden Bower, which we have visited this afternoon, was a Bronze Age camp of considerable importance. It is on an elevation 160 feet above the springs, and entirely without water. Its diameter is about 760 feet, and it encloses more than 10 acres, with a vallum or enclosing earthen bank varying from 16 to 28 feet in width and from 4½ to 10½ feet in height. The chief entrance was the one towards Dunstable, and there are also four others which still remain. Originally there was a dyke or ditch of from 18 to 32 feet in width surrounding the vallum. Excavations have yielded broken bones of the Celtic ox and other Bronze Age animals, all broken for the marrow they once contained, and mixed with chalk rubble, rude British pottery, flint flakes and a flint polishing stone as used in ancient British times for polishing flint axes. In one excavation a perfect human skeleton, extended on its back, with the head to the east, was found.

After the departure of the Romans from the district the Anglo-Saxons invaded it about A.D. 571. During succeeding centuries the place was the scene of constant conflicts between them and the Danes, and it appears very probable that when the messengers of William the Con-



ST. PETER, DUNSTABLE.



WEST FRONT, ST. PETER, DUNSTABLE.

what is of greater importance is the fact that relics of primeval man himself are comparatively abundant.

It is generally held that the Roman station was situated on the west side of the town, because so many remains of the Romans have there been found. And the "Itinerary of Antoninus," a Roman work written in the third century, confirms this view. The spot where the ancient roads intersected was near the end of West Street, and not in the centre of the town. The British road, or Icknield Way, still occupies the original site; but the precursor of the Roman road called Watling Street corresponds with the "Green Way" or "Drovers' Way" near the ancient camp Maiden Bower. The Romans found this road unsuitable, and constructed one which corresponds to that traversing Dunstable from south to north straight through the market-place.

Around Dunstable are to be seen the remains of camps, huts and huts yielding many evidences of the ancient inhabitants of the district, from which history of the greatest importance and interest to the antiquary and archaeologist is deduced. Not far off is the first spot in England where the rude flint tools of primeval man were found, while pieces of Roman pottery, large and small, chiefly of cinerary urns, are to be found all over the

quorum came in 1086 to where Dunstable now is they found the place non-existent. But very soon after the Domesday survey was made we have evidence in the writings of Matthew Paris, the monk of St. Albans, that the miracle play of St. Katherine was presented about A.D. 1115, or some fifteen years or more before the Priory was founded by Henry I. The play represented the conversion and martyrdom of St. Katherine of Alexandria at a feast in A.D. 305. St. Katherine is said to have discarded Jupiter for Christ. For this she was condemned to die on a revolving horizontal wheel, which represented the Sun or Jupiter. After death the wheel was commonly upraised vertically with the martyr's body attached as an offering to Jupiter, but in St. Katherine's case angels are asserted to have descended from heaven, and these by their mere presence caused the wheel to fall to pieces. One version of the story states that the maid was thereupon set free, another that the martyr was beheaded and the body carried by angels to Mount Sinai, where it is still said to be preserved in the Convent of St. Katherine. Such was the plot of the miracle play. In 1880 a twelfth-century seal, engraved with a representation of the martyrdom of St. Katherine, was found near the site of the now vanished choir of the ancient church. The performance either took place in the open air or in a small wooden church which might have been dedicated to St. Katherine—a minor saint—and the dedication changed to St. Peter—one of the greatest of saints—by Henry I. when

\* Read by Mr. A. J. Pitman at a meeting of the Upper Wood Athenæum on October 5.



the new priory church was founded. The documentary evidence of the date of the foundation of the church and monastery of Augustinian canons is scanty. In the "Annales Prioratus de Dunstaplia" it is, however, stated that Henry I. died in the year 1135, and that he founded the priories of Reading, Cirencester and Dunstable. In the charter granted to Dunstable by Henry I. the name of the Bishop of Hereford occurs as one of the witnesses. This bishop was consecrated in 1131, and the date of the founding of the church is believed to have been 1134. The first sentence of the charter of Henry I. states that it was given by the king to the church of "the Blessed Peter at Dunstapel." But it was not till 1213 that the buildings were sufficiently advanced by the Augustinian canons for the dedication of the church. The oldest part of the exterior is the great western portal with the large semicircular arch. It is of Transitional Norman date of about A.D. 1215.

This Transitional Norman work is of the finest class of its date. The fine pointed door of the tower, together with the seven niches above and the fine open gallery of nine open arches extending from the tower to the great portal, belong to the Early English period, 1220-50. In 1903 the gallery was removed and replaced with new work. The niches were designed for figures, but all have been destroyed. The filling of the great doorway, including the



PRIORY GATE, ST. PETER, DUNSTABLE.

square-headed doorway and the semicircular filling above, with the three niches for figures, are Perpendicular work of about A.D. 1450. The belfry, with the upper part of the staircase turret, and the battlement from the tower to the southern turret, are also Perpendicular work. The arcading of one of the arches on the west front is most interesting, as showing the junction of the Norman and Early English masonry. But the present church is a mere fragment of the original. All that is left of the outside is the great semicircular arch and jambs, with a strip on the left. Even the nave is deficient of the eastern bay. The clerestory, the whole of the roof and the aisles, except two bays, have vanished. It is therefore difficult to realise what the ancient building was like. There is not much more than one-third of the length of the original church left. In addition, there can be no doubt that all the buildings belonging to the monastery were in the style of other Augustinian establishments, and included cloisters, cemetery, a dormitory and refectory, an infirmary, school, guest-house, brewery, cellars, kitchens, stables, barns, granaries, storehouses and houses for porters and servants. The guests' hall now forms part of the drawing-room of a private house in the High Street. In the thirteenth century the church was nearly three times its present length and one-third higher than now. It was much darker than at present, as the Norman windows were

small, narrow and filled with painted glass. There were windows in the nave above the arches, as now. The present nave windows represent the open triforium of old, covered with high-pitched aisle roofs.

The northern aisle of the church is modern. The district is not uncommon in the district, is filled in with masonry. After the Reformation, when the sexes were allowed to enter and leave the church together, the north door was very frequently filled up to keep out the cold north wind.

The centre nave is Norman, and dates from 1134-1200 A.D. The eastern end of the nave and the lower columns and arches are the older, the triforium above the nave arches being the newer. The triforium has been filled in with modern imitations of Perpendicular work. The present roof is modern. The lower part of the present east wall represents the choir screen, which separated the people's church from the old choir. It was built up to the roof after the demolition of religious houses. Originally there was a large door behind where the altar now stands, but in the fourteenth century this was filled in and smaller doors right and left of the altar made instead. The niches on either side of and behind the present altar contained figures—that on the south side one of St. Mary that on the north one either of St. John or of the Archangel Gabriel. The centre niche contained a figure of Our Lord. All the figures have been destroyed. When the choir was demolished the rood was destroyed, and the base of the wall built upon to make an eastern wall. The present wooden screen dates from the end of the fourteenth century. The pulpit is modern, and the font is an imitation of a Norman one which existed prior to 1850. Over the altar there was at one time a fine large picture of "The Last Supper" by Sir James Thornhill. The brasses have been kept loose, and like the church registers are well worth examination. What is said to have been the old sanctus bell is used as a fire bell, and unfortunately it must be confessed that in the past sufficient care was not taken of the carvings, figures, canopies and many other things which one time existed, to prevent their being scattered east and west, north and south, to be used for any purpose other than that for which they were intended. The vestry is separated from the chancel by a wooden screen surmounted by columns of unusual archæological interest and of great excellence. These symbolical carvings are works of the reign of Queen Mary, and fortunately a number of them have been preserved. It is surmised that Queen Mary had these carvings made for the decoration of a chapel, to replace the lady chapel in which Archbishop Cranmer pronounced the sentence of divorce of the marriage of Henry VIII. and Queen Katherine, declaring at the same time that Mary was base-born and illegitimate. It is supposed that the western doors were those to which the decree of divorce was actually affixed. The Fayrey window, belonging to the Flemish school of art is of fifteenth-century date. It is said to have been given to the Fraternity of St. John the Baptist at Dunstable by Henry Fayrey, who died in 1516. After many vicissitudes of fortune it has been restored to the church again. The centre part of the window is rich old Florentine brocaded velvet. The figure subject and arms are of the highest excellence, both as regards drawing and execution. In the market-place once stood a lofty cross in honour of Queen Eleanor, wife of Edward I., whose dead body rested one night before the high altar of the priory church when on its way from Lincoln to Westminster. But not a fragment of it now remains.

The town hall, situate in the centre of the town, contains photographs, transcriptions and translations of the earlier charters of the town given by Henry I. and Henry III., as well as many other things of great local interest.

Adjoining the town hall is a semicircular archway with Doric columns and mullioned windows above, and probably belonging to the latter part of the sixteenth century.

It would not be right to bring this paper to a close without mentioning the industry for which Dunstable and the district is celebrated, viz. that of straw plaiting, and, secondly, acknowledging my indebtedness for information here brought together to Mr. J. Worthington G. Smith, the local historian, antiquary and archæologist who has done so much to secure that the history and surroundings of Dunstable should take that position in British topography which they so richly deserve.

The British Museum Reading-Room will be reopened for readers on Friday, November 1.



## WINCHESTER CATHEDRAL.

IN a letter to the *Times*, Mr. T. G. Jackson explains the work required at Winchester Cathedral:—

The site on which the cathedral stands, he says, is at the foot of the declivity that falls to the valley of the Itchen. In primeval days the bottom of the valley was a bog, and when in the eleventh century Bishop Walkelyn began to build, it was covered with a layer of peat 7 feet thick, on which rested a bed of chalky marl, washed down from the surrounding elevation. The Norman church was built on the edge of this soft ground. Coming to water at a depth of about 10 feet, the builders were unable to go further, and they drove in some short and ineffectual piles of oak, on which they laid their foundation. It is curious that none of these piles have been used before, and contain no carvings, being, no doubt, relics of old Saxon buildings. These foundations have yielded to the weight placed on them, but not so badly as what follows.

When at the end of the twelfth century Bishop Godfrey de Lucy built the presbytery and the first bay of the lady chapel, the builders had to advance further into the bog than Bishop Walkelyn had done. Coming, like their predecessors, to about 10 feet below the surface, just when they reached the bed of marly chalk mentioned above, they were at a non-plus, and, as the best they could do, they cut down a wood of great beech trees, laid them flat, and on them Bishop de Lucy raised that building which is one of the gems of early English art.

I have no doubt that the trouble which followed, and which has nearly brought this part of the building to ruin, began as soon as it was built. The tree trunks did not rot away, but they were pressed down into the soft ground as much as 2 feet 3 inches; the vaults became disturbed and cracked, the walls out, and the whole building split off from the Norman part west of it and slid eastwards, leaving gaping cracks at the point of separation and in several other places. The dislocation of the vaults was so great that the curves which should have been concave became convex, the arch construction was lost, and they would have fallen long ago but for the iron bolts and straps by which they were hung up to the roof.

This was the situation when I was called in to undertake the repair. The foundation being mainly in fault the obvious remedy was to underpin the walls on the compact level that underlies the peat at a depth of 16 feet. And here the difficulty of the water which lies at the level of 10 feet or 10 feet below the surface presented itself. I am indebted to my friend Mr. Francis Fox, the famous engineer, for the suggestion to employ divers, of whose services he has availed himself in underpinning bridges and other works of pure engineering, which lie beyond the ordinary experience of an architect. This plan has answered perfectly. The greater part of the lady chapel and the presbytery now rests on a solid rock of cement concrete, which itself bears on the hard gravel bed; the vaulting has been repaired and the ribs are restored to their shape; the walls have been grouted with cement and strengthened, and it is probable that this part of the church will be cleared of scaffolding and restored to use by the end of the year.

The condition of the Norman transepts and the choir piers next invited attention. The latter are now being underpinned like the presbytery, but the transepts present greater difficulties. Partly owing to bad foundation, partly perhaps to injury when the Norman tower fell, as Norman towers often did, soon after it was built, by which the adjoining arches and walls would be forced outwards, the gables of the transepts overhang the base, that of the north transept as much as 4 feet, and the side walls are shattered and dislocated to an alarming extent. Daylight could be seen through the fissures in the north transept, and into one corner of that part no less than 25 tons of fluid cement have been injected. Both transepts need underpinning and tying back by an elaborate system of iron rods and cramps. They are now being shored to prevent disaster, and here for the present the works must stop till funds come in to enable us to proceed.

Were the dangerous condition of the cathedral more generally known, I cannot believe that it would be left for ages leaning on crutches. In our great English cathedrals we have an inestimable heritage from our forefathers, not only monuments of their piety, but treasures of art which may well challenge comparison with those of any country. It is for us to preserve them for those who come after. The sum of £60,000, for which the Dean asks is not much more than the sum given not so long ago for a single picture; and who

would maintain that if Velasquez's "Venus and Cupid" had found a home at Berlin instead of at Trafalgar Square the national loss would be comparable to that involved in the ruin of a cathedral which stands pre-eminently in the foremost ranks of those of which Englishmen are justly proud?

## THE PAINTER'S ART.

A LECTURE on the "Penalties and Pleasures of Painting" was given in Northampton by Mr. Alfred East, A.R.A., P.R.B.A. He said the arts might be said to cover the whole range of human expression. They could express their admiration of the beautiful by words, colour or sound. One artist might have a different field to another, and in this respect literature stood in a very special and distinctive position, for it used its own art, that of words, not only to explain itself but to explain and criticise the position and attributes of the others. It had, however, a more limited appeal than painting, for without the medium of a translator it was only available for the particular country of its language. On the other hand, they could not paint a criticism or the explanation of painting, and there were qualities in painting that could not be expressed by the finest writing. Painting would not have grown into the position it now held had it not contained some distinct charm, some quality that could not be expressed by any other means than its own. That was the reason of its existence. Otherwise it had no object to serve. Most people would not go so far as to say there was no real use for fine art in everyday life. If it served no other purpose than to arouse an interest in the beauties of nature it was no mean thing to accomplish. As a means of representing a landscape or figure, poetry was inferior to painting, but as a means of representing action and the working of the human mind in action poetry was superior to painting. In these days he feared there was not sufficient regard paid to the question—What is the true mission of art? The painter was constantly trespassing on the domain of literature, and the literary man upon the province of the painter. Selection was necessary in all the arts. One might start to write down an impression, but, after many attempts, might discover that the subject was not one for words, and that it could only be expressed by painting. There were things in life that could only be described by the one or the other. The arts were one in the sense that they all expressed the ideal, but were divergent, inasmuch as they expressed different attributes of the ideal. Landscape-painting was an independent form of human expression. In early times it was merely the accessory of the figure or historical painter. It was not until comparatively modern times that it dawned upon men that it was worthy of an independent existence. After discussing the works of various artists in this direction, the President spoke of the need of a thorough knowledge and mastery of technique.

## BIRMINGHAM COUNCIL HOUSE.

THE Birmingham City Council at their meeting on Tuesday adopted a report by the general purposes committee which stated that, having effected certain modifications in the accepted design for the Council House extension, in consultation with the architects and with the committees concerned, they have appointed Mr. Hugh Watkins, of Gray's Inn, London, and Mr. Anthony Rowse, of Birmingham, joint quantity surveyors on the usual terms. In order to save time and to enable the excavation for the new building to be carried out during the coming winter, it is proposed to let the contract in the first place for the excavations, foundations and the lower ground floor only. In the instructions to architects for the purpose of the competition it was stated that the cost of the building must not exceed 150,000*l.*, and that their plans must be capable of being carried out at that cost. In making their award Sir Aston Webb and Mr. Ingress Bell stated that they had no doubt the plans of Messrs. Ashley & Newman could be carried out for the amount named. The committee recommend that the finance committee be instructed to borrow the sum of 150,000*l.* for the purposes of the building. The committee will then proceed to obtain tenders for the first portion of the work, and report their recommendations thereon in accordance with the instructions of the Council.

The Irish Board of Works have agreed to use Irish limestone for four-fifths of the masonry of the College of Science, Dublin. The remaining fifth will probably be Portland stone.



## NOTES AND COMMENTS.

THE session of the Royal Institute of British Architects will commence on November 4, when Mr. T. E. COLLICUTT, president, will deliver an address. The following papers will be read at succeeding meetings:—November 18, "The Present Condition of St. Paul's Cathedral," by Mr. MERVYN MACARTNEY. December 16, "Means of Escape from Fire in Modern Factories and Warehouse Buildings, with reference to the London Building Acts Amendment Act," by Mr. WM. WOODWARD. January 20, 1908, "Royal Palaces in Scotland," by Mr. W. T. OLDRIEVE, F.S.A. Scot. February 3, Address to students by the President and presentation of prizes. February 17, "Foundations, the Use of Divers and the Grouting Machine," by Mr. FRANCIS FOX. March 16, "A Modern Asylum: Bangour Village, near Edinburgh," by Mr. HIPPOLYTE J. BLANC. March 30, "Theatre Planning." April 13, "The Designs for the London County Hall." May 16, "London Bridges," by Professor BERESFORD PITE.

THE power of a local custom in building was exemplified in a case heard at the Stalybridge Police Court during the week. A bricklayer claimed 10d. for an hour's wages from Messrs. PARKINSON & SONS, contractors, of Blackpool. It appeared that a foreman used language to the plaintiff which he considered offensive, and he at once abandoned his work without giving notice. His employers, who had to observe the custom of giving notice to their men, retained 10d. The Operative Bricksetters' Association took up the case. It was stated to be the local custom for bricklayers in the Manchester district to leave work without notice, either of a give or take character, and this system had always prevailed. At Bolton the men gave an hour, at Newcastle two hours and at South Shields nine hours, but it was only custom. A number of bricksetters, along with the local secretary of the association, gave evidence as to custom. The Bench decided that local conditions and custom must prevail in the absence of a contract as between man and master, and judgment was given for plaintiff with costs.

THE difficulty of the construction of a lighthouse in the position where one is most needed is suggested by an effort which is now in progress on the French coast near Ushant. There is a dangerous reef known as Ar-Gazeck, against which many vessels have foundered. The late EUGÈNE POTRON bequeathed 16,000*l.* towards the expense of erecting a lighthouse on the rock. The Government undertook the commission, but owing to the violence of the currents the progress is slow. In 1904 the preparation of foundations could only be attempted during fifty-two hours, in 1905 the works were carried on during 206 hours, while last year operations could be continued only for 152 hours. In other words, during three years there were only fifty-one working days of eight hours. It is considered the lighthouse cannot be completed under four more years.

WHATEVER advantages may arise from the separation of Church and State in France, there can be no question of the danger to works of art in churches which it has created. Long before the rupture crafty agents were at work endeavouring to secure treasures by adoption of the principle of the magician in "Aladdin," of offering new lamps for old. Brilliant works from the manufactories about St. Sulpice in Paris were offered by men posing as generous benefactors in exchange for the dingy pictures and sculpture which appeared so unsuited to an advanced age. Simple-minded curés were ensnared. But the recent legislation facilitated exchanges, for the clergy could not accept the theory that the antique works in their churches suddenly became the property of their enemies. The revelations at the inquiries in Clermont-Ferrand and Limoges are enough

to prove how systematic are the efforts which were made of late to obtain property from churches, not only painting and sculpture but metalwork, embroidery and any kind of ancient art which was of value was taken and resold without difficulty. Several precious examples are, it is said, in London. One of the culprits used paper for correspondence which was an imitation of what was employed by the bishops for official letters. In that way the clergy were duped. One chalice taken by the Clermont-Ferrand gang is valued at 120,000 francs and a reliquary at 100,000 francs. Among the seizures by the police was a collection of photographs of shrines, church plate, tapestries which were stolen from French churches during late years. Politicians may be indifferent to the fate of the ornaments, but a system which encourages robbery cannot be an advantageous or desirable result of the operations of a Government.

WHEN the great basilica of the Sacré Cœur commenced at Montmartre the people believed that it was intended to supersede the strange old church of St. Pierre with its curious tower, which seemed to belong to some ancient windmill. The church itself was without any unity, and a visitor could not help wondering how so extraordinary a combination became possible. The building was allowed to fall into decay and it was proposed to treat it as a dangerous structure. But a church which has a history goes back to the time of St. BERNARD and PETER VENERABLE deserved to be respected. Owing to remonstrances the Commission of Historic Buildings took possession of the church, and it is needless to say that in consequence it was restored. The architect was M. SAUVAGEOT, and it is believed that the outlay must have amounted to 12,000*l.* Two of the columns are supposed to have belonged to the pagan temple which stood on the site. Churches are no longer regarded with the reverence at one time general in France, and probably it would have been preferred that the restored church were utilised for some secular purpose. But diplomacy has succeeded in retaining the church for ecclesiastical use, for which, all things considered, it is best adapted.

## ILLUSTRATIONS.

DESIGN FOR NEW COUNTY HALL, LONDON.

THE main idea of this design is to so open up the areas that sun and air should have free access to the interior. This has been done by placing an open colonnade on the river front between the main block and the embankment. The plan is axial and symmetrical, with the council chamber entrance from Westminster Bridge Road, where there is provided a grand staircase leading to the principal floor. The council chamber is placed in the centre of one of the two large quadrangles, and the county hall in the other on the same floor, so that it would be available for receptions, &c., *en suite* with the councilors' and committee-rooms. In the centre of the block is placed an entrance hall accessible from Belvedere Road and the Embankment; it contains the main staircases and groups of lifts, which serve as the centre of the main corridors in each floor. For additional office entrances are provided, one at each corner of the building, all intercommunicating by means of wide corridors. The design of the façades grows naturally out of the plan, the principal feature being the domed roofs of the two halls seen in varying perspective through the colonnade from the other side of the river. The treatment of the embankment is of a simple character, suitable for granite, relieved by pylons and steps to the water in the centre. The design is by Messrs. NICOL & NICOL, of Birmingham.

GROSVENOR RESTAURANT, GLASGOW.

TURNBERRY HOTEL, AYRSHIRE, N.B.



ETING of the Association was held on Friday evening last in the premises at Tufton Street, West-Mr. Walter Cave, president, in the chair. Council's report and balance sheet for last session

PRESIDENT formally acknowledged the acceptance of the new colour drawing by Mr. A. W. Weedon, R.I., and to the Association by old pupils of the water-colour class. A vote of thanks was accorded to Mr. W. G. B. for his energy in promoting the gift.

following gentlemen were elected members :—  
 W. Simon, Liverpool ; J. H. Wallace, Brunswick  
 W.C. ; E. R. Green, Queen Square, W.C. ; H. S.  
 ugby ; B. Hughes, Woldingham ; A. B. Knapp-  
 Strathmore Gardens, W. ; H. E. C. Plowden  
 Gardens, W. ; N. Tregelles, Hoddesdon ; H. B.  
 Notting Hill ; W. J. Leahy, New Southgate ;  
 amer, Harlesden ; H. Cox, Mecklenburgh Square,  
 C. Goulder, Woodford Green ; G. Moss, Upper  
 ; W. D. Ferguson, Kensington ; H. Gresswell,  
 S. E. Tarrant, Clapham ; A. F. G. Cooper, Sutton ;  
 vell, Oxford ; N. Shaw, Leytonstone ; A. M. Cook,  
 W. A. R. Bourne, Lewisham ; A. L. Lucas, Bexley ;  
 Saunders, Clapham ; L. A. Bellamy, Kingston-on-  
 P. T. Wilsdon, Highbury ; W. H. Dongworth,  
 s's, S.W. ; C. F. Adams, East Dulwich ; T. G.  
 rl's Court, S.W. ; P. Badcock, Leyton ; H. M.  
 Queen Square, W.C. ; F. B. Nightingale, Wands-  
 mmon ; C. M. Jones, Torrington Square, W.C. ;  
 odington, Streatham Park, S.W. ; A. K. Chaud-  
 ington Circus ; V. R. Talvalker, Adelphi, W.C. ;  
 dfrey, Shepherd's Bush ; J. F. Odell, Eltham, Kent ;  
 James, Kennington Road, S.E. ; O. F. Hill, Knights-  
 H. B. Neely, Bromley ; W. A. Orton, Shooter's Hill  
 E. ; C. Voysey, Hampstead ; F. J. Strudwick, Ewell,  
 H. B. Coles, Torrington Square, W.C. ; A. H.  
 ingtonford ; L. Mason, Stroud Green ; V. E. Turrill,  
 treet House, E.C. ; C. G. Boutcher, Camberwell  
 F.

MALSEY RICARDO read a paper entitled

### Sentiment in Architecture.

id : In considering the quantity of communicable  
hat can be and is expressed by architecture, one has  
guish first the poet—the maker—and view his  
as exhibited in his materials and his synthesis of  
d then to consider the result, not only as an  
n of his own feelings, but of the far greater and  
ious manifestation of the prevailing feeling of the  
nd then there is his counterpart, the spectator, who  
ssed first by the individual expression as something  
nd personal, and then, further, by its voicing the  
unexpressed feeling that is common to all artists of

He represents, so far as he is recipient and not the dumb aspirations of his age, and the artist whom he vibrates in sympathy with the note struck by the age. The existence of this audience, its strangeness, its strength and its depth, the fluctuation of its moods and its actions, which appear to exist apart from and largely independent of the usual economic conditions that have to account for so many of men's actions, suggest a condition of existence which I can, I think, best shadow forth as a manifestation of a power of which our qualities are beyond our determination, whose possibilities are beyond our apprehension—as so many things in the world do—of which we can see but the fringe and the edge, but of whose power and of whose mystery we have an almost frightened recognition.

member as a boy the angry denunciation by my  
sentiment as a factor in life; and the violence of  
denunciation was a tribute to the recognised strength  
of emotion and to their inability to understand and cope

That it existed, that it was an impulse ready and invade and confound the established formulæ of it was an adverse and irreconcilable ingredient, admitted, was their hostile conviction; they knew that not be wholly excluded, and they attempted to the areas in which it might display itself. "Avoid it," was the universal cry. "For goodness' sake, get it out of your business relations." "Remembrance has no part in the practical relations of life."—like grit between the cogs of some elaborated mechanism—it was an interpolation of a foreign element and throw the whole machine out of gear—and yet while they dimly saw that this sentiment at bottom

was really the controlling power, and also at top the final court of appeal and the regulator of the standard of the product.

This antagonism to sentiment flourished most in the central years of the nineteenth century, when the hope was that men's relations to each other could be regulated mechanically and arithmetically, and amidst such an artificial and delicate equilibrium sentiment was an unwelcome and unmanageable intruder. Another view of life, another reading of history, has followed on the breakdown of this unnatural exposition of human life, and we recognise now that sentiment pervades and underlies all human action—in varying quality and varying degree, doubtless—but it is the strongest impulse that we know of and omnipresent. We may call it the fourth dimension of sentient matter, or rather, to account for it seems to presuppose a fourth dimension of space. It has to us some of the unquestioned but inexplicable qualities that beings of two dimensions would experience living in a world of three dimensions.

Let us, without being too severely consistent, imagine a colony of two-dimensioned beings dwelling upon a solid plane—like the top of a table—with air or space above them. Of the thickness of the table top they could form no clear idea, but they would be conscious of thrills and vibrations that occasionally pulsed through its fibres. They could not see, but they could hear and feel—their actual knowledge of each other could only be got by contact with the edges of each other—but they would be conscious from time to time of movements in the atmosphere above them, of its changes in the matter of temperature and moistness, and indeed much of their movements and their attitudes to each other would be caused and determined by the gusts of wind that swept them about on the table top where they lived. Why these gusts came they could not explain, nor what caused them, and consequently they could not predict or anticipate their arrival; but they would be conscious of the increased pressure and heat upon them—they would find themselves every now and then swept in one stream, or in detachments to different parts of the table top; they would undergo various modifications of shape owing to their being squeezed together or driven apart, and the topmost one of these superficiais, blown in front or a little ahead of the others, would be named by them as a “genius,” the pioneer of the route along which all or the foremost were travelling. After the gust had passed there would be what we should call the anticyclone and then the reaction. But during its passing the table top would get heated, which would quicken the activity of these counters, and all who were located in these districts would share in this stimulated movement. For the most part the superficiais would ascribe their animation, its ebbs and flows, to their own organisation: they would explain that they had the control of their own movements, that they modified their shapes voluntarily, and that external influences (if there were such things) had very little effect upon them. Their social conventions, their view of life, took no account of the table beneath them, nor of the air above them, except in the bare inexplicable fact.

But a spectator of the normal three dimensions, looking on at this colony, would see at once that it was just these facts, of the table and the air with its disturbing influences, which the counters tried to eliminate from their daily actions, that did matter. What they could do of their own volition, either as individuals or in company, was so trifling compared to what a puff of wind could do; what they did themselves seemed so arbitrary, so discordant, so full of compromise and hesitation, compared to the prompt unanimity that a gust of wind at once brought about; indeed, deny it as they would and ignore it as they could, that was really the mainspring of their movements. Any moment their relations to each other and their schemes for future movements could be overthrown completely by this inexplicable force. As a rule, they found from experience it was not sudden; there was generally a slow crescendo leading to the climax, and then usually a smart drop, followed by some secondary puffs of diminishing intensity; but in their history there were records of storms that arose almost on the instant, and raged with unparalleled violence.

Let us take the early Crusades as an instance of a sudden enthusiasm which transcended all the conditions and habits of life at that period, an enthusiasm which at the voicing of Peter the Hermit inflamed the whole of Europe, impelling enormous numbers of men, women and children to throw up all they had, leave the land in which they were born and the relations that were dear to them, and to set forth, unarmed, without provisions, without any thought



for the future as regarded their bodily needs in the unknown, far-off, mysterious land over sea, to encounter the Paynim and the Infidel. How can we explain this wild abandonment of the precepts and exigencies of normal life? What causes can we give that are adequate for this vehement enthusiasm? It shook both high and low. The king and the serf were both passionate to set foot on the Holy Land.

Again, what political, economic, or social theories can explain the pitch of intense universality that art rose to in the thirteenth century? Not only was art conspicuous by its excellence throughout Europe and even in the East at this particular period, but it pervaded all the apparatus of life. The bench, the joint stool, the bow and arrows were as much things of beauty as were the furniture and upholstery in the cathedrals and palaces. The idle chorister boy at his desk and the prisoner in the twilight of the dungeon left their names for posterity to indulge with pity or with blame; but also (though this was never in their thoughts) for admiration at the beauty so simple a piece of sculpture under such hard conditions could possess. Even if one tries to explain it by the slow preparation of the preceding centuries—which is somewhat in the nature of explaining how the elephant that bears the world is sustained by the tortoise—how shall one account for its sudden collapse? That the various arts, formerly associated together and practising more as crafts, should by this time have reached such a pitch of excellence that they should strive to specialise, to uplift their craft into independent effort, and so become developed out of their surroundings into separate exhibitions of technical dexterity, provides only a partial explanation. The impulse should have been strong enough to produce these offshoots and yet still continue its growth. What made Greek art perish so rapidly? How is it that Persian art endures to this day and yet is probably the oldest art of all that we know? We cannot answer this any more than we can say how or why the world is here. We are as ignorant of the real causes of these waves of emotional action as were the counters on the table we have just been considering. They appear to be outside of our control, to be much greater than ourselves, and to be forces that sway nations and sometimes groups of nations homogeneously: the actual expression may come from a single individual—to take the "Retraction" of Kipling for an example—but it is the outburst of a sentiment that is pervading all people's minds at the moment. And the expression once enunciated, either in poetry, music, painting, sculpture or architecture, becomes codified: it enters into part of our constitution and posterity's—we are never quite the same people again. As the wind swept the counters, huddling them over to some fresh part of the table, the counters found their shapes somewhat altered owing to the pressure and the action of their transit. Partly they recovered their old shape after the pressure was gone by, but some modifications ensued, some sensitive interlockings forming new sensations of contact renewable every time the particular juxtaposition occurred. So that we are able to respond to the passions of a time long gone and to appreciate a sentiment which still remains like the fragrance of a plant whose growth has long since ceased.

Take, as a crude instance, the oxen who peep out of the corner pinnacles of the steeples at Laon. Up the steep acropolis their living representatives dragged, 600 years ago, the blocks of stone that were to constitute the cathedral; and the memory of their patient service has been recorded in this way. This simple recognition of gratitude to the dumb labour of our beasts of burden is a cry from human heart to fellow heart, audible still through the centuries. The crosses that Edward I. set up at the places where his wife's bier rested on its last journey home are another instance of the direct exhibition of sentiment—in masonry, but of individual sentiment mainly. Doubtless all England was proud of her king and sorry for him in the darkest hours of his life, but the feeling of the nation, though sympathetic, was hardly of itself strong enough to crystallise out in monumental building. A more conspicuous instance of sentiment mainly individualistic and expressed directly without the usual attributes and adjuncts given as explanation, was the old Newgate Prison, where the necessary inhumanity of imprisonment was portrayed by windowless walls and immovable masses of stone. Behind those blind, deaf, blank walls hope died—the building was brother to the grave, and the terrible kinship used to be publicly demonstrated. But sentiment in architecture is generally of a more subtle character, and can be discerned more easily

by taking epochs and nationalities rather than by buildings.

Thus we can say of Assyrian architecture (as the sculpture that has survived) that it is kin to the architecture, overawed somewhat by the terrors of the formation of the cities' enclosures, the terraces, their immense cultivated spaces so guarded, seen that the people themselves were unwilling soldiers, their kings enjoyed the best of life alternately in the chase. It was necessary then to exact the support of the inhabitants of the city for the throne in defiance of the natural inclinations of the populace, and this was achieved architecturally, by withdrawing the palace into the town, by having the temple and the watch tower pointed far into the night for the star-gazer priest to read the dread scroll of the firmament, adjacent and so close to the king's hall, by making hall retire within hall, by stair passages planned on the noblest scale, by statues of the most terribly impressive—colossal animals eloquent in their inscriptions, crouching lions to carry the supports of the king's halls, and the use of colour symbolical of the gods. For the kings it must have been a stirring time, a time of more practical activity and purpose in the architecture of Mesopotamia than there is in Egypt. There is a feeling in it of a kind of romantic quest to discover the quietude that shall atone for the servitude of life, the priests' architecture in the land through which the winds flow—the temples with their avenues of sphinxes, pylons, obelisks and the dark heart of the temple itself, pierced on solemn occasions by the rays of the rising sun, or palpitating under the radiance of the evening star. But the big gods, for the most part, seem to speak of the great justice of the world to come—the inevitableness of labour in the orderly march of the seasons and the great power of earth and sky. Besides this one discerns a strong sympathy with and love for the smaller domestic and the pleasure of portraying them as almost human, accepting them as of near kinship with ourselves.

The architecture of the Greeks, judging by their temples and the few other memorials left in Attica, Sicily, the coast of Asia Minor, is sculptors' architecture—is sculpture. The masonry, the columns, the pediment, the entablature are all so much fine chiselled work—the material could not be the marble which they used, was the proper one, it was crusted over with a thin layer of stucco, moulded and carved to pass for the real thing. A little now is left of the colour that played so important a part in the complete effect that it is hard to visualise these bleached bones must have looked like when they were on them, and we approach these masterpieces of technique and subtle sense of beauty with a sophisticated and clouded eye for some centuries past. Phidias, I could not contemplate the present state of the Parthenon, part of the general fate of all things fashioned by human hands, but what he wouldn't be able to understand in the British Museum outside or in. That we should so neglect to collect, preserve and restore the sculptured fragments of that day, attempt to reproduce their setting and exhibit them once stood in their framework of Greek architecture, then to stop short at the last moment and omit the ornament that vitalised the whole inert mass, to forego the use of colour, would be inexplicable to him. On our side, habituated as we are, and have been for the last 40 years to the contemplation of Classic sculpture as so much wrought out of white marble and to be admired only, that it seems sheer profanation to even think of statues and their architectural surroundings as glowing with colour. Under these crippled conditions it is hard to estimate past the inscrutable mastery of Greek workmanship to win from these cold masks the story their fashioners intended to tell. An Englishman prides himself on his turn of mind, his horses, harness and carriage, and his pride is that he be unobtrusive, honest and finished to the last detail of the very best. There is little ornament on the carriage, beyond the crest in silver, the carriage is painted in various colours, the horses are matched in size and general colour; he desires a sober harmony and anything that is avoided, but everything that there is is excellent workmanship. So of his house, his cellar and his garden. He is something of this demand for perfect finish in Greek art, but without the moral sense that the Englishman has for exact workmanship. The Greek delighted in the evidence of his loyalty in his contribution towards the monument that was being raised; the Englishman in the perfection of finish as evidence of the honesty



and conscientiousness of the craftsman. Even in the state of Greek architecture one can perceive the sense of a tense equilibrium—an intellectual sense of balance rather than the artist's—an attempt to overpass the limits of their material.

Just as the Greeks were refiners, the Romans were concerned with the mechanics of building and the minutiae of the trimmings and haberdashery with which they made their Greek and Greek-taught craftsmen erect their great erections. But they had a bourgeois taste for profusion; conquerors of the world this side and that, they brought to Rome all that the world held precious; masters of many nations and countless numbers of cities, they projected buildings without the fear of the future before their eyes, buildings grandiose, colossal, and mostly overdecorated. The whirligig of fortune brought its revenges; the buildings of the Roman Empire have been dismantled of their costly plating, and for their material, treated as a quarry by the Romans and the lime-burner; the marbles that came from the East, from Asia, from Numidia have been wrenched from their setting and established in buildings throughout the Empire of quite alien feeling and purpose, and we owe to the imagination of a second-class watering-place, shoddily and after partial destruction from an earthquake and only preserved in cinder ash, our chief knowledge of the Romans of the Empire lived—so far as the objects can tell us. We know from the few objects left, and by dint of intelligent excavation, that a broad scale their public buildings and were planned, and we can get some idea of the use of marbles and colour by entering some of the best erected restaurants and the buildings of various cities and societies. Rome was a place that if you had your pocket or some influence, say, with the censor, well enough place to live in, but it must have been a place for the poor man and the slave. Roman architecture is sheer materialism—there is no hope in it, no sense of any spiritual ideal. No wonder then the religion, with its Gospel addressed especially to the poor and the oppressed, took such sudden and wide-spread hold under the Roman régime; it was the complete answer to the doctrines current and practised in the

old Rome came the architecture of the new Rome—Constantine and the exarchate of Ravenna. The mysticism of the East, the passionate monotheism of the Hebrews, the metaphysical subtleties of the Christian religion, the imagery and superstition of the Greek mind, all came into the miraculous earth-bubble of St. Sophia. With allegory, every detail significant of some doctrine, every ornament a symbol as well as an element of service, the great dome and the lesser domes in their hollows the chorale of the Christian faith. Every church under Byzantine influence tried to be the temple of the world to come. The church, too, was a bulwark against the hostile powers that were in the under-world—the great powers of magic and of evil—and the great canopy that dwelt quietly over the haven of the symbolised safety from the malice of man and devil. While the northern nations were forming their own faith, what their church should be, based on the actual facts that they found on the soil they invaded, and coloured largely by an innate hostility against the languid faith of the southern folk. There is the keen aggressive spirit of the East wind amongst these people: they fought for religion, and personal emulation was a prime factor in their lives; to read of the encounters of the Goths against the Romans is to read romance; each Paladin attempts to slay more desperate single-handed against the invincible phalanx than his slain comrade beside him; it is a magnificent "showing off." They fought for the devilry of distinction, for plunder; they were of the breed of warriors and pirates, men of humour, poetry and swift decision. A splendid ideal swept them off their feet; and deaf to what might be the impracticabilities of the world, they held life lightly so long as honour was preserved. These qualities in their work until the time of conquest came, when the Normans settled down to batten on the rich lands of England, Sicily and South Italy. There was defiance of mere building limitations in the way they laid out their cathedrals in England. That they went so high and too wide to roof did not trouble these builders; that their columns and piers were disproportionately bulky for the work they had to do was of no concern to them than the way they measured their

gifts; whilst the carved enrichments, the reminiscences of the sculptured embroidery that they had seen abroad, give in a halting, technically imperfect and primitive way a playful outlook on the objects around them. The fun is massive and apt to be overcharged, like a blow from a lion's cub whose paws are out of proportion, large and heavy; but in early Gothic work there are smiles and tears and a feeling growing up that whilst God's justice is not to be doubted, it is not so easy to enter Heaven as their fathers thought.

Whilst knights were scouring singly the country in quest of adventure, the industrial population was collecting itself into groups, independent of the baron and independent of the Church. These guilds made themselves strong enough to exact terms, charters and privileges from their feudal lords, and we can dissociate the sentiment in their buildings—that of progress, of outshining their rivals, of wringing from their materials the last ounce of utmost—from the timid ostentation of the chantry where the magnate was to repose and to have his doom nicely proportioned to his lineage, his conduct, and the money spent in prayer to his assessors.

One might go on, age by age, attempting to appraise the characteristic sentiment of each time—how in England the home and orderly surroundings began to emerge in opposition to the castle and the predatory excursions of the baron's feudal retainers, how after the days of Richard III. the home and the castle proceeded to amalgamate, and the revival of letters, helped by the printing press, showed the aristocracy that there were other modes of gaining distinction besides personal bravery in contest—especially since the use of gunpowder in warfare tended to eliminate the personal element and to advance the value of well-disciplined, concerted action. The nobles merged their showy bravery into theatrical entertainments, and pageantry, and the Renaissance movement lent itself readily to the enlarged scale of reception-rooms and to the investigation of the grandiose days of the Roman Empire. The personal note of the architect appears; literary culture concerned itself more with the history of heroes and individuals than with peoples; the arts had already begun to distinguish themselves from the crafts, and had assumed a superiority which was exercised in directing and dominating the latter, till we get a complete divorce between the artist and the artificer and a standard of execution that is largely gauged by antiquarian knowledge—scholars' architecture appears. Louis XIV. would be a Roman emperor, and he lays out his palace and park at Versailles in a way and on a scale to eclipse the works of Trajan.

The polite man of letters—like Lord Chesterfield—affected the carriage of a pro-consul, consulted his Vitruvius, was concerned over the architectonic equilibrium of his house and its appurtenances: the kitchen wing balanced the stable wing, and anything that was disorderly or derogatory to the trim decorum of the elevation was kept in the side enclosures and screened by a high wall. Scholarship by-and-by stiffened into pedantry in architecture, and towards the end of the eighteenth century the whole train of thought, political, social and economic, grew into rebellion against the rigid formalism of the time. In architecture the outburst showed itself in the Gothic revival: the cold-hearted canons of correctness were replaced by other canons of equally desired correctness, but besides there was the Crusader's fervour. But he was a knight errant with no squires to support him; the workmen understood nothing of the quest, could do nothing to help him, could merely carry out passively his directions, given in writing. You may put the clock back and still register the time—the early Renaissance folk did that—provided the works are in order and going, but this was a case of setting back the hands of a stopped clock and pulling at the weights yourself.

But the consequences of this outburst of generous passion, though they failed in the particular direction where their efforts were expected to show and progress, were not lost. They took the shape of a larger humanity, of the responsibility of man to his fellows in other aspects besides those of crime and disease, resulting in the erection of schools of all sorts, public libraries, public halls and galleries. Moreover, the treatment of disease and infirmity (owing to the development of medical knowledge and surgery) took on a more humane aspect, and this sentiment of pity for the weak is expressing itself in our hospitals, infirmaries and asylums. At present our attitude is to deal with the sheer bones of the question and determine them, with some principal muscular attachments: the



flesh clothing is to come when we are more experienced and consequently more able to provide it. But for the moment, so far as we can manage it, we will allow no one to start on life's race handicapped by ignorance, nor shall he be crushed against the wall owing to disablement by weakness and pain. The Board schools form a handy illustration of this sentiment; they form the structural summary of the many problems and researches into educational ideals and systems that have been occupying the minds of our serious thinkers on this question; they arise in direct answer to the conditions formulated for the students' requirements and welfare, embodying the conclusions of a large body of experienced men, and they constitute, perhaps, the most significant and most interesting class of buildings that have been erected in our time. They had the advantage of starting without any too restrictive precedents—which enables them to state their purpose in simple direct terms—and they constitute a record of the thought of the latter half of the nineteenth century on the responsibility of man to man in the matter of education. It is not individual thought; the feeling is as widespread as ever was the enthusiasm for the release of the Holy Land from the grasp of the Infidel, and the architectural value of these buildings is in direct ratio to the intensity and humanity of the thought.

The idea—now rising to the surface again—that we should treat our cities, architecturally, as one large unit instead of a collection of separate individualities, with definite architectonic arrangements of roads and spaces, consulting the welfare and æsthetic contentment of the community instead of the private interests of each landholder—this idea carried out at once gives scope for dignified architectural treatment. That citizens should live side by side with each other in mutual forbearance and co-operative unity gives the distinction to the Park front of Carlton Terrace and to the various terraces that flank the Regent's Park. Unfortunately, whilst we are scheming projects in this direction, we are actually destroying many of the examples of this sentiment left to us by our forefathers. The architectural conception and unity of Waterloo Place, of Stratford Place, of nearly all our squares, of Regent Street, have been broken into and destroyed to meet modern exigencies, and the new buildings that grow up on the ruins form no part of a future concerted scheme.

We live in the days of a tolerant, kindly sentiment towards our fellow men, but this is no stuff to raise fine architectural conceptions. We live in times of security to person and property: the great work of the past was done under quite different conditions. Except in the matter of income, social distinctions and even national distinctions are becoming fainter and more equalised; it was not so in the thirteenth century nor the many centuries before and after. Our sensations are subject to a fatty degeneration brought about by security and, to most of us, ease. No sword-point at the breast tries our fidelity, no oppressor, not even the tax-collector, grinds our misery down to the breaking point—besides the sanctuary of our home there is the sanctuary of the Law Courts, and with the removal of fear has gone in great measure the attribute of reverence. We have reached the nirvana that years ago the middle class in a prosperous Roman colony attained, say, at Verona or in Provence; but they had it only for a short while, and ever in the North and East hung the black cloud of barbarian invasion: a background for the most part a mere matter of storm cloud in the distance, until the fall of the Roman Empire permitted it to discharge its thunderbolts upon the helpless citizens. We have no such thunderstorm in the offing, and whilst we rejoice in the placid security, we are without the tonic that puts the nerves in quivering tension. We quit ourselves like men, but in other guise; for sentiment in the architecture of our time we must look now for a wider, more universal feeling than what has been shown for the past thousand years.

Mr. WALTER CRANE said he was happy in being called upon to propose a vote of thanks to Mr. Ricardo, for he had listened with the greatest interest and pleasure to the suggestive and highly imaginative paper. Mr. Ricardo in speaking of sentiment had propounded an extremely ingenious theory which illustrated rather how sentiment, as it were, received its influence from the outside. Mr. Crane did not quite share the same views expressed in the paper, for he believed such influences spread, if he might be allowed to say so, in the nature of contagious diseases. It was difficult to understand their source, just as it was hard to realise that the water seen in a calm could break out wildly on a stormy day. Then Mr.

Ricardo had spoken of the thirteenth century seemed to suggest that it was a puzzle to understand an affection for art then arose, and yet it was to examine some of the reasons for it. At any rate there were a good many elements in the social life of the time to account for the enthusiasm, and there were the foster art. They knew, too, it took at least three centuries to destroy the spirit of that work. What followed was accounted for by the growth of commercialism and puritanic tendencies of the time. The speaker always envied the optimism of Mr. Ricardo, and the idea they were living in so amiable an age. It seemed impossible to avoid hearing complaints of the disintegration of everything caused by the constant changes in modern life, and brought about by scientific discoveries and these disturbing elements Mr. Crane thought it was to hope for the future. The characterisation in the chief typical architectures of the past was architectural, i.e. the architect kings, the architect priests, the sculptors and the scholars' architecture. There was another architect, the speaker suggested, who was to develop the future and make that architecture more beautiful and splendid than any that had gone before.

Mr. LEWIS F. DAY, who seconded the vote of thanks, said Mr. Ricardo was like other poets and put his feelings into the things he described. He did not agree with Mr. Ricardo as was expressed in Mr. Ricardo's paper, more particularly when the author talked of the sophistication which was to be the future. They had certainly lost something of sympathy in work, but they had gained something in the way of sentiment to complain was rather a matter of sentiment of a kind. He had listened attentively to the paper and still puzzled as to what was sentiment in architecture, though he had respect and admiration for the speaker who inspired the paper.

Mr. H. H. STATHAM contrasted the architecture of Greece as examples expressing quite opposite sentiments. In Egypt, he said, it was the architecture of people who moved slowly and who had a strong sense of infinity, whereas in Greek work there was the expression of a people who were extremely rationalistic. To modern work, he would have liked to have had the architecture was devoid of sentiment and where there was sentiment. Many of their buildings were erected for very different purposes. He was as optimistic as Mr. Ricardo, and his own opinion was that this country was likely to experience serious changes before long.

Mr. GERALD HORSLEY said that Mr. Ricardo in his language had given them a most interesting review of sentiment in architecture. He had shown them how sentiment had a universal inspiration, sometimes an individual inspiration. He had instanced schools, hospitals and asylums as expressions of the collective sentiment of our day, and in the list we may add, he presumed, our municipal buildings, manufactories, shops and the houses we live in. We all welcome a return of a universal inspiration such as Mr. Ricardo has pictured. Some day it may be that the present its absence was responsible for much of the vulgarity and bad design which we see in modern architecture of the commoner kind. But which of these sentiments, the collective or the individual, interested them most as artists? He ventured to say it was the latter. To its fostering our education was, or ought to be, the chief aim. All training was intended to get the best out of the artist, and when the best came it not unfrequently came as a surprise to other workers, and not so much an expression of what they had all been wanting to do for themselves. However much a great artist might express the aims of his time, he more usually created his own sentiment. Take, for instance, Michel Angelo's ceiling in the Sistine Chapel at Rome—not a work of architecture, he said, but nearly akin—that revealed itself to a surprised artist. They got the same effect in an earlier time in the little incident which they would all remember in the work of Filippo Brunelleschi and Donatello. Donatello's crucifix of which he was greatly proud, and showed to Filippo, expecting approbation. Filippo smiled at him and on being pressed for his real opinion remarked that it seemed to him Donatello had put on the cross a man and not Jesus Christ, who was the Man most perfect in everything that ever was born. Donatello, feeling reproached, said, "If it were as easy to do a thing as to be a Christ would not look like a peasant; but to be a wood yourself and make one." Well, Filippo said, without saying anything to Donatello, he set



out his best into it, and then he invited Donatello to r. They would remember how Filippo arranged s so that the first thing Donatello saw on entering the was Filippo's crucifix put in a good light; they would mber his astonishment, how he dropped some of the and things he had brought for the repast and fled, g, "I have had enough; if you want anything take it. u it is given to do Christs, and to me peasants." We gather from this that it was not so much that Filippo smething that Donatello wanted to do and failed in, at he thought of and took the right line from the ning, a line of the highest art which Donatello had not ht of. We get this quality in other masterpieces; we in architecture in the work of the men who give the They might say it was the touch of genius which did ight be, but it was the touch of genius on a pre-soil, upon the man who had carefully trained him-it was the victory of the best-trained imagination, he course of our education should have this end in

he PRESIDENT, in putting the vote of thanks to the ng, said there was at least one point in the paper a would appeal to the younger members of the ciation. All the facts which had been put before them ight went to show that it was impossible to talk of nt history without alluding to its architecture, and fore the architect, knowing that he was helping to the history of his time, should endeavour to put the nto all his work.

r. RICARDO briefly replied and the meeting tered.

## ALLAN RAMSAY, THE SCOTTISH PAINTER.

THE Board of Management of the National Gallery, Edinburgh, have purchased a specimen of the por-work of Allan Ramsay, who was one of the best yn Scottish artists in the middle of the eighteenth ury. The portrait is that of Anne Bruce, the wife of as Williamson Bruce, of Arrol, and a daughter of Sir Bruce Hope, seventh Baronet of Craighall. It is ed in an oval, and in artistic grace will compete with portrait of Ramsay's wife, now hanging in the Scottish all Gallery.

According to Cunningham, Allan Ramsay, principal er to George III., was the son of Allan Ramsay, the and Christian Ross, his wife, and born at Edinburgh e year 1713, the eldest of seven children. His descent the noble family of Dalhousie is clear and undisputed; s claimed in verse by his father, and admitted by the mporary Earl, who thought it to his honour that the rer of Scottish national poetry was of the family tree. author of the "Gentle Shepherd" was, in fact, the -grandson of the Laird of Cockpen, a younger brother at old house.

Of the painter's early years we have but a brief account. began to sketch at twelve. Edwards, in his anecdotes, he was "rather self-taught." The first notice we have m is in a letter from his father to Smibert, the painter, 1736, when the artist was twenty-three years old:— son Allan has been pursuing his science since he was zen years auld; was with Mr. Hyffidg in London some time about two years ago; has since been ting here like a Raphael; sets out for the seat he Beast beyond the Alps within a month hence, be away two years. I'm sweer (*i.e.* loath) to with him, but canna stem the current which flows from advice of his patrons and his own inclination." The onage withheld from the father was, in a fit of repent-, bestowed on the son. He left Edinburgh for Rome ne 1736. There he studied three years, chiefly under mane and Imperiale, two artists of much celebrity in r day. He then returned with whatever he had learned otland, painted the head of Duncan Forbes and his own er, Janet Ramsay, both in New Hall, near Edinburgh; an excellent portrait of Archibald Duke of Argyll, in robes as Lord of Session, now in the Exchange, Glasgow, finally removed to London—the exact time is unknown. He found friends there of some value. The Earl of dgewater was one of his earliest patrons; and as the rse of events brought him into power, Lord Bute took lead, and introduced him to Frederick Prince of Wales, ose portrait he painted both in full length and in profile. the work which brought him more immediately into ce was a whole length of Bute himself; there was a n representation of nature, without the mannered affec-

tation of squareness which prevailed among his contem-poraries; the posture was very elegant, and the legs so remarkably handsome that Reynolds thought it necessary to exert himself more than usual in a full length which he had on his easel, saying, with a smile, "I wish to show legs with Ramsay's Lord Bute."

Ramsay's studies at Rome had not been confined to art: "he was smit," says Fuseli, "with the love of classic lore, and desired to trace on dubious vestiges the haunts of ancient genius and learning." For this task he was eminently qualified: he was a good Latin, French and Italian scholar, and, indeed, had mastered most of the living languages of Europe excepting the Russian: in his latter years, too, he studied Greek, and made such progress as entitled him to be called "a pretty scholar." His German he afterwards found of singular advantage to him at court. He was accused of being more anxious to be thought an accomplished scholar and a man of fine understanding and taste than a good painter—a profession for which he was said to have but a cold regard. "You will not find a man," said Dr. Johnson, who knew him well, "in whose conversation there is more instruction, more information or more elegance than in Ramsay's."

His admiration of the style of the great Italian masters brought upon him the wrath of Hogarth; and his now visible success in life, the satire of Churchill. The former desired to pun him down under the name of Ram's eye; and, what was severer, satirised him, in the Battle of the Pictures, in that long lot of old paintings impressed with the image and cross of St. Andrew; and Churchill, when he wrote the Prophecy of Famine, coupled him with his father in these disparaging lines:—

Thence came the Ramsays, men of worthy note,  
Of whom one paints as well 's the other wrote.

But for the satire of either the painter or the poet he seems to have cared little personally, and his father's fame was such as could take care of itself; the "Gentle Shepherd" will most probably be heard of as a work of genius as long at least as the best invectives of a tipling priest, "alike debauched in body, soul and song." The feuds which in those days distracted the united commonwealths of letters and art may be traced in many a bitter verse and satiric print and sarcastic memorandum. Ramsay, nevertheless, prospered in his profession; his skill in art and his reputa-tion for good sense and learning obtained him most exten-sive employment; his pencil was called to ceilings and to walls as well as to portraits, and he had several workmen under him who supplied bodies where he painted heads. Nor did he confine himself exclusively to his studies: he made a second journey to Rome, where he stayed several months; another to Edinburgh, where he remained long enough to establish, in 1754, "The Select Society." He amassed money also; for when his father died in embar-rassed circumstances in 1757 he paid his debts and settled a pension on his unmarried sister, Janet Ramsay, who survived to 1804. Indeed, it is stated on the best authority that before he had the luck to become a favourite with the king he was perfectly independent as to fortune, having in one way or another accumulated not less than forty thousand pounds.

With the accession of George III. came the golden days of Ramsay. The great merit of Reynolds was but partially acknowledged, for from some unexplained cause the king neither liked him as a man nor admired him as an artist; the wind of court favour therefore filled Ramsay's sails, and he obtained distinction as the first, where he at best deserved notice as the second. But this was not all; Shakelton, portrait-painter to the court, was in 1767 removed from his place, and the tradition of the London studios is that he broke his heart and died when he heard that Ramsay was appointed in his stead. This in-crease of honour brought increase of work; he was obliged to engage five assistants. Their names prove how much foreigners mingled with natives in the great manufacture of portraiture in those days:—1. Mrs. Black, a lady of less talent than good taste; 2. Vandyke, a Dutchman, allied more in name than talent with him of the days of Charles I.; 3. Eikhart, a German, well acquainted with draperies; 4. Roth, another German, who aided in the subordinate parts; and 5. David, commonly called Davie Martin, a Scotchman, and the favourite chief draughtsman and helper. One Vesperies, a foreigner, was occasionally employed to paint fruits and flowers. Such was the desire to have a portrait by Ramsay that he was fain to employ anybody to aid in advancing his pictures.



He invariably, however, painted the head with his own hand; at least it was not till his pupil Philip Reinagle began to distinguish himself that he trusted any thing of that order to the skill of others.

As His Majesty invariably presented portraits of himself and the queen to all his ambassadors and governors of colonies, Ramsay had a busy time manufacturing these royal effigies. The king sat for his coronation portrait, as it was called, in Buckingham Palace; in this piece he appeared in his royal robes, and in the like costume were all the succeeding pictures painted. It often happened that the king desired the painter to convey his easel and canvas to the dining-room that he might observe his progress and have the pleasure of his conversation. The painter, a bold, spirited, well-informed man, perfectly conversant with the state of the various kingdoms of Europe, spoke freely and without disguise; and as he was the only person about the court, save the domestics, who could speak German, the queen more especially found it an agreeable variety to chat with him in her native language. Ramsay, in short, was a great favourite. When the king had finished his usual allowance of boiled mutton and turnips he would rise and say, "Now, Ramsay, sit down in my place and take your dinner." This partiality produced, of course, abundance of enemies, but they could do him no harm, for he was not dependent upon royal favour, and the extent of his fortune was at least as well known and as sincerely envied as either his accomplishments or his courtly success. He had many high friends. Lord Bute, the Duke of Newcastle, Lord Bath, Lord Chesterfield and the Duke of Richmond, in particular, were frequently at his house, and that more, it was said, on matters connected with politics than painting. Ramsay loved and enjoyed this, for politics were his delight. He wrote with great vigour and facility, and dipped his pen freely in the public controversies of those times. He was known to be the author of many ingenious pieces on history, politics and criticism, signed "Investigator," and since collected into a volume. He acquired credit by a pamphlet on the subject of Elizabeth Canning, which had the merit of opening the eyes of the nation to the real truth of that mysterious story. He corresponded, too, with Voltaire and Rousseau, both of whom he had visited when abroad, and his letters are said to have been elegant and witty. Ramsay, in short, led the life of an elegant, accomplished man of the world and public favourite, the companion of the first of his day and the admitted ornament of the highest societies.

When he was busy with his first portrait of Queen Charlotte all the crown jewels and the regalia too were sent to him. The painter said such a mass of jewels and gold deserved a guard, and sentinels were accordingly posted day and night in front and rear of his house. His residence was in Harley Street, on the west side, just above the Mews, and his studio consisted of a set of coachmen's rooms and haylofts gutted, all thrown into one long gallery.

Soon after his appointment to be king's painter he made a third excursion to Rome, accompanied by his son, who afterwards rose to distinction in the army, and there, we are told, his chief pleasure lay in examining and copying the ancient Greek and Latin inscriptions in the corridors of the Vatican. This kind of employment, it seems, he loved infinitely better than his professional labours. He had, however, enough of the artist, and the Briton, too, about him to be much annoyed when he found the genius of his country questioned. The President of the Roman Academy, desirous of doing all honour to the King of Great Britain's painter, showed him the school of art and all the drawings of the students, but was rash enough to drop a hint that England had nothing of the kind that could compare with what he was exhibiting. Ramsay kindled up at this and said, "Well, sir, I will show you how we draw in England." He instantly wrote to Davie Martin, desiring him to put his drawings into his trunk and bring them to Rome. On the arrival of Davie, his master arranged all his drawings in due order, and then called in the President and his scholars. Ramsay always declared this to be the proudest day of his life, "for," said he, "the Italians were confounded and overcome, and British skill triumphant." That he believed in his victory there can be no doubt, but we know not what the Italian artists said of it. Rome at that time had few skilful hands, but in drawing she has generally excelled; her deficiency is in sentiment and in colour. Ramsay indulged his champion with a month's look at the wonders of the eternal city, and then sent him home to spread the news of this perhaps unlooked-for victory.

Ramsay himself presently returned to England, resumed his flourishing practice, until an unfortunate accident befell him, which made him lay down the brush for the rest of his life. Reading of a fire in which lives were at stake, he was so touched by the calamity that he rose and went to all his household and pupils to follow him, and he showed the way how they might make their escape, though, as in the story they had been perusing, the lower part of the premises were on fire. He put a ladder through the loft-door, desired them all to follow him, what he did, went quickly up, and said, "Now I am safe, can escape along the roofs of the adjoining houses." He turned to come down again he missed the step, fell, dislocated his right arm in so severe a way that it was never fairly recovered.

Happening at the time to be occupied with a portrait of the king for the Excise Office, he held up his right arm with his left, and so finished the work, and, what is remarkable, it was said, both by himself and others, that it was the finest portrait he ever painted.

This momentary effort speaks much for the spirit of the man; but his constitution had been sorely shattered by finding himself in a disabled state, he resolved to try the more vivifying air of Italy. Philip Reinagle had become skilful in the art, and Ramsay, leaving his brush to his pupil's hand, gave him an order to complete, during his own absence, fifty pairs of kings and queens at ten guineas each. Accompanied by his son he set off from London, but his shoulder continued painful; sleepless nights and more shook his frame, and his early alacrity of mind was gone. He reached Rome, however, in safety, and established himself once more among the scenes most dear to his fancy. Meanwhile, the copying of kings and queens began to weary Reinagle, and he wrote to Ramsay that he could not give more than five guineas was not price sufficient. Ramsay augmented the price to thirty; still this did not render the task less irksome. Reinagle manufactured the article according to contract, but the dose of portraiture was so strong that when the toil of six years, he completed his undertaking, he could think of that department again without a shudder. His imitation of Ramsay's style had by this time become so perfect that the work of the pupil could hardly be distinguished from that of the master.

Ramsay continued to reside in Italy several years, and maintained a correspondence with some of the men of his day both in France and England. His health, however, never was thoroughly restored; and a few degrees that love of home came upon him which, it is said, comes upon all. In the summer of 1784 he departed for his native land, which he expected to gain by short and easy stages. He reached Paris with difficulty; the roof of the carriage had brought on a slow fever which he failed to remove, and he died in August, in the seventh year of his age.

Ramsay was middle sized, well made and finely proportioned, and his looks were acute and intelligent. He was hasty and irritable, passionate and headstrong, but easily smoothed down and pacified; a steadfast friend and a most agreeable companion. In extent of learning and variety of knowledge he surpassed all artists of his time, and was considered an ornament to the Royal Academy, not so much as a portrait painter—though even in that he was second only to Reynolds—as for the accomplishment of a gentleman and scholar, his taste in poetry as well as in art, and his not inconsiderable powers as a writer. He was fond of delicate eating, and was as determined a consumer of tea as Dr. Johnson himself, but had no relish for stronger potations; it is said that even the smell of a bottle of claret was too much for him.

In his own art we may, perhaps, trace something of the same rather effeminate turn. His execution was careful and finished; but the freedom of his pen never reached the character of boldness; the placid and contemplative were his element, energy he never attempted and his colouring seldom deserted the region of the pale and the grey. Walpole has recorded his opinion that if he did not achieve a first-rate name, it was for want of subjects rather than of genius; and I shall conclude with the more detailed opinion of Northcote, in his lately published *Conversations*:—"There was Ramsay, of whom Joshua used to say that he was the most sensible of all the painters of his time, but he has left little to show. His manner was dry and timid. He stopped short in the middle of his work, because he knew exactly how much he wanted. Now and then we find tints and sketches which show what he might have been if his hand had been



conceptions. I have seen a picture of his of the soon after she was married; a profile and slightly but it was a paragon of excellence. She had a fan in and. Lord, how she held that fan! It was weak in tion and ordinary in features, but the furthest possible ed from anything like vulgarity. A professor might e it; but in the mental part I have never seen ing of Vandyke's equal to it. I should find it difficult duce anything of Sir Joshua's that conveys an idea of grace and delicacy."

## VICTORIA MEMORIAL, CALCUTTA.

E almost unconscious instinct of self-preservation which prompts a professional jury to see the best, to ignore the worst, in any expert declaration, for, or the like of which, they may any day themselves id responsible by one of those surprises which are s turning up in life, and cannot be shut out from the of specialists any more than from any other walk in life, t, of course, says *Indian Engineering*, entirely absent the report of the experts on the Victoria Memorial. It not be; but as it has not been betrayed into any ex- s, it calls for no further notice. If this report should the professional world to despair and land the lay intel- n confusion, it will be because the unknown quantity ations dealing with the caprices of subsoil moisture in elta of Bengal has refused to be reduced to terms. apparently unfathomable, unascertainable. The on entertained in the professional world on the in- te character of Colonel Trevor's finding on the Akra iments in 1876, so far as that opinion can now be ated from its only records, left some room for hope e uncertainty which haunted conclusions regarding character of foundations laid in Calcutta for massive ings might disappear in time (a) as massive build- grew more numerous and provided a wider basis eneralisation; (b) as differences in localities chosen ites brought into view all the varying conditions hich the safety of heavy foundations depended; and s professional opinion on the differing merits of various of bond, then in solution, crystallised into formulæ would afford safer guides. These expectations, so far y were actually formed, may be said to have been swept y the verdict of the experts on the Victoria Memorial ations; for while they arrive at some conclusions of derable value, and throw considerable light on the anism of the tests to be employed in laying founda- and have thus rendered a great service to the engineer architect for the future, they have left the true goal of research—definitive tests—as far out of reach as they before; and in exonerating the original advisers of Memorial as to the choice of a site from all blame what- er, have practically pronounced that goal unattainable. e buildings have sprung up on all sides since 1876 in utta, on sites far enough from each other to afford ations of every type of soil to be found underlying ations in the city; and if these have not between them ed up the secret of the definite criterion which should e engineers and architects in future, evidently—consider- the state of engineering knowledge at the present day, e limited character of the conditions possible within area already sufficiently widely experimented on—that itecriterion must be pronounced unascertainable. It is not use the limits of human knowledge have been reached, because the possible variation of conditions in a fully stigated locality are known, that definite tests are im- ble. That does not mean that large public buildings not be erected in future in Calcutta; far from that. It s that devices must be resorted to to counteract the er to foundations arising from the character of the sub- of Calcutta. Knowledge of the devices to be resorted ay, and doubtless will, go on increasing with further riments; and safety may finally be attained to even a ter degree than has already been secured in such ings as the Calcutta Museum, the High Court, and Army and Navy Co-operative Stores, but it will never possible to foretell that, because of every known pre- ion previously adopted, there will be no shrinkage oundations, or to resort to precautions which may be pted as a guarantee against shrinkage. There must be nkage in all huge structures. It is something to know even the Victoria Memorial Hall is not in a hopeless ition. The arguments by which the committee of erts have arrived at their conclusion must have been

read by every engineer in the country, and for most of them in the higher grades of the profession it will have possessed the attraction of an interesting romance. It may some day be transferred to these pages for permanent record. It is too compact and holds together in its serried sequences in too great a solidarity to admit of each of its four heads being considered in detail within the space available in these columns; but one or two points made by the committee as possessing much interest for the general reader and special importance for the profession must be reverted to on an early occasion.

## IMPROVEMENTS AT OXFORD.

DURING the Long Vacation some improvements have been introduced in the university buildings. A new reading-room has been provided at the Bodleian Library in the northern wing of the picture-gallery. For some years the west end of the wing had been partitioned off as a separate room, in which 50,000 volumes were stored. These have now been transferred elsewhere. The new room is a spacious apartment, extending the whole length of one side of the quadrangle, airy and well lighted. At Merton College the extensive alterations which have been in progress for several years are now practically finished. Twenty-three sets of rooms and one tutor's set have been completed since last October. A considerable advance has been made with the new residence for the warden, which is being erected in Merton Street opposite the college. When completed it will be a palatial building. By the liberality of St. John's College the first portion of new buildings bearing the legend "*Schola Æconomiae Rusticæ*" has been erected upon what is known as President's Paddock, fronting Parks Road, and is now in use by the Sibthorpe Professor of Botanical and Research Work. An extension is shortly contemplated to provide a forestry museum, library, lecture-rooms, &c. Satisfactory progress has been made with the extension at Jesus College, and nine sets of rooms will be occupied this term. The more important buildings will not be out of the builder's hands before the end of the year. These include a physical research laboratory, a large lecture theatre with professors and assistants' rooms, the Meyrick library, chemical and biological laboratories, &c. Under the direction of Mr. T. G. Jackson, R.A., the erection of the new chapel at Hertford College has been rapidly pushed forward. The site is confined, and only two bays of the new chapel, with a small cloister and a tower come into the college quadrangle, but space has been found between the three colleges of Hertford, New and All Souls for a very sufficient chapel, measuring inside the walls 84 feet by 24 feet 6 inches. It will be fitted with handsome oak stalls, and there will be a gallery at the west end for an organ over an ante-chapel. The cost of the building will be about 7,250*l.* Further additions have been made at the university museum. An extra storey has been erected to the geological department of the Pitt-Rivers museum, providing a large extra room for students.

## LONDON COUNTY COUNCIL ARCHITECT'S DEPARTMENT.

THE London County Council on February 19, 1907, decided to retain until October 31, 1907, the services of Mr. J. E. Burrows, an assistant in the second class in receipt of 200*l.* a year, who attained the age of sixty-five on March 22, 1907. Mr. Burrows entered the service of the late Metropolitan Board of Works in October, 1876, and has done useful work. The Council have power under the Superannuations Act, 1866, to grant him a pension of 103*l.* 6*s.* 8*d.*, which is recommended to be paid, being thirty-one sixtieths of his present salary.

The establishment committee have considered the course to be taken in view of recent resignations of four assistants in the architect's department, and also of the retirement of Mr. Burrows. The resignations referred to are those of Mr. J. Todd (senior assistant, 400*l.* a year), Mr. C. W. Surrey (upper division, first class, 280*l.* a year), Mr. W. R. Davidge (lower section, first class, 215*l.* a year), who have been appointed district surveyors, and Mr. A. E. Bell (lower division, first class, 200*l.* a year). The five officials mentioned were employed on important technical work in the administrative sections of the department. The statutory administrative work of the department has been considerably added to by the operation of the London Building Acts (Amendment) Act, 1905, under which a large amount of



important work in connection with the provision of means of escape in case of fire has devolved on the Council, and also by the steady increase in the number of Building Act applications for special buildings involving statical calculation. The officials who have left the service were trained in the special statutory work they were called on to perform, and it is very necessary that the vacancies should be filled at once by experienced officials in order that the staff of the department may be of the proper strength and status to deal with applications which are constantly being made to the Council under the Acts referred to.

To fill the vacancy for a senior assistant the committee recommend the promotion of Mr. E. T. Mitchell, now in receipt of 300*l.* a year. They are advised that he is thoroughly acquainted with the work of the Building Act section of the department and discharges his duties with marked efficiency. The other recommendations which follow the usual course in filling vacancies include the permanent appointment of five assistants, at present on the unestablished staff, who are all well qualified for the technical work which will devolve on them. One of the consequential vacancies on the unestablished staff caused by the promotions will not be filled up, and taking this into consideration the adoption of the recommendations will result in a reduction on salaries of 674*l.* 6*s.* a year, and ultimately in four years' time a yearly reduction of 238*l.* 10*s.*



**"The Architect" as a Matrimonial Agency.**

SIR,—I am a constant and interested reader of your valuable magazine, and frequently do I note with sentiments of cordial approval the eclecticism you evince in regard to matters dealt with within its pages. I must consider it as a strange oversight on my part in having failed to observe your kindly efforts to provide mates for disconsolate celibates. But I gather from Mr. Robert Williams's letter to you in the current issue that he owes the joys of matrimony to you as a result of advertising in your columns. I wish I had earlier known this fact; as it is, I fear that I am too old to profit by it. I cannot altogether hold you blameless in the matter, for I think you must have somewhat skilfully concealed the advertisements for matrimonial aspirants for them to escape my eagle eyes. Is it, Sir, that "you did good by stealth, and blushed to know it fame?" You may judge by my handwriting that I am well advanced in years, nor have I ere now regretted the slow advance of time; but when I read of "the flowers of love" strewn along Mr. Williams's path, then indeed do I regret that I have already reached the stage, Sir, of yours obediently,

THE LEAN AND SLIPPED PANTALON.

I enclose my card as evidence of good faith.

Crosby Hall.

SIR,—The provisional committee at its meeting to-day carefully reviewed the whole situation, and noticed with satisfaction the widespread interest in the preservation of this famous building and the extent and various sources of support as shown by the large number of donors of very varying sums in all parts of the United Kingdom. But the committee have also had to face the fact that all the donations and promises up to to-day do not exceed 10,000*l.*; and having regard to the definite statement by the Chartered Bank that the scheme must be completed or abandoned by the 29th inst., the committee feel they ought to state the case quite frankly to the public as it now presents itself.

Shortly, it may be said that unless a guarantee of 60,000*l.* be obtained by the 28th inst. the committee cannot see their way to proceed with the scheme and the bank will be in a position to proceed, as they have definitely stated they will do, to demolish the building.

It is right the committee should add that it appears by the vast amount of correspondence they have received that the feeling of desire to secure the building for the nation as a centre in the City of London for a meeting-place of the ancient guilds and modern organisations having kindred aims is not less strong than the desire to preserve it on account of its architectural beauties and wealth of historical associations.

In these circumstances the committee can only appeal to your generosity to present this bare statement of facts to

the public. And the committee will venture still to maintain the hope that at this critical moment, when the preservation scheme trembles in the balance, some of substance and public spirit may be found to guarantee the amount—60,000*l.*—required by the 29th inst. It is that the scheme may ultimately be carried out by subscriptions from the public, although it cannot be expected that the whole amount will be forthcoming by the 29th inst. It should be noticed, further, that some larger guilds do not meet till next month and their contribution could not in any case be received in time.

The case, therefore, resolves itself into one of the probability of obtaining the requisite guarantee by the date. The individual members of the provisional committee contributed to the fund, and are anxiously desirous of securing the object which has such general public approval. They feel that it is due to themselves to state the day on which the scheme stands at this moment, in order that it may be possible to secure a guarantee while there is time.—Yours obediently,

T. VEZEY STRONG,

Chairman of the committee.

Guildhall, E.C.:

October 22.

**GENERAL.**

A Memorial Tablet has been erected on No. 28, Street, Golden Square, where William Blake resided for one time. The tablet is of encaustic ware and is of a rich blue colour.

Admiral Sir John Hopkins and Mr. H. L. Hansard completed the audit of the accounts of the Romsey pageant. The receipts for the three days' performances amounted to 4,200*l.*, and the expenditure left a balance of 575*l.* for the Abbey Restoration Fund. In addition 320*l.* was collected during the pageant.

The York Education Committee will approach the trustees of the York Exhibition Buildings and Art Gallery who promised the committee financial assistance for the purchase of a picture apart from those supported out of the rates, with a view to procuring from the trustees the balance in order to form as a nucleus towards the sum necessary to purchase at least one of a number of paintings by the late J. M. W. Turner, Moore, a famous seascape painter and a native of York, whose works which have been offered to the Corporation for sale are of great value relative of the artist.

The Newcastle-on-Tyne Corporation propose to build 72 single-room dwellings at a cost of 8,748*l.* At the meeting of the Government Board inquiry the acting town clerk was asked by the inspector as to the reason for proposing single-room dwellings, and in reply he quoted the returns showing a large number of single-room dwellings in the city. Mr. Holford, property surveyor, pointed out that the dwellings would be unique, as they would be fully furnished. They would cost about 100*l.* per dwelling, and rent chargeable would be 3*s.* 8*d.* The inspector expressed the opinion that the design was a very excellent one.

Mr. A. G. Heaton, architect for the new guildhall, has recommended to the Guildry Incorporation of Perth the reversion to the original plans in regard to certain details of the interior of the hall. This comprises two sculptured figures bearing a shield containing the city arms above the middle window and an ornamental bell-tower vent in the tower. The sculpture work would be carried out by one of the tradesmen in Edinburgh, and the effect of this and the tower would be to give the hall a much more important appearance than it otherwise would have. Mr. Heaton expressed strongly of opinion that on this ground alone the original plans should be adhered to. The extra cost will be 150*l.*

A Special Sub-Committee of the Glasgow Corporation will consider whether a portion of the surplus of the Glasgow International Exhibition, 1901, amounting to 5,000*l.* interest at May 31 last, to 41,441*l.* 12*s.* 1*d.*, could be applied by the Corporation in the payment to the parks department of 7,500*l.*, expended on sculpture work at the Glasgow Art Gallery in the Kelvingrove Park, over and above the 5,000*l.* included for that purpose in the original estimate of the cost of the buildings.

The First Part of the collection of work by the late John Finnie is to be sold by auction at the Waverley Galleries, Liverpool, on Wednesday, October 30. This will consist of the oil-paintings, a large number of which were included in the Memorial Exhibition at the Walker Art Gallery. The second portion, comprising the water-colour drawings and mezzotints, will be offered about a fortnight later.

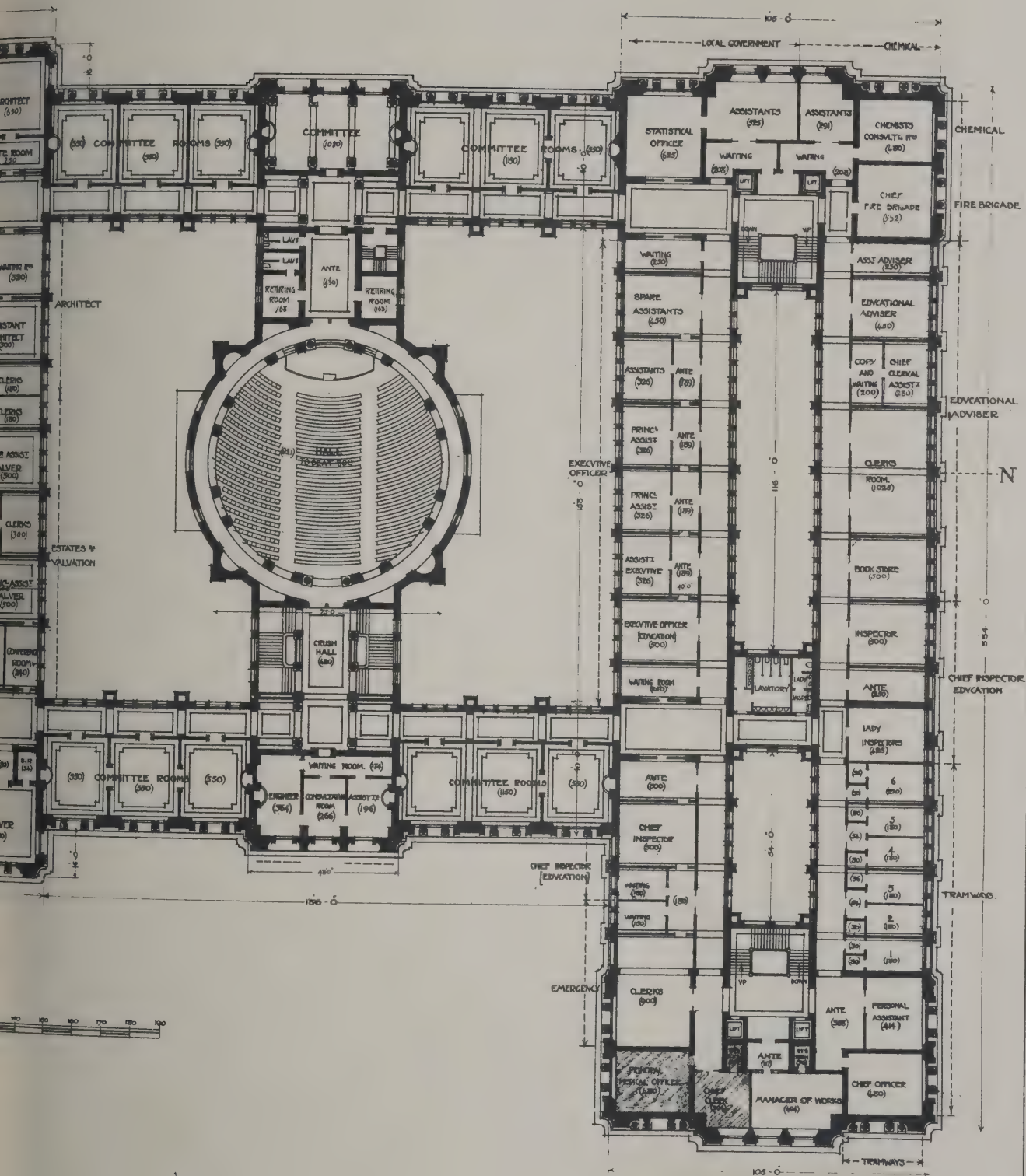














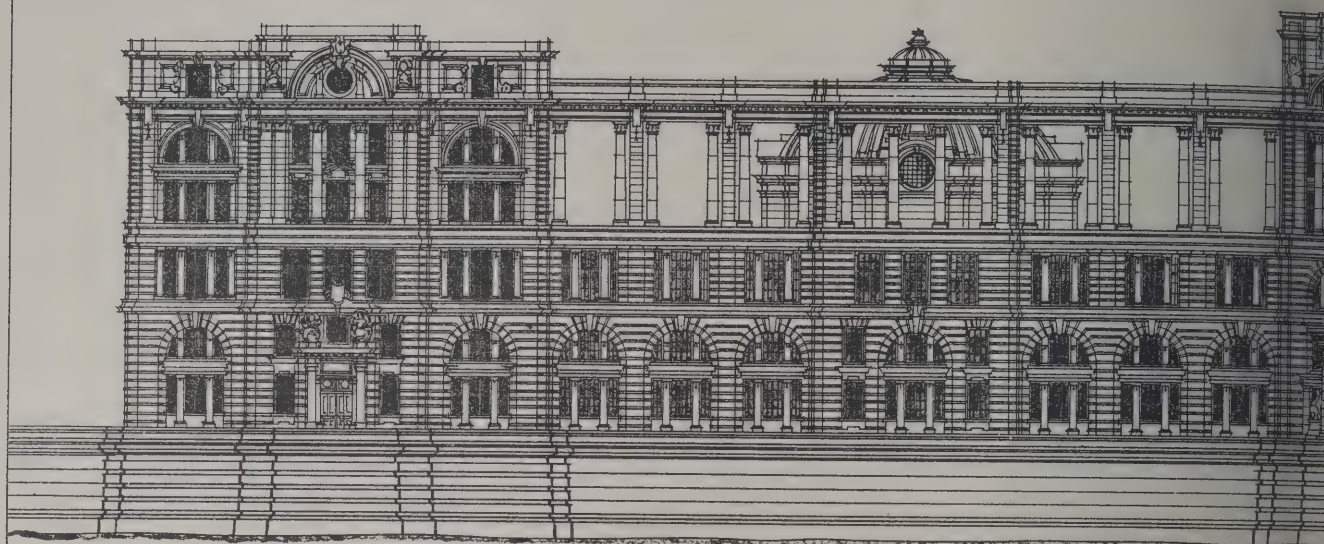




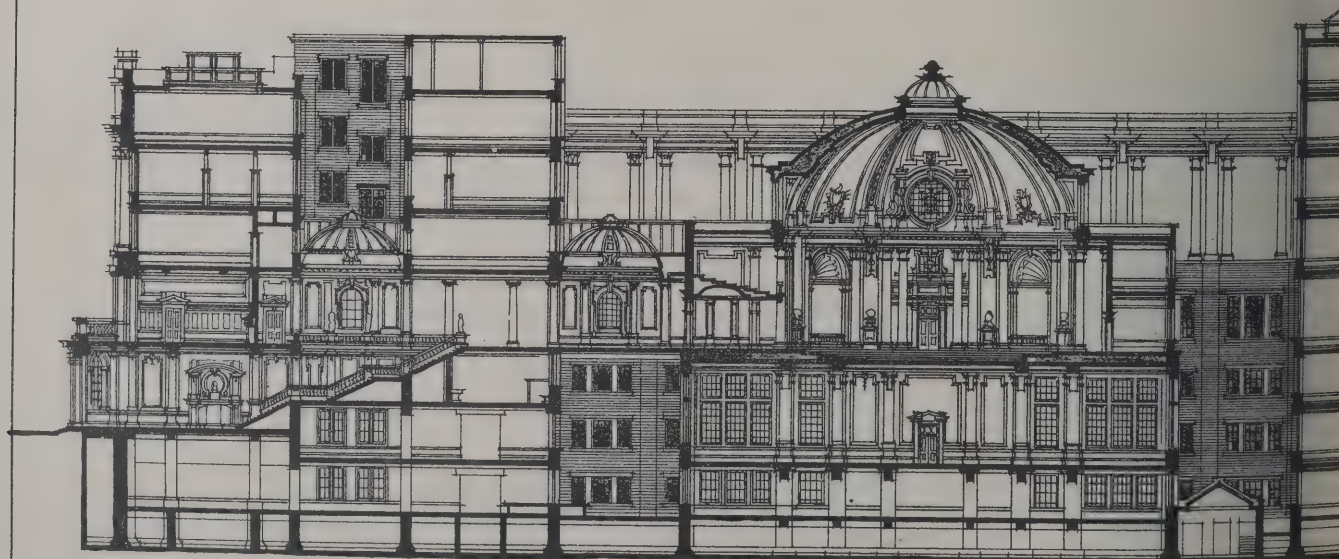
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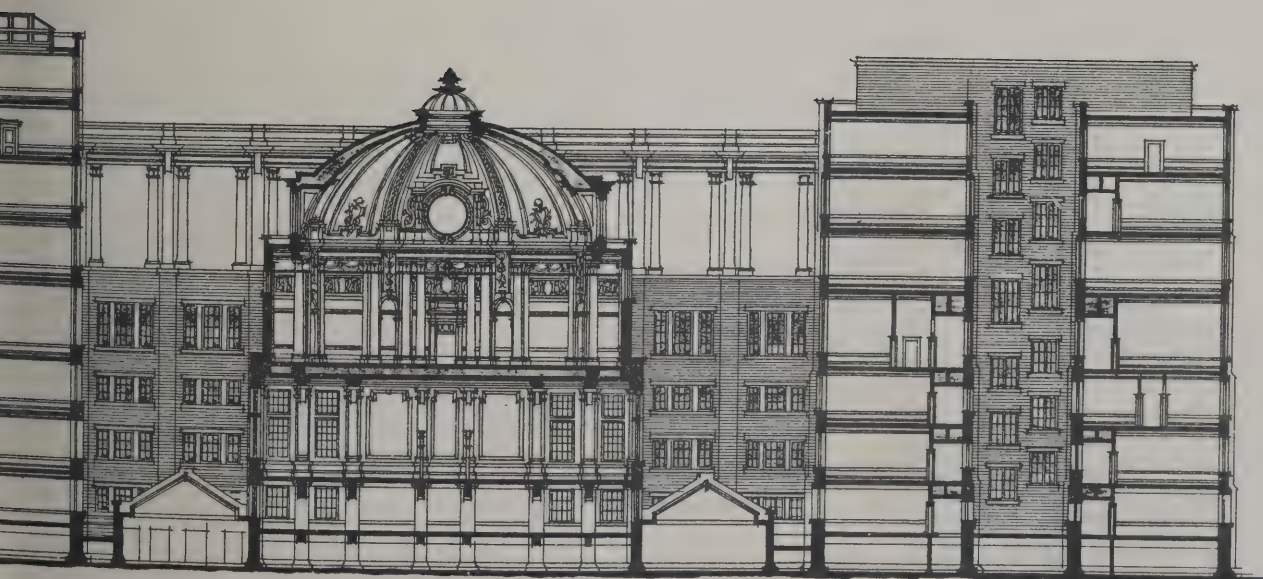
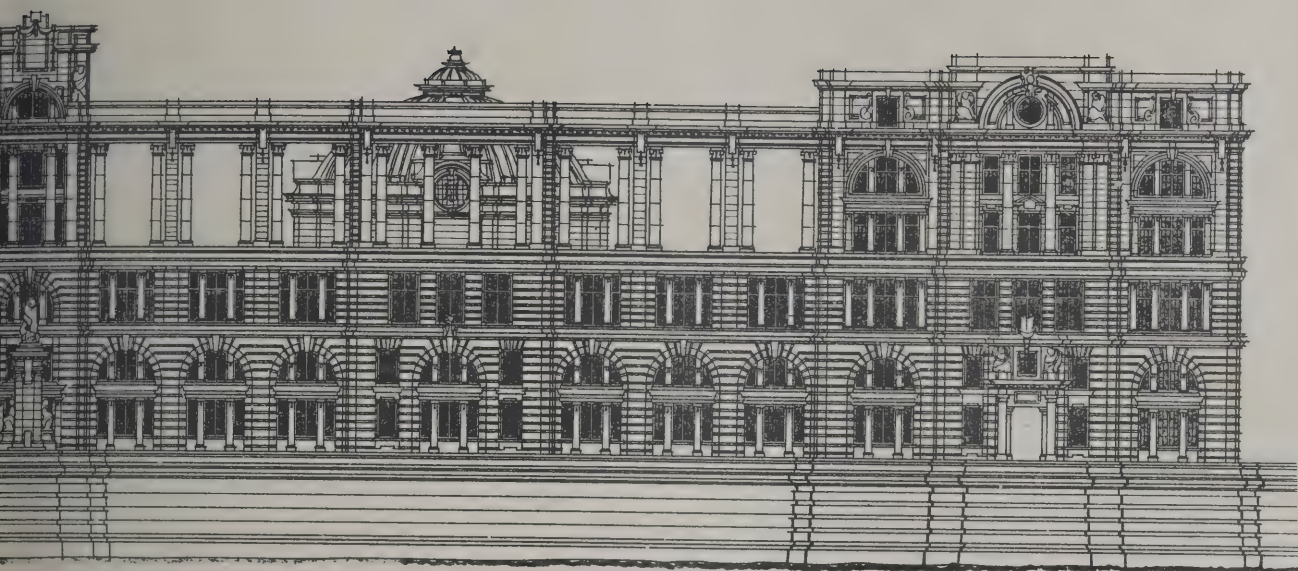


✧ ELEVATION TO THE RIVER ✧



LONGITUDINAL SECTION .















The Architect, Oct. 25<sup>th</sup> 1907.







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## GROSVENOR RESTAURANT, GLASGOW

GEORGE BELL, Architect.

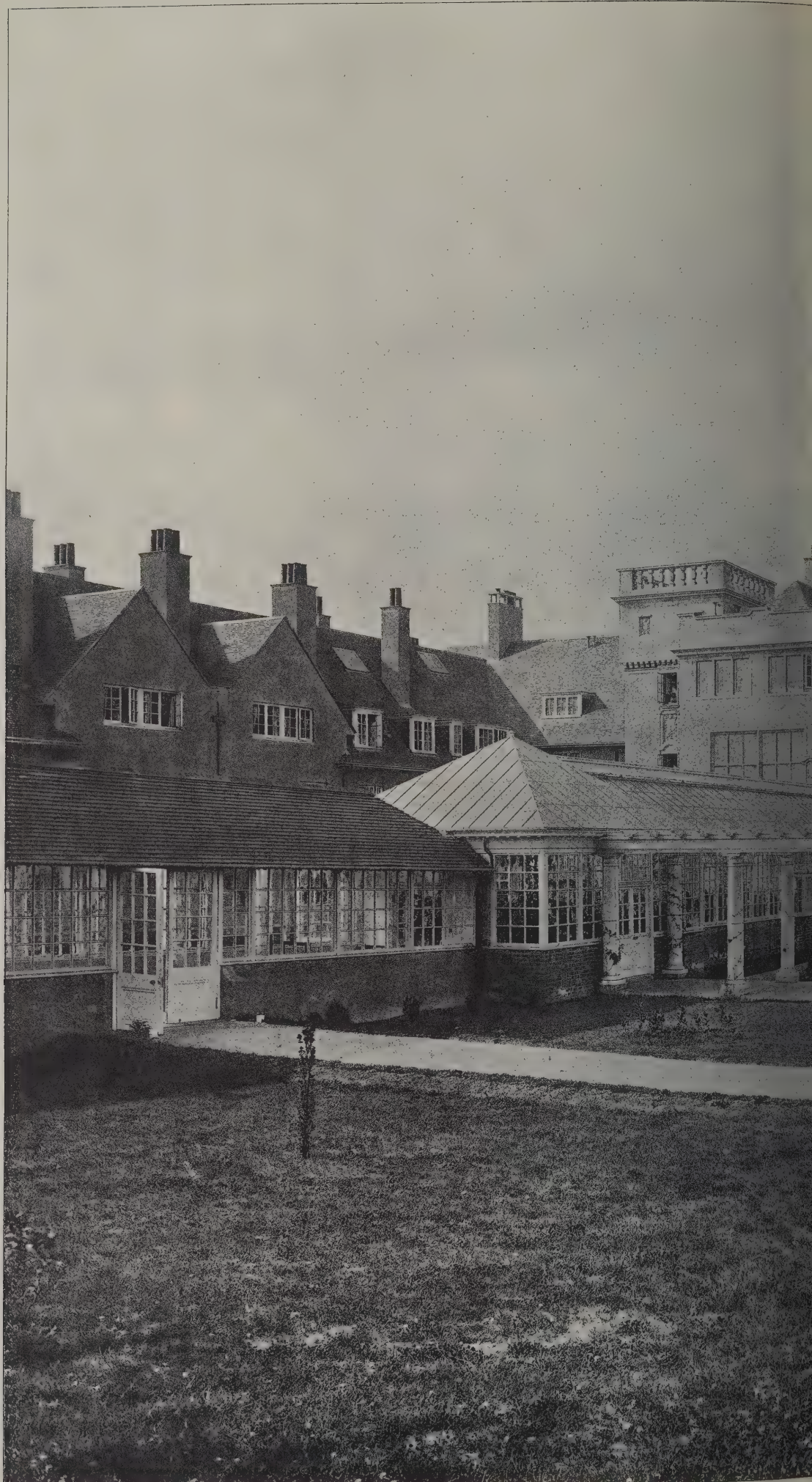












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# The Architect.

## THE WEEK.

was a discussion on Tuesday when the project to establish a Professorship of Engineering came before a Congregation of the University of Oxford. Professor MIERS, who represented the said it was not proposed to introduce workshop but only to give laboratory instruction. of the large engineering firms had promised ce. It also was to be anticipated that students' uld be large, for last year 6,000l. had been at Cambridge. Great professional subjects be recognised. Professor MIERS said he had in America how all the highly-paid posts in ing were held by Americans. It was to be hoped men would hereafter fill some of them, and the f such engineers should be considered a national he Rev. E. M. WALKER opposed the statute on nd that the studies were not in keeping with t of the university. Sir WILLIAM ANSON, M.P., ey could not supply full instruction in engineer- could also be said of the study of law and in the university. In the Chancellor's appeal rements of engineering came first, and if the y turned its back on this proposal they would lament a lost opportunity, but the vote would ignored the position it ought to occupy in g engineering study. On a division the statute sed by 152 votes to 20. Such a conclusion is e to Oxford and it is a recognition of the wants ime. It is true, mathematics, mechanics and science have been part of the Oxford curriculum. y were considered abstractedly, and it was eir practical applications were recognised.

University of Oxford will be certain of receiving ture efficient aid towards the school of engi- Professor L. F. VERNON HARCOURT, the g engineer, who died on September 14, has ed the greater part of his estate to his wife for after her death it is to go to the University of or the support of the school. He has also left University 1,000l. for the promotion of the of engineering science there, and also his ions and Proceedings of the Institution of Civil s and twenty volumes of the "Annales des t Chaussées," being his Telford premium in d a selection of his other engineering works to e basis of an engineering library. To the on of Civil Engineers the Professor bequeathed n memory of the many advantages he had rom its library and lectures, to found a yearly al (in the discretion of the Institution) lecture, remium or prize in connection with river, canal ime engineering, besides a selection of his ing works. To University College, London, in was formerly professor, he has left 200l. for a ize in civil engineering.

interesting case relating to the responsibility for carrying out extensive drainage works at a hydropathic establishment has been heard Mr. Justice WARRINGTON. It occupied several he defendant, Dr. FERGUSON, took a lease of ises for twenty-one years at a yearly rental He covenanted besides paying "all impositions oings" to keep in repair all inside sinks and The lessors undertook to pay for all work to drains except where the expense arose through ee's failing to properly clean them. After a e local authority ordered certain works to be . The lessee declined and they were carried he lessors at a cost of 616l. As the lessee

refused to pay the action was taken. It was maintained by the plaintiffs that the works fell within the "impositions and outgoings." Evidence was given about the state of the drains, and it was asserted an action was pending, which was brought by Dr. FERGUSON against the local authority. Mr. Justice WARRINGTON said the question he had to determine was whether the work done was the work specified in the sanitary notice, and for which the defendant was liable under the covenants of his lease. He was of opinion the work, though perhaps the most economical method of complying with the notice, and the one that a prudent owner would have adopted, was not work specified by the notice. There was no independent claim for damages, and the claim for the specific sum for work done (616l.) was hopeless. The plaintiffs therefore failed, and there must be judgment for the defendant with costs.

ONCE a year the five academies forming the French Institute hold an assembly in common, when a representative of each of them delivers an oration. On Friday last the Académie des Beaux-Arts deputed M. PAUL RICHER to speak the speech required. He selected as subject "Anatomy and the Plastic Arts." Two propositions were introduced, viz. that anatomy was useful and even necessary when applied to a living subject, but that it was dangerous when the subject was a corpse. One at least of the propositions will seem startling, for it is doubtful whether any man or woman would submit to dissection for the benefit of students of art. What M. PAUL RICHER contemplated was the confining of anatomy to external forms. He was able to adduce the authority of INGRES, who, although a marvellous draughtsman, looked on anatomy as horrible. But INGRES considered that the painter and sculptor should be well acquainted with the skeleton, which resembles the steel framework of modern building construction. He considered the muscles of less importance, and owned that, although he regarded them as friends, he did not know one of them by name. There is little doubt that some artists, when they gain acquaintance with anatomy, are too apt to make a display of it. At a time when realism is in favour anatomical display is likely to be approved, although impressionism is a check on it. Probably it was on that account M. PAUL RICHER would restrict the artist to external forms, regardless of the necessity of knowing something about the inner forces which produce motion and action.

THE Edinburgh Dean of Guild, after his re-election on Monday, said that this year's returns showed a decline from those of last year in the amount to be expended on buildings. He considered that a special Building Act was required for the city. One object of it should be the adoption of an uniform plan or system which, without unduly hampering owners of land or detracting from letting value, would insure that, as building went on, it would be on such lines as would conduce to the beauty and dignity of a well-ordered city, and to the health, comfort and convenience of the people. At the present time in laying out ground for building within the city each proprietor proceeded independently and laid out his ground as it seemed best to himself, and often without a proper relation to existing roadways and adjoining properties. It was possible for a comprehensive plan to be prepared by which, when a proposal was submitted, the application could be dealt with in a more judicial way than was in operation at the present time, and that notice should be served upon the adjoining proprietors whose interests might be affected. A similar desire has been expressed by the authorities of several English towns, but as the change would affect many vested interests delay is inevitable. Sooner or later the initiative will have to be taken by the Local Government Board.



## PUBLIC WORKS IN IRELAND.

ANYONE who is accustomed to the study of Blue Books will be surprised at the appearance of the report of the Commissioners of Public Works in Ireland. It might be supposed from the amount of space devoted to antiquities that old work rather than new received their attention. There is a catalogue of inscribed slabs, including Celtic crosses, at Clonmacnois, which is illustrated by over 200 diagrams. There are also plans and illustrations of the Seven Churches belonging to that religious settlement. Although in past years attention has been given to remains, such an elaborate description as we have this year is, we believe, without precedent.

The care of national monuments is, however, but a part of the responsibilities of the Commissioners. They have other charges on sea as well as on land, for sea fisheries and marine works are controlled by them. During the year they have also lent money to the extent of 487,855*l.*, and about 10,000,000*l.* of arrears are still outstanding. The works are, in fact, so varied, it is difficult in a short article to decide which are most deserving of selection.

What are known as "state residences" in Ireland are not of a grandiose character. It does not sound well to hear that the overseer's cottage at the residence of the Lord-Lieutenant has been rendered more sanitary, and that owing to their very decayed state the walls at one part had to be rebuilt. The Under-Secretary, as a resident official, has to show hospitality, and, as there has been a deficiency of accommodation, "the servants' bedrooms on the first floor of the laundry building have been altered and improved so as to render them fit for occupation by visitors." Various other official buildings have also been improved. Some of the old floors in the Chief Secretary's office which showed signs of failure were strengthened with steel girders. One of the old nobles' houses in Dublin—Aldborough House—is used as postal and telegraph stores. The stone cornice was so decayed it had to be removed, and a concrete cornice of less projection substituted. The national schools and teachers' residences throughout the country used to be controlled by the Commissioners. But apparently grants for repairing them have to be restricted, although their condition is discreditable to the country. Only four applications amounting to 490*l.* were received during the year, while forty-three applications for loans were made in respect of teachers' residences. One reason for the apparent illiberality is found in the preparation of new type plans which may lead to many improvements. The applications for lunatic asylum buildings totalled 21,452*l.* Under the Public Health Act applications for 103,847*l.* were received, of which nearly three-fourths related to waterworks. A sum of 57,350*l.* was lent under the Labourers' Dwellings in Towns Act. That sum is, of course, in addition to loans for labourers' cottages in country districts.

The light railway system does not appear to be successful in Ireland. In most cases the greater part of the principal remains due, and there are also arrears of interest. Yet with this experience it is still common to hear the construction of light railways advocated as an indispensable aid to prosperity. Arterial drainage is another necessity. The most recent Commission on the subject have recommended that a central drainage department should be constituted, with conservancy boards to have control of the main river basins and drainage committees to deal with the minor streams. As the works necessary, especially with main outfalls, will exceed the benefit derived by the landowners and their tenants, it is advised that the excess should be borne by the Government. Already immense sums have been expended during the last sixty years. But it cannot be said that the grants have been repaid or that the land is less liable to flooding. The difficulty of the problem is suggested by a paragraph relating to the Bann drainage. In 1904 Mr. Dick, the Commissioners'

engineer, estimated that 150,000*l.* would be needed to produce any satisfactory result. Last year Sir ANDER BINNIE investigated the problem, and came to the conclusion that if the navigation of the river was abolished the diminution of floods would not cost more than 76,000*l.*, or one-half the sum named by Mr. Dick. The latter dissents from Sir A. BINNIE's conclusion and maintains that the results desired are not attainable by the methods proposed. The rival reports are now under the consideration of the Government, and will be taken for granted another engineering investigation will follow.

The Public Works Commissioners have 214 castles, national monuments under their protection, and might have had fourteen more, for they were not counted. They have also 214 castles, giants' graves and raths to that number. The Land Commissioners, but they were of such a character as not to warrant guardianship. It is not a branch of the service, for the whole of the outlay for the year amounted to no more than 593*l.* 9*s.* 9*d.*, which sum 353*l.* 18*s.* 7*d.* was expended on the outlay and travelling expenses of the inspector and works, caretaker's wages, &c. The largest sum expended on any one building was 34*l.* 5*s.* on Killevy Church. For that sum the walls have been pointed and weathered; all the trees and shrubs to injure the structure have been removed. The outlay on St. Audeon's Church was 1*s.* 3*d.*, and on the tower and church 1*s.* 8*d.*, and 2*s.* on Clones tower and church. Anti-restorers can therefore be comforted that the outlay would be insufficient to perpetrate no

Some of the work which has been secured on economical terms is worth notice. A church at Drogheda, co. Meath, is supposed to be the first stone church in Ireland. What remains of it is now in good condition. At Bective Abbey all the ivy which was ending the structure has been removed and the roots pulled up, also the whole of the walls have been carefully pointed and weathered, and the arches and vaulting of the lower chambers have been secured and made water-tight. Mellifont Abbey, co. Louth, was founded in 1142, was utilised to a great extent in the last century to build a large corn mill. According to the report, "the remains of the abbey, old gateway and gateway have been thoroughly overhauled and put into a proper state of preservation. The stone carvings and mouldings stored in the house were all carefully taken down, replaced and properly secured; also a guard rail was fixed to serve these stones against injury. Excavations in the cloister garth brought to light the foundations of other buildings and the correct position of the arcading." A plan of Mellifont Abbey appeared in the report for 1903.

The outlay on Clonmacnois during the year was down at 20*l.* But in preceding years there was a large expenditure. In the middle of the sixth century a monastery was founded there, and the site was selected, for it is about the centre of Ireland. Owing to its importance it suffered from invasions, and it appears that in 845 TURGEIN, Norse king, enthroned his wife OTO on the altar of the chief church at Clonmacnois. The Goddess of the altar of Notre-Dame, Paris, was there for 900 years in Ireland. One of the reasons for the invasion of Ireland by the Danes was to revenge the wrongs of O'Rourke, King of Brittany, whose wife DERVORGILLA eloped with MURCHAD, king of Leinster. Like another Goddess she entered the nunnery at Clonmacnois. There still remain two round towers, three stone crosses, eight churches, a castle and twelve wells. The attractiveness of Clonmacnois as a resting-place is suggested by some two hundred tombstones. The whole group of buildings was placed in the Board of Works in 1880, and since then necessary but small works of conservation have been carried out. The collection of ornaments



tions will be interesting to all students of history, for they suggest that the character of the ornamentation and lettering must have been determined, as there is an avoidance of the freaks and varieties which bring ridicule on many modern varieties. Celtic interlacements are rather rare, and though the key or fret pattern is common, some of the examples are more primitive than any found elsewhere. It is to be regretted that crosses which in 1822 were perfect are now mere fragments. In one case the name of the carver or mason, for the inscription appeals for "a prayer for THURCAN, by whom the cross was made." The report would be interesting if it contained nothing more than the elaborate description of Clonmacnois, by which it becomes a novelty in official publications.

### GLIMPSES OF ARTISTS.\*

AMONG the poets engaged in Government offices during recent times WILLIAM ALLINGHAM was one of the most distinguished. He was a native of Ballyvaughan, in the north of Ireland, and he has written pleasing verses about the town which is known for its salmon-fishers. He became sub-controller of the Excise, and in his thirty-eighth year he was transferred to the London establishment. Some years before, however, resigned in the hope that he would obtain a name, as well as an income, in literature. He has written some simple but charming poems in *old Words*, and his poetry had been praised by judges. But some of his friends, including Tennyson and THACKERAY, advised him to return to a profession in which he was assured of a regular salary and pension. An opportunity was offered him to resign his appointment in London for one at Lymington, Hampshire. There he became acquainted with John Ruskin. The offer of the sub-editorship of *Fraser's Magazine*, under J. A. FROUDE, induced him to return to London. He grew to be intimate with many artists and writers, especially with those of the pre-Raphaelite school, and a few years afterwards he was married to Helen Paterson, the water-colour artist.

ALLINGHAM kept a diary which does not appear to have been intended for publication, but rather for use by himself, and as a basis of an autobiography; but the only part which he amplified was relating to his early life in Ireland. From his diary, and his prepossessing manner he could hardly be expected to make a great many acquaintances. Their names are introduced on every page, and we sometimes get reports of their remarks, but it is difficult to resist the impression that a work which might have been more interesting than any of the diaries published during the last century was left in a fragmentary state.

There is no difficulty in realising from his poems that ALLINGHAM was a lover of form and colour. We learn from his diary that he was always able to appreciate the most characteristic in an artist. MILLAIS and his illustrations for some of his poems. But he does not appear to have often met the painter. We learn, however, that TENNYSON pointed out to MILLAIS the mistake in mixing daffodils with wild roses in his poem. MILLAIS said he painted the roses from nature, but some time afterwards he wanted to introduce yellow flowers, and he sent to Covent Garden. As he had daffodils he painted them. DANTE G. ROSSETTI is frequently mentioned in the pages, for ALLINGHAM was as often as possible. After an absence he wrote "My old regard for D. G. R. stirs within me, and would be as warm as ever if he would let it." ALLINGHAM said of ROSSETTI:—"It is plain that the natural, the naïve are merely insipid in his poetry; he must have strong savours in art, in literature, in life. Colours, forms, sensations are required

to be pungent, mordant. In poetry he desires spasmodic passion and emphatic, partly archaic, diction. . . . In painting, the Early Italians, with their quaintness and strong rich colouring, have magnetised him. In sculpture he only cares for picturesque and grotesque qualities, and of architecture as such takes, I think, no notice at all."

RUSKIN was always ready to admit his indebtedness to CARLYLE. It is satisfactory to find that CARLYLE in turn admired RUSKIN. He once remarked:—"A celestial brightness in him. His description of the wings of birds the most beautiful thing of the kind that can possibly be. His morality, too, is the highest and purest. And with all this a wonderfully folly at times. The St. George's Company is utterly absurd. I thought it a joke at first." WILLIAM MORRIS was an early acquaintance, and the description of him in few words is not unfair, "brusque, careless, with big shoon;" or another page, "pleasant, learned about wines and distilling." BURNE-JONES appears to have been the closest of all his friends among the artists. Of the only architect who belonged to the set, PHILIP WEBB, we have occasional mention.

THOMAS WOOLNER, the sculptor, was akin to the pre-Raphaelites. As a brother poet, ALLINGHAM could meet him without any jealousy. He also lived occasionally in the Isle of Wight, and was acquainted with TENNYSON. Poor WHISTLER does not fare well in the little that is said of him in the Journal; and it is to be feared posterity will form a strange estimate of him. When we first encounter him he talks only about his own pictures. We learn, too, that CARLYLE spoke of WHISTLER as the most absurd creature on the face of the earth. But if the dyspeptic sage could be taken seriously, there were a great many able men who occupied the same position.

The most prominent figure in the diary is THOMAS CARLYLE. He was so communicative, there is no doubt he expected ALLINGHAM would become his Boswell, and it is to be regretted for CARLYLE's sake that a different arrangement was made. It is unnecessary to say how contemptuous was CARLYLE to everything which was called art. He was never, he said, at an exhibition of the Royal Academy. But he could not help admiring one architectural work—St. Paul's Cathedral. He visited it on a Sunday evening, and when he was seated he observed, "Ah, this is a fine place." It was the finest cathedral he had seen, and the dome was a "bonny thing." He recalled his first view of the building when he was a guest of EDWARD IRVING. It was not unusual with CARLYLE in his later years to confess to some of his oversights, and as a resident in Chelsea he seemed to regret his want of appreciation of WREN's military hospital. "I lived for many years," he said, "beside that hospital of his before I took much notice of it, and then I began to perceive that it was a building of most thorough adaptation for its purpose—well conserved, well built in every particular." He agreed with ALLINGHAM that it was odd there should be no street in London bearing the name of the great architect. CARLYLE afterwards visited St. Paul's five or six times.

TENNYSON also looms largely in the diary. Like CARLYLE, he cared little for any form of art which was not literary. On one occasion TENNYSON discussed the difference between beauty and picturesqueness. His theory was, "take a trim, snug, unbeautiful house, half ruin it, and you make it picturesque, same as ragged clothes," &c. ALLINGHAM maintained the connection between absolute beauty and regularity. The old English writers about the picturesque generally adopted a view similar to TENNYSON's, but it cannot be said that a broken and defaced ancient statue appeals to us equally with the ruins of an abbey.

There is an American word "hurrygraphs" which could be applied to the entries in the diary of WILLIAM ALLINGHAM. But we should remember that the recorder was a man of genius, and although he may use only a



few words they are more suggestive than many elaborate descriptions. It is not difficult for an intelligent reader who was acquainted with English literature on art during the last half of the nineteenth century to realise fully the indications which ALLINGHAM gives. The pages often throw an unexpected light on important events, and the volume will be found as pleasant reading as a modern novel. Among the illustrations are portraits of CARLYLE and TENNYSON by Mrs. ALLINGHAM.

#### ROAD MAKING AND MAINTENANCE.\*

**D**URING the seven years which have elapsed since we noticed the first edition of Mr. AITKEN'S book the subject of roads has received greater attention from the public in general than at any previous time. The increased use of motors has become a test of the durability of a road, and may be said to supply an intensity of force which was never anticipated by road makers in any former age and for which, accordingly, adequate precautions were not taken. There is no doubt motor-ing is an unfair test of an ordinary road, for it is more severe than the traffic at collieries, for which provision had to be made by laying down rails without any anticipation that they were to develop into the railway system which is now almost universally employed. If the Romans had to provide for anything resembling motor traffic, they would undoubtedly have introduced a more elaborate system of construction.

The effect of the motor traffic is not merely a disturbance of the road surface, but the wear and tear has produced such an increase of noise and dust as to amount almost to a plague, especially in cities and large towns. The vast number of houses which remain unoccupied in streets which are selected by motorists is evidence of one kind of inconvenience which arises from the unsuitability of most systems of construction to withstand the new force. There is no question that means could be adopted to increase the power of resistance in streets and roads. But the expense would probably exceed in amount any of the assessments which are now levied. On the other hand, there is at present no law by which motorists could be forced to contribute towards the expenses of which they are the cause, and it is unfair to impose obligations on a large number of people in order that a few might be benefited.

Mr. AITKEN is surveyor to the County Council of Fife, and as such he is compelled to study the new problem. When we remember that cars with an axle-weight of 12 tons are allowed, it is not difficult to imagine what must be the effect of such a weight upon ordinary roads. The days are gone when General MORIN could announce as a result of his experiments that at a walking pace on all roads the resistance is practically the same for all vehicles. However slowly some modern motor vehicles might pass, the effect on the road surface would not be insignificant. Mr. AITKEN was a member of the committee of the British Association on the "Resistance of Road Vehicles to Traction," and he gives in his appendix the most important parts of the report. One of the witnesses said that if the limit of weight per wheel was increased sufficiently to overcome the frictional cohesion of the molecules of the road, an entirely new set of conditions arose and the road resistance would be out of proportion to the increased weight on the wheels. This would seem to indicate that at present it is not feasible to determine the relations between the weight and speed of vehicles and the injury to the road. For with a variety of modes of construction it is impossible to foresee how far each will bear the strain upon them. A modern road to some extent resembles a structure, but

we cannot determine all the conditions with the exactitude as in the case of an arch of masonry brickwork, or a truss of steel or of timber. In such examples large allowance should be made for contingencies, but in the case of roads expenditure is always limited.

It is generally admitted that granite setts or concrete have an endurance of about twenty years. Endurance is not the only quality that is desired. According to Mr. AITKEN:—

Many of the hardest and most durable stones have been discontinued in London and Liverpool, owing to the effect of these wearing smooth and becoming slippery, even in normal conditions of traffic and weather. This is the case with the old blue Penmaenmawr stone, however, is not now much used for setts, but is primarily manufactured into kerbs and channels. On the other hand, Aberdeen granite setts are preferred in London, Mount Sorrel and Guernsey granite, although the latter is better in some respects, because the surface remains smoother even after considerable wear. It is also much less expensive to cleanse than these and most other kinds of setts used for paving. Whinstone setts are greatly used in provincial towns where the traffic is not excessive, but pavement made with this material, although it wears faster than granite, invariably maintains a rough surface and consequently does not become slippery like the granite already mentioned. These pavements are being gradually superseded in London by wood paving.

Mr. AITKEN recognises the advantages of concrete, or small sett pavements in which stones of 3½ inches to 4 inches and from 4 inches to 4½ inches in depth are laid on Portland cement concrete, or a filling of cement mortar. But they can also be used for macadamised roads. The system has been adopted in Lancashire; it is, however, too early to pronounce a definite opinion in regard to its adaptability to the requirements of this country, or as to the advantages claimed for it. Wood pavements have many advantages for residents in towns; but like macadam in connection with pavements, it is difficult to determine what kind of wood is most suitable. Some is said by some to wear into holes in which water collects and which leads to decay; while other authorities declare soft wood wears more evenly than hard wood. The West Australian woods are much used. Mr. AITKEN considers that the dowelling system gives a union or bond of the greatest strength and tenacity, the blocks being firmly in position at every point. Last year it was asserted that the creosoting of deal blocks had a very injurious effect on the beds of flowers in Parliament Square, Westminster, but the evidence was not conclusive. Another preserving system is known as "Powellising," which is claimed to add to the durability, is inodorous, easily and quickly applied, and the result is about the same as creosoting.

The treatment consists in immersing the blocks in a cold antiseptic saccharine solution in open tanks, the temperature being gradually raised to boiling-point and maintained at this heat for a short period. The moisture during the boiling escape in the form of steam, and in the subsequent cooling of the solution, which occupies some of the wood absorbs the saccharine matter and is then permeated with it. The blocks are then removed and placed in a drying chamber for a few hours, after which they are ready for immediate use. The application of pressure and vacuum, which weakens the fibres of the wood and which is inseparable from the creosoting process of treatment, is not employed in this process.

A long description is given of the viagraph, by which a section of a road can be produced which will be sized vertically, and is therefore well adapted for comparison and tests. It might be compared to a micrometer. It was invented by Mr. J. BROWN, F.R.S., an intelligent man or boy can use it. Mr. AITKEN states that in his practice two or more continuous viagraphs are taken parallel to each other for a distance of

\* *Road Making and Maintenance*. A practical treatise for Engineers, Surveyors and others, with an historical sketch of ancient and modern practice. By Thomas Aitken, M.I.C.E. Second Edition. (London: Charles Griffin & Co., Ltd.)



in that way a fair average is arrived at, and if the  
 re carried out periodically the comparative wear  
 enness during a given period is indicated. A  
 of tables are given which suggest the applicability  
 viagraph to pavement of asphalte, wood, setts  
 acadamised road. The inventor believes that  
 e aid of the viagraph contracts for road making  
 e made more definite by the insertion of a clause  
 effect that, when tested by the viagraph, "the sur-  
 ist not show any rut or depression of more than  
 s, nor unevenness of more than—feet per mile."  
 prevention of dust has engaged the attention of  
 hor during several years. He has invented a  
 ayer by which tar in a cold state can be applied  
 rm of a cold mist or spray under considerable  
 e. The depth of penetration depends on the  
 on of the surface and the material employed  
 epairing the road; generally it is 1 inch, but  
 up to 3 inches. We are told that the cost of  
 g the tar by this method at 2d. a gallon and  
 g team labour would be 11l. on one mile of  
 feet in width. On a road 24 feet wide the cost  
 e 15l., or about a farthing a square yard. Mr.  
 does not advise the use of boiling tar to a cold  
 urface. By his invention the application of tar  
 s more economical than hitherto, and it has been  
 d the first prize in the competition.  
 new edition of "Road Making and Main-  
 " represents the conclusions which have been  
 d from the experiments of English and Scottish  
 urveyors as well as of several foreign investi-  
 The information is conveyed in a clear manner,  
 strations are numerous, and the book may there-  
 recommended to those who have charge of roads  
 as to contractors.

## PRINCIPLES OF ARCHITECTURAL DESIGN.\*

By the Late G. F. BODLEY, A.R.A.  
 of those principles and characteristics of architec-  
 tural design which I would bring before you to-night  
 refinement, concentration, true use of detail, sym-  
 eonomy of material, contrast, avoidance of extra-  
 of manner, suitability, harmony, colour, work  
 on that of the past, consonance with nature, lastly

### *Refinement in Design.*

if there is one principle in the practice of archi-  
 in the present day which is chiefly wanting, it is  
 of refinement of design. What is the history of  
 tural art but the history of refinement in the art?  
 as the one principle that led on from century to  
 from style to style, but that of a true artistic  
 —the desire for refinement? Nature, our great  
 ever stops in her refinement. We cannot gauge  
 uite delicacy of nature, nor her redundancy of life  
 variety. Now it is in refinement for architectural  
 at this expression of life is chiefly shown. Accord-  
 e material and means at command, there should be  
 ful expression of artistic power to bring out to the  
 the expression of life. This expression is a great  
 e of all art, and one to which limits can hardly be  
 l. It should animate all your work. Every detail,  
 as in the carving of natural ornament, however  
 onalised, but in architectural mouldings and the  
 ould express this, which is the highest gift of  
 life. You see it in all good architectural work, in  
 nching vault, and the graceful clustered column  
 hich it springs; in the steady, sturdy, but thrusting  
 ; in the varied modelling of carved ornament, or  
 the mouldings of a cornice or of a string-course.  
 er in architectural work is endowed with the ex-  
 of death is bad art. Good art, on the contrary,  
 mbued with the expression of life.

### *Concentration of Ornament.*

her principle is that of concentration of ornament,  
 ly for our larger buildings. It is one too much  
 d in modern architectural works. For the enjoy-  
 richness and beauty of ornament there should be  
 designed concentration of it. The eye wearies of  
 mind fails to be interested with, a monotony of

richness. Design your building in good proportions—that  
 is, with the proportion that has an expression suiting the  
 character you wish to give your work. Then enrich the  
 chief and most important parts with carefully-designed  
 ornament, rather than sprinkle the whole with it. Here, of  
 course, the scale of the building dictates the character, and  
 it is no fault for a small one to be enriched all over; it is,  
 as it were, a detail itself. The surrounding buildings  
 may give the necessary effect of contrast, but for large and  
 monumental works you will find this concentration of orna-  
 ment a sound and judicious principle. It is one of the  
 characteristics of the best old buildings.

### *True Use of Detail.*

Another principle is that of the true use of detail. Now  
 the use of detail is not so much in order to show variety, or  
 beauty of design, but that it may enhance the expression,  
 whatever that may designedly be, that is to be given to the  
 whole building. It is surprising how the use of detail,  
 skilfully dealt with, may add scale to a building and enhance  
 its general effect. It is a great but manifest error to sup-  
 pose that by boldness of detail you make your buildings  
 look large. The reverse is eminently the case. This is  
 obvious. Nevertheless, much modern Gothic work, and not  
 work in that style alone, has been ruined in effect by  
 largeness, if not coarseness, of detail. When your mould-  
 ings are large their curves should be especially delicate and  
 subdued. The delicacy of the shadows prevents the effect  
 of any coarseness. Not that it is only detail which, care-  
 fully used, gives scale to a building. The multiplication of  
 parts is an arrangement of much use for this purpose. You  
 know how skilfully this was done in Mediæval and in  
 Renaissance buildings. The study of the best designed  
 ancient works will make the intention very apparent. It is  
 a point, again, that you can work out for yourselves in  
 studying such buildings. Compare, for example, Milan  
 Cathedral with our Westminster Abbey, or with York  
 Minster or other great Gothic churches. To give scale by  
 breaking up a wall into stages, as by arcades and the like,  
 is of frequent occurrence, and is of much effect.

### *Balance in Design.*

Another principle on which I would touch is that of  
 symmetry or balance in design. It is one for the most part  
 applicable and of chief use for large buildings and those of  
 monumental character; nevertheless, a house of moderate  
 dimensions, planned on a symmetrical arrangement, may  
 have a repose and a dignity fitting many sites. Our large  
 Elizabethan houses owe much of their effect externally to  
 this arrangement. It is not a Gothic idea; nevertheless,  
 even for this style, a forced irregularity is always to be  
 avoided. There is no plan for a large house, standing by  
 itself, more dignified and quiet in effect than one with three  
 sides of a quadrangle—the entrance, with its high porch,  
 marking the centre, and bearing, it may be, an enriched  
 panel with shield and other sculptured ornament. The  
 two projecting wings may be of more or less projection, as  
 circumstances dictate. In these symmetrical designs occa-  
 sional variation from exact balance may well be brought  
 in, as in the somewhat varied positions or sizes of windows  
 and the like. The general balance may be kept, but, like  
 an unexpected note in music, the variation in no way  
 destroys the general effect of harmony. Symmetry of  
 design denotes care and pains on the part of the designer.  
 It is a courteous manner and has much to recommend it.  
 Certainly it is a principle founded on nature. It was in  
 constant use in old days.

### *Economy in the Use of Material.*

Another point is that of a nice economy in the use of  
 material. It is again another point of refinement. The  
 almost brutal strength and ponderous use of material on  
 the Egyptian work, especially as in the Pyramids, has an  
 unpleasant sentiment. Contrast this with the great Gothic  
 buildings in which (with no economy of thought or of skill),  
 through delicate ribs of curved or straight stone, the weight  
 of the hanging vault is held, as if by magic, and passed  
 down into the ground—all with the nicest economy and  
 without any undue waste. Each member does its work. It  
 is Christian liberty and carefulness contrasted with Egyptian  
 slavery and its waste of power. Roman work had some of  
 this Egyptian-like waste. Engineers make their nice calcu-  
 lations of less and more, and tell us this or that "will stand."  
 But good architecture is not only "built to stand"—it is  
 built to last from generation to generation. It is no waste  
 to build in such a manner that the eye and the mind are  
 satisfied that centuries may see the building as we see it  
 now: that if but properly tended, and not cruelly dealt with



by the more ruthless hand of man, the gentle, slow, natural decay of time will leave the inheritance well nigh untouched. Such strength, combined with a nice economy, should be our aim in designing buildings.

#### *Contrast.*

Another principle is that of well-contrasted work. In all the best architecture you will find noble simplicity of design, due breadth of surface, contrasted with delicate detail. Neither has its full value without the other. How well the delicate Gothic traceries and niche work, and the lines of the richly carved cornices, contrast with the broad surfaces of the massive buttresses and the smooth ashlar of the walls. It is thus in nature you may see the delicate foliage and the fragile flower contrasting with the buttress-like rocks, smoothed by the hand of time. Some of the best effects of Gothic work are obtained by the use of thick walls and small detail, as in windows where the broad splay is finished by a slender shaft, giving a fine line of light and a delicate shadow, contrasting with the uniform light on the wide breadth of surface of the splayed jamb. Here, again, you can work out this principle for yourself in many ways, both as shown in examples of the past and in designing new buildings or their details. In many churches in the south of France we see the capitals throughout, both large and small, elaborately and richly carved, while the rest of the building is of the sternest simplicity. The capitals form, as it were, rich bands, contrasting with the plain walls and piers. Again you will find that the whole practice of mouldings is derived from the sense of contrasted light and shade. Vigorous, at times even harsh, as in some early Gothic work, the system of mouldings became gradually refined to the most gentle gradations of light and shade, the simple roll moulding eventually turning into what is termed the "wave moulding" with the most delicate effect of light and shade on its surface. Or, again, in carved work of the great times the delicate lines of light on the ridges and the edges of the ornament, the half shadows, tender and slight, on which the ornament seems, as it were, to rest, then the sudden deepening and darkening of the background, to throw out in strongest contrast the chief points of the ornament into greater light, to rule over the rest. Well considered and ably executed, contrast is seen everywhere, full of tender grace or decided vigour. The carver has delighted in the effect nature affords everywhere, where there is light to see its subtlety. It is our loss that here, in England, our dark days are so frequent. The want of light has, no doubt, a depressing effect on art. Let us the more carefully enlighten our mind's eye with the thoughtful contemplation of the works of other and sunnier countries and of brighter days of art.

#### *Exaggeration of Design.*

Another suggestion that I would make is a negative one—the avoidance of extravagance of design and manner. For example, avoid extravagant proportions. One has seen too much of this of late in Gothic work. A shaft only two or three times its diameter in height is surmounted by a capital out of all proportion to that shaft. It is an ugly affectation and in no way commendable. It is an exaggeration that becomes a caricature of good art. There is one kind of strongly-marked proportion, however, that we need hardly fear to carry out in these days—I mean that of considerable height. The controlling exigencies of economy too often prevent our churches, for example, from rising into stately and inspiring proportions. You know the high proportion of that, perhaps the most beautiful of all Gothic churches in the world, Westminster Abbey—the most beautiful as regards the architecture of the interior. The proportion of Westminster Abbey, that of three squares, is excellent, and without any undue exaggeration of height. The extravagance of manner I have spoken of more often lends itself to stumpy proportion, without grace or beauty. It is, like other extravagances, to be avoided.

#### *Suitability to Position.*

Another principle I would bring before you is to suit your design to the place it is meant for and to the surroundings among which you are to build. With our old buildings in the country one sees an instinctive harmony with the sentiment of the aspect of the natural scenery, or, it may be, a wise contrast with it. It was not apart from this refined feeling that for an old Gothic church, built among hills, you will generally find a low broad tower, with an affinity for the masses of surrounding scenery; while, on the other hand, on the long, low, level lands the

pointing spire will have been lifted in contrast to the horizontal line of the plain, a point of relief to the traveller's eye may rest on as he travels through the monotonous level country. In towns you may take some way, to assimilate your building to those of the neighbouring ones of former times, if there be any of interest to command such respect. It is to our loss in many towns in which we may have to build are designs of any character with which we can harmonise. Nevertheless, it should be done where possible, not in the use of local material but in designing in the manner and in harmony with the surrounding buildings. One sees examples of what we must call "bad taste" in this way. The surroundings have been ignored here let me say that we need not go abroad to find in which to design buildings in England. Let us take the "genius loci." Both in Gothic and Renaissance buildings among us there has been too much copying of manner unwisely imported from the Continent. English architecture is second to none on the Continent for beauty and poetry of design. If abroad the architect is more grandiose, yet it often lacks the refinement of the poetry of sentiment of our English work. "Thou speaks the tongue of every clime," yet, in a sense, we have a patriotism in our art.

#### *General Harmony.*

Another principle is an obvious one—that of harmony, not only of style, but of character and feeling throughout a building. No eclectic school, which mingles styles haphazardly, will ever be long lived or successful. There is if not one of continuous discord, affords but one of harmony. It is true that certain styles, as Gothic, are themselves to strong construction, while Renaissance is more consonant with great richness and delicate detail, as, for example, in plasterwork and the like. There is a risk of discordant character. It is better to attempt any such mingling of styles in a new work, however good the effect of different styles combined may be in an historical building, which has been so from time to time. The mind is satisfied with an historical building, but it is irritated by the less conceit of combined styles in a new one. Look at any complete work of the great periods you will find that they have a unity of feeling and a breadth stamped upon them. Look at our abbeys of Westminster and Tintern. I mention these, for you know them. The same character is given to the whole building to a marvellous degree. Each building expresses, in its distinctive manner, the sentiment desired, and the true artistic breadth of effect and of idea. You find this so in all complete buildings of the great periods; they are interpenetrated with one idea, though there is the utmost variety of detail.

#### *The Use of Colour.*

Another and an important part of an architect's work is connected with colour, whether in the use of marble in constructional colour, or in painting. A fine eye for colour is a natural gift, as much as a fine ear for music. The love of good colour may, no doubt, be caught by teaching of nature and the great schools of painting, those of the fourteenth century and later on. It is poor the architectural character of our houses if the beauty of colour may be obtained for our rooms. It is not enough intelligent interest spent on the subject to get the decorative effect of our houses. I cannot but express my hope that they may be made more beautiful in colour, so that our rooms may show, not only a jumbled collection of old things, however beautiful these may be in themselves, but that intentional design and harmonious architectural character may be given to them.

In the modern decorative treatment of rooms, even of some dignity, one too often sees mistakes of an evident kind. For example, it is the frequent practice to colour the cornice of a room as if it were the ceiling; so if the ceiling is white the cornice is also, though the walls and woodwork be of colour. Surely the cornice is the crown of the wall, and not of the ceiling. The architectural value of a cornice in a room is to soften off the harsh line that we get with projecting moulding. This effect is obviously lost if the cornice is coloured like the ceiling and not like the wall. I would just say, before quitting this part of our subject, that while we now often see "dados" introduced, the frieze is too seldom adopted; yet it is a far better way to have a well-designed frieze and no dado rather



to and no frieze. The frieze, and not the dado, is the right arrangement. Let me say, in passing, that we do better, in our domestic work, to follow the Renaissance rather than that which is called "the French manner," and which is a very inferior manner at this time, there is a fashion for a papered dado. This is done with undue prominence the poor, thin line of the dado. Now, this dado moulding, or "chair rail," is the cornice of the dado, and the whole should be of the same colour. Above this dado moulding there should be wall-paper of good pattern and colour. Such a wall-paper is best when it is of two or three shades of the same colour and the spotty and unarchitectural effect of a patterned paper is avoided. Wall-papers were formerly of damask silk hangings, which were usually of one colour, or different shades of the same colour. These are now called tapestries, it is true, but the successors of tapestry of the present day, but the pictured scenes of tapestry take one kind of pattern and altogether different kind of decorative effect. There is nothing in common with tapestry in them, but both are for the clothing of a wall. Again, one of the most palpable mistakes of colour, such as the use of "pointing" of brickwork. We need not add to the ugliness and dinginess of our buildings by its use. But I would chiefly urge on this subject is, that you should not use decorative art in any way beneath your serious work. Here, again, look at the works of the past, of the best of Europe. They will be of more use to you than the imitation of Japanese or Chinese work, the fashion of which, however ingenious it may be.

*The Study of the Past.*

principle is the [founding designs on the  
 the past. Sir Joshua Reynolds said:—"The  
 nsive your acquaintance is with the works of  
 have excelled, the more extensive will be your  
 invention, and, what may appear still more like  
 the more original will be your conceptions."  
 think, eminently true of architectural design. You  
 found your design on some previously executed  
 has won your respect and admiration ; but you  
 your own, your mind's eye seeing it, thus or thus,  
 wholly altered, from that which produced the  
 s thus that art hands on in the tradition of art  
 of it, which is immortal.

*Consonance with Nature.*

er principle is that of harmony and consonance. We have incidentally spoken of nature as the all art. It should be eminently so with the art of architecture. Though our art, like music, is imitative one, yet its characteristics should be those of the spirit, though not in the letter. It is the delicacy, the refinement and the richness, the great attributes of nature which we should embody in our works, rather than any exact

*Truth.*

th as expressed in architecture much has been  
d written well, more especially by Mr. Ruskin, to  
ching we owe so much in the whole field of art.  
essential element of good art. I need not dwell  
rt of our subject. Nevertheless, what are many of  
street fronts in the City, and other buildings else-  
ring around us, but examples of most untruthful  
re? Iron columns and iron girders are concealed  
columns and thin stone friezes and the like  
s. It is an unpleasant, and indeed a wretched,  
building, without truth or dignity. Should a fire  
ture of the work, the writhing columns and the  
girders will soon show that they are found wanting  
st necessity of good building—stability—and the  
will be manifest.

GOW INSTITUTE OF ARCHITECTS.

At the last week, Mr. James M. Monro, president, in the following were unanimously elected Fellows of the Institute, viz.:—John M'Lintock Bowie, 53 Buccleuch Street; Hugh Campbell, 156 St. Vincent Street; James Thomson and David Salmond, both of 225 St. Vincent Street. It was reported that Principal MacAlister, of Glasgow University, had accepted the honorary membership of the Institute. The president, Mr. James M. Monro, and Alexander Wingate, chairman of the Associate

Members' Section of the Institute, have been appointed representatives on the committee supervising the work of architecture in the Technical College, and Mr. T. L. Watson was reappointed governor. The Institute was approached by the Glasgow District Council for the National Registration of Plumbers regarding the appointment of representatives to that Council, and Mr. H. K. Bromhead was appointed. It was reported that the Institute's prize for measured drawings in the Technical College had been awarded to Mr. James H. Swanson, Bishopbriggs. It has been proposed to celebrate the union of this Institute and the Glasgow Architectural Association, and that the function should take the form of a dinner.

VICTORIAN GOVERNMENT'S OFFICES.

THE improvements committee of the London County Council report that they have been in negotiation with the architect acting for the Government of Victoria as to the elevation of the buildings to be erected on the site, leased to the Government by the Council, at the junction of the Strand with the east spur street between the Strand and Aldwych. Several designs were submitted, but, having regard to the importance of the site and to the effect which the elevation of the buildings erected thereon will probably have on the design of the buildings to be erected with a frontage to the Strand on the remainder of the crescent site, they did not see their way to recommend the Council to approve any of the designs. Mr. R. Norman Shaw, R.A., generously offered to assist the Council, and prepared a sketch design which the committee and the architect acting for the Government of Victoria both approve. Mr. Norman Shaw has declined to accept any fee, and the case therefore appears to them to be one in which the Council would wish to accord its thanks to Mr. Norman Shaw for the services which he has so generously rendered. The general purposes committee concur in the proposal, and it is recommended:—"That the thanks of the Council be accorded to Mr. R. Norman Shaw, R.A., for the services so generously rendered by him in connection with the design of the elevation of the buildings to be erected on a site in the Strand leased by the Council to the Government of Victoria."

AYR AULD BRIG.

AT the last meeting of the Ayr Auld Brig preservation committee Mr. Wilsou, the engineer, and Mr. J. A. Morris, architect, Ayr, explained the state of the works and the progress made. The engineer reported that no great difficulties had been met with, that the work was progressing satisfactorily, and that the recent great floods had not affected the stability of the bridge. A letter was submitted from Mr. Alexander Simpson, engineer, Glasgow, who had been offered the appointment of honorary consulting engineer, stating that he was unable to accept the appointment. The treasurer reported that the donations to the preservation fund amounted to 10,417*l.* 17*s.* 10*d.*, and that the total expenditure to date on preservative works amounted to 1,199*l.* The honorary secretaries reported that the treasurer had received from the Edinburgh fund 637*l.* 5*s.* 1*d.*, and that the secretary of the Glasgow fund had intimated that they had over 800*l.* in bank, which would be shortly transmitted. Mr. Dunlop raised the question of the desirableness of retaining the present undulations of the south arch, and also of the parapets, which have for so long been a feature of the bridge, and inquiry was made of the engineer, who was called in, whether it would be necessary to take down the whole of the parapets. Mr. Wilson stated that parts of the parapets would have to be taken down, but they would not be taken down where it was considered unnecessary. Mr. Morris reported that in his opinion it was desirable to take down the old gutter and gargoyles, and that the replacing of them would be interfered with only if they were dangerous. The committee approved of the suggestion, and expressed their desire that in view of the great antiquity of the structure, the present undulations should be retained in every respect so far as possible, and the hope was expressed that the Town Council of Ayr would concur in this.

**At a Meeting** of the Royal British Colonial Society of Artists the following were elected members:—Terrick Williams, Talbot Hughes, Russell Dowson and H. M. Rheam, R.I.



## NOTES AND COMMENTS.

THE case of DAVIS *v.* Mayor, &c., of Bromley, which recently came before the Court of Appeal, raises and decides a point of some interest to architects and builders. The plaintiff had submitted plans to the local sanitary authority for draining his house and for a proposed addition thereto. The defendants refused to sanction these plans on the ground that they did not comply with their by-laws. The plaintiff therefore brought an action against the defendants, the sanitary authority, for a declaration that he was entitled to proceed with the proposed work and for damages. The ground of his action was that the defendants had maliciously refused to approve of these plans. He alleged that they had not honestly exercised the discretion of approving plans which the Legislature had vested in them, but that they had some spite against him arising out of some previous litigation, and hence it was his plans had not been approved. It is clear law that if the Legislature has vested a discretionary power of this nature in a public body, and if that public body has honestly exercised that discretion, their decision cannot be questioned. They may have acted unwisely or wrongly; but if they have honestly done their best to come to a decision they have been acting in accordance with their powers and no tribunal can question that decision. The important question of law raised in this case was the question whether the presence of some oblique motive would give the party aggrieved by an unrighteous decision arrived at from such motive a right of action for damages. The Court of Appeal held that, even if it were proved that a public body had acted under the influence of such a motive, no such action would lie. They therefore refused to go into the question whether or no the defendants in this case had acted as the plaintiff alleged. They held, in accordance with previous decisions, that if the plaintiff could prove the facts which he had alleged, his remedy was not an action for damages, but an application to the King's Bench Division for a mandamus to compel the local authority to hear and determine properly his application. As the Court pointed out, the question whether or no a mandamus shall be granted is a matter for the decision of the King's Bench Division, whereas the question whether malice has been proved in a civil action for damages is a matter for the decision of a jury. It cannot be doubted that upon a question of this kind, which involves a consideration of the conduct of a public body, the King's Bench Division is a far fairer tribunal than a jury, composed, it may be, either of sturdy supporters or sturdy opponents of the authority upon whose conduct they would be asked to adjudicate.

WE have already referred more than once to the dispute between the Corporation of Waterford and the Commissioners of Waterford Bridge. The bridge is constructed of timber, and it is considered to be inadequate for the traffic; moreover, as it has existed for over one hundred years, the material is not throughout as sound as is desirable. The Corporation are eager to erect a new bridge; but the Commissioners would not agree without compensation, and much litigation followed. Finally, the amount to be paid for the bridge and its tolls was left to arbitration. The sum in the award was 63,000*l.* Neither side was satisfied. Among the witnesses was Mr. MAX AM ENDE, who said that a ferro-concrete bridge such as the Commissioners proposed was unsuitable. The length of time the material had been in use was not sufficient to enable him to determine the durability of the system. The Lord Chancellor, who presided at the meeting of the Judicial Committee of the Privy Council who heard the appeal, came to the conclusion that there was no ground for disturbing the decision of the arbitrator, save as to the costs. As regards the costs, they would refer

the matter of payment to one of the officers, and when they had received his report would include those costs in the order. There would be no costs of the appeal on either side. The case is remarkable. The bridge is not adapted for heavy traffic, and a steel bridge would cost 50,000*l.* at least. The owners of the bridge are not prepared to expend that sum, and believe another bridge could be erected for 19,000*l.* But such is the state of affairs that a structure on which 1,000*l.* a year has to be expended, and which requires double that outlay to be safe, will involve the people of Waterford an expenditure of 63,000*l.* in addition to the cost of the bridge, while not one cubic foot of the existing bridge will be of any use to them, for it all must be replaced.

STUDENTS of political economy may remember discussions concerning the value of peasant property, and how CHARLES KINGSLEY prayed "that the angels of civilisation would defend us from it." The system was supposed to be exhibited under its most favourable aspects in France, although ARTHUR YOUNG, who was one of the earliest of its opponents, had to admit that even among the dunes "the magic of property had turned sand to gold." Of late years the subject has assumed new importance, for, in addition to agriculturists, small scale, France now possesses owners of land and workmen in towns. According to an American writer there are in all more than eight millions of proprietors of the soil. When the United States Immigration Commission recently visited Marseilles it was found impossible to ascertain "the average price of land" in that locality, because no transactions ever took place other than by inheritance. Although it is difficult for working men to own real estate in Marseilles, where there is an excellent penny street car service, outlying property is being bought up by families in modest circumstances. There is a local custom among poor men who feel that they must reside in the city of buying an outlying plot of ground and erecting thereon a "cabanon" of two or three more rooms, where they spend Sunday and holidays. There are settlements where hundreds of these houses are to be found, each with a bit of garden, deserted throughout the week and scenes of great animation on Sunday; the most intense rivalry existing to have the best garden or most attractive "cabanon" the day terminating in a reunion, where poetical recitations are listened to, songs sung and sports made.

WE hear a great deal about the obligations of this country to the colonies, but it is not so evident that reciprocity is recognised. The late Mr. SEDDON, New Zealand premier, was more honoured when he appeared in England than if he were some minor potentate. It might therefore be supposed that if it was arranged to erect a technical college in Australia as a memorial of him, British architects would be expected to compete for the designing, that is, if the consideration there were no architects in New Zealand who were competent to undertake the work. Strange to say, American architects alone were invited. Two prizes of 500 dols. and 200 dols. were offered. The first prize was awarded to Mr. TRUMBULL of Philadelphia, and the second to Messrs. SMITH and GROBEN, of New York. There are many competitors in this country for technical colleges, and we need not therefore envy the American architects. But there is no doubt a slight was intended to be offered to the colonies, and on that account the incident deserves notice and remembrance.



## ILLUSTRATIONS.

KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.—  
DANCE LOBBY—MARBLE STAIRCASE—LAVATORY—UPPER LAND—  
GENERAL OFFICE—THE BOARD-ROOM.

THESE new buildings have been erected for the United Kingdom Provident Institution opposite St. James Danes Church, in the Strand, and they were formally opened by the Chancellor of the Exchequer last July. The façade is of Portland stone with a base of grey green granite. Some controversy has taken place in connection with the figures which are carved upon the building. Those on the mezzanine represent "Justice and Truth," "Temperance and Industry," and "Security and Industry;" and the figures (first-floor window), "Prosperity," and "Fortitude" (turret) "Watchfulness" and "Benignity," all by Mr. HENRY POOLE. The other ten figures are by Mr. J. H. JACK, and represent "Faith," "Hope," "Wisdom," "Justice," "Temperance" (2), "Truth," "Chastity," "Industry," and "Industry." The effect of all this sculpture is somewhat to overcrowd an otherwise fine example of London street architecture. The main entrance is in the centre of the frontage, and has a recessed porch with bronze sliding gates, and the outer doors are also decorated with bronze. On entering, some excellent mosaicwork by Mr. DUDLEY FORSYTH will be seen in the vaulted ceiling of the hall, and facing is a representation of St. GEORGE and the Dragon, designed by Professor MOIRA. The walls are lined with some fine examples of Cipollino marble from the well-known quarries of the Marmor Company, and supplied by Messrs. H. T. JENKINS & SON. Throughout the building will be found some of the finest specimens of marblework in this country. They are a special feature by the architect, partly with the view for effect and so for the durability of the decoration and the fireproof safety of same.

The general office has been planned circular, divided into eight bays by large monolith pilasters supporting a cornice and cornice, from which spring the arch ribs forming the cornice in the dome, all of which has been executed in Greek Cipollino marble; the wall spaces filling the bays being of violet Cipollino, above which comes the beautiful sculptured frieze, mounted on a background of Pentelicon statuary executed by Mr. J. H. JACK. The same scheme of marble decoration is repeated in the entrance hall, the openings being particularly handsome. The staircase leading to the first floor is treated solely in marble, with a Pavonazzo and Greek Cipollino being used for the walls, the ceilings here even being in marble, Swiss marble Cipollino bands being used with panels of light marble. In the first floor hall the marble treatment has been used to the richest effect, as here the mouldings, pilasters and columns are in Verd Antico marble, the ceilings being of antique Swiss Cipollino, which combination is most pleasing. The pilasters contain inlays of the most costly Princess Blue, which is the precious Sodalite of Canada, so named after the Princess of WALES, who was instrumental in discovering it. The marble here is worthy of note as it is very handsome in design and colour, the marbles used being Verd Antico, Italian Pavonazzo and Siberian green. All the more pleasing to inspect this work with the knowledge that the greater part of it has been executed by British labour at the factory of Messrs. JENKINS & SON, marble merchants, of Torquay.

The woodwork throughout the building is of most excellent quality. The most striking is probably the billiard-room, the panelling of which has been carried out by Messrs. W. AUMONIER & SON, of London, who have executed the panelling in the managing director's office adjoining and the smaller rooms on the same floor. The lifts have been supplied by the Otis Elevator Company, the general bronzework by Messrs. J. H. JACK, GARDNER & Co., the leaded lights—of which there are some fine examples—by Messrs. R. F.

PEARSE & Co., and the electric lighting by Messrs. STRODE & Co. The sanitary fittings were supplied by Messrs. JOHN BOLDING & SON, the skylights by Messrs. HEYWOOD & Co., the metalwork by Mr. F. LYNN JENKINS, the constructional steelwork and fireproofing by Messrs. WM. LINDSAY & Co., all of London; and the locks by Mr. N. E. RAMSAY, of Birmingham. The architect is Mr. HENRY T. HARE, F.R.I.B.A., and the builders Messrs. HIGGS & HILL, LTD.

### TOROUGH OF BIRKENHEAD CENTRAL PUBLIC LIBRARY.

THE accompanying design has been selected in competition by the assessor, Mr. CHARLES HEATHCOTE, of Manchester and London, who was appointed by the library committee. The Town Council have also accepted the assessor's award, and the approval of Dr. CARNEGIE has been obtained. It is anticipated that the contract will be let in the course of a few months.

The site for the proposed building is an irregular shaped plot of land centrally situated, surrounded by three streets, with the main entrance facing the most important thoroughfares, namely, Chester Street and Market Place South. Owing to the fall of the ground and the varying levels of the site, which has been partly filled in with debris, the disposition of the building on the land has been decided with due regard to economy of building on a sloping and peculiar shaped site. The building line fixed by the Corporation permits of the new library having an ornamental forecourt, with footpaths and shrubbery which will enhance the appearance of the building when completed.

The design is externally treated in a suitable architectural character, English Renaissance being the style adopted by the architects. The main corner and side elevations are effectively grouped in a dignified manner, forming a harmonious public building worthy of such an important site. Internally the planning is most compact, well arranged, balanced and economical, and fits the site. A feature of the scheme is the abundance of light, air and ventilation which is provided, also the facility for easy working and perfect supervision. Every public reading-room is cross-ventilated, and each room has windows on both sides, creating an air cross-current (without draughts), and preventing any stagnation or stuffiness in any portion of these rooms. Ample means of egress have been provided for the public from the lecture hall and first floor by two separate stairs, with spacious crush hall, all leading to separate streets. The staircases are of easy gradient, the steps regular in number, in short flights, and have ample landings. The internal arrangements and fittings embody all the latest ideas which have been considered worth adopting from similar buildings recently erected in different parts of the country.

All the materials in the internal and external work in the various trades would be suitable to the demands and character of the building. A natural system of ventilation will be adopted throughout the library, with forced extraction by an electrically driven fan for all the public reading-rooms and lecture hall, so as to prevent stagnant air. Apart from open windows and doors, provision is made for a copious inflow of fresh air and also for the outflow of foul air from the highest and warmest point in the various rooms. Both the natural and artificial means suggested for the various sized rooms are under the control of the officials or hall porter, and the fittings will be so placed and specially devised to prevent any tampering by the public. The artificial lighting is by electricity, and all cable wires, &c., fully protected and easily accessible for repairs.

Low-pressure hot water has been adopted for the heating, being the most economical to work, and owing to the low temperature of the water in the pipes is by far the healthiest to adopt in a building where the public are likely to be gathered in considerable numbers for any length of time.



The total estimated cost of the building, including drainage, heating, ventilating, water, gas, electric light and sanitary appliances and all joinery, permanent fittings and fixtures, ordinary painting, complete and ready for use but exclusive of architects' fees, fees for quantities, lithography and printing, clerk of works' salary and the cost of portable furniture, is not to exceed the sum of 13,000*l.* A 5 per cent. margin over the foregoing sum is allowed according to the conditions of competition. The architects are Messrs. W. EDWARDES SPROAT & ELTON WARWICK, 25 Lord Street, Liverpool.

### TRINITY HOUSE, WORCESTER.

A CHURCH House was opened last week in Worcester in which what remained of the Avenue House forming a part of the Trinitarian monastery was incorporated. The Bishop of Worcester read the following paper on the occasion:—

The church of St. Nicholas is a rectory in the patronage of the Bishop of Worcester, and, according to Dugdale, the first church on the site was built on the return of our countrymen from the first "Holy War" about A.D. 1100, and was dedicated to St. Nicholas—the celebrated patron of the time in all dangers, especially at sea—and through whose intercession the citizens believed they had escaped shipwreck. The old Trinitarian foundation, which was also established in the parish of St. Nicholas by the citizens, consisted of brethren and sisters of the Order of the Holy Trinity, founded by St. John de Matha and Felix de Valois about the year 1197 and confirmed by Pope Innocent III. The Trinitarians or Methurine Friars were brought to England A.D. 1224, and there were eleven houses of the order established in England. The site of the Worcester Friary was in the parish of St. Nicholas and near to the Old Trinity Hall, the remains of which were pulled down a few years ago for the widening of St. Swithin's Street. It seems probable that the property of the Trinity House and Old Bridge House also formed a part of this establishment.

The Old Trinity College, which was bodily moved to the east side of the New Trinity Street, and which latter was cut through the Trinity properties, is all that remains of the old almshouses and dwellings of the Friars on the south side of Trinity Lane; but there is strong reason to believe that the Old Bridge House, which has this year been restored, connected the buildings of the Old Trinity Hall and Friary with the house, which has also been restored, and is to be made use of as the Worcester Diocesan Church House. In the course of this restoration, and curiously coincident with the discovery of the crypt of the Old Holy Trinity Church or Chapel (beneath the site of the new bank at the end of the avenue) it has been found that a vaulted passage existed under the houses from this crypt to an entrance which had evidently been bricked up a long time ago, but which had entrance into the basement vault of Trinity House, and from thence it is not difficult to trace its probable connection through the Bridge House to the ancient Trinity Hall. It is believed that there was some very ancient stone vaultage which may have had connection underground with the rectory and dwellings of the Friars, but this has not been pursued beyond the wall at the south end of Trinity House.

In the course of excavation to examine the foundations of the house as it stood a year ago, it was found that the ancient stone foundation was of the strongest character as regards the underground walls, but that a superstructure of timber and rubble had existed before the brick house was built. The timber and rubble had gone so far to decay that it was no great wonder that the house was found to be falling over (both back and front) so far out of the perpendicular that the high walls of the central hall had split up from top to bottom on both sides, and at some time (not revealed when) the house had been tied together with iron bands passed right through the building from front to back. On removing the old papers from the walls these fissures were discovered, and also that the stone staircase had parted from the walls and the landing, and was merely supported on itself and two small iron pillars which had been introduced to prevent the total collapse of the staircase.

On removal of the wooden dado it was also found that the inside wall was timber and rubble, and it is clear that when the extension of the hall was made and the stone

staircase was erected, probably 200 years ago, it was the outer wall and the extension which was brick thro out. The walls have, in fact, been built on the old tim which, especially on the whole length of the frontage, reduced to such decay that they crumbled to dust on b handled. Hence the work of restoration has necessi underbuilding all round and very extensive rebuilding the walls. The roof beams were mostly solid, and of the door joists good; but the floors, though in cases of oak, have tried the patience and tools of repairers to a serious extent. It will be seen that n all the back of the house and outer buildings are ent new built.

The design for the house to increase accommodation happily had the effect of efficiently buttressing up the walls, and has enabled the decay of ages and damp dark of the cellarage to give place and opportunity of util much waste space there. Some little license has been taken in the restoration of the Old Bridge House, wherever possible the old timber remains are brought light out of the coats of old plaster which have been da on during centuries to hold the structure together. I hoped that this little "Chamber on the Wall" may happily utilised as the chapel of the restored Old Trinity House.

It should also be made known that the name "Avenue House" has been found to be only modern. An old map of the sale of the property a hundred years ago names it distinctly as "The Trinity House," and old letters in possession of a family whose ancestor owned it 150 years ago are also dated from it as "Trinity House." Most of the old deeds in existence merely allude to it as "Capital Mansion House." It may be of interest to that in making a place for some pipe-laying under offices from the Avenue to Trinity Lane, some decay remains were found of the old wood-piping used as a conduit for the supply of water to the city from Henbury Hills to the old reservoir still existing in the Trinity Lane. Also that no less than three old wells have been found in the vaults, giving additional ground for the supposition that these vaultages served some other purpose in the old days than mere cellar foundations to the houses. In troublous times they were doubtless used for concealment and large storage.

In excavating to the foundations some few evidence of burials have been found, but beyond a small piece of Roman paving and some bottles which were found but some feet deep no "treasure" has been discovered. New Trinity Hall needs no comment, as it has been merely built with all the other new buildings adjoining the old house since this time last year; but the foundation on one side was happily discovered to have been planned on the exact line of a very substantial old foundation wall. An old map of the property discloses that at one time there was a garden wall dividing the kitchen garden from the flower garden, but this hardly accounts for the great strength of the foundation, which may have been in use in the past and probably was a wing of the house or some other building.

### IRISH THIRTEENTH-CENTURY FORTRESSES

MEMBERS who joined the excursion to Athlone had the opportunity of inspecting the castles of Clonmacnoise and Roscommon as well as that at Athlone. The present writer also visited the neighbouring mote near Moynalty Temple, in the parish of Ballyloughloe, county Westmeath, and examined the castle of Rinnduin or Randown. The five sites exhibit in their several ways good examples of successive thirteenth-century fortresses.

The mote at Ballyloughloe, which, indeed, may have been constructed before the close of the twelfth century, is a typical Norman earthwork, fashioned out of an earthen ridge, and apparently untouched since it bore its wooden tower and wooden palisades. The foundations of a stone wall 8 feet wide may, indeed, be seen running up the slope of the mote, but this was probably to support the bridge which connected the "tower on high" with the bailey. On a hasty view, at least, I could see no other signs of a stone building. The mote is very steep and lofty, and the fosse surrounding it and connecting with the fosse round the shield-shaped bailey to the west is about 30 feet wide. The east a crescent shaped bailey was formed by cutting

\* From a paper by Mr. G. H. Orpen in the *Journal of the Royal Society of Antiquaries of Ireland*.



western extension of the esker by a strong rampart and  
Further to the east lies the nearly dried-up bed of  
Lough. The Irish name Baile locha luatha means "the  
of the lake of ashes," or "of the dried-up lake."  
Loughloe, i.e. the Anglo-Norman fortress, was burnt by  
O'Connor in 1234.

The castle of Athlone, first built in stone in 1210, shows  
original mote revetted with masonry, and bearing a  
contemporary keep or donjon.

The castle was erected at Clonmacnois in 1213, but the  
remains of stonework appear to me to be of later  
date. The castle is mentioned as a royal castle up to  
1234; but then it seems to disappear from the records,  
suspect that only the earthworks date from this  
time.

The keep, whenever it was built, was placed on  
mote, and outside the small stone ward may be seen  
original bailey, enclosing a much larger area, surrounded  
on three sides by a large fosse, into which the waters of the  
river were probably diverted. The scarp of the ditch has  
been rampart. Round the mote on the landward side the  
of the fosse is on a higher level, and probably the water  
never conducted here. As an extra defence, however,  
the underscarp of this ditch bears a lofty rampart. From  
great lumps of disjointed masonry that lie scattered  
and from their positions, it seems quite certain that  
the keep was blown up by gunpowder, so it probably  
did not survive until the sixteenth century. It is clear, however, that  
there was no royal castle here even in the latter half of the  
fourteenth century, or we should have some mention of it  
in the records. The castle, like the monastery, was built at  
the end of a long esker ridge, with low marshy land to the  
west and south. The river is deep at Clonmacnois, and  
never could have been a ford here, but in 1158 there  
was a wicker bridge. Perhaps the mote castle was erected  
to guard this bridge and protect the monastery, otherwise  
it is not easy to see what strategic purpose it served.  
Probably it was abandoned as a royal castle soon after  
1234, and possibly the stone castle was subsequently  
destroyed by a bishop of Clonmacnois. Further research into its  
history and a more critical examination of its remains may  
throw more light upon it.

The castle of Rinnduin, or Randown, first erected in  
1251, was a sort of promontory castle on a tongue of land  
projecting out into Lough Ree and included no artificial mound.  
The keep, however, is on a slight elevation, and was further  
protected on two long barrel vaults. The existing remains are  
probably in the main subsequent to 1270, when the castle  
was burned or thrown down by Hugh O'Connor, and James  
Armstrong was fined 400 marks for failing to keep it.

The ward of the castle, the work on which was tem-  
porarily suspended in 1233, has no doubt been more than  
reconstructed since. The walls are well preserved,  
and are pierced with small, nearly square loopholes.  
The entrance from the keep by the entrance archway, and on  
a somewhat lower level, is a rectangular building about  
16 feet internally, having on the first floor two large  
multi-headed windows and pierced on the ground floor  
by small rectangular loops. This was probably the new  
work for the construction of which, in the years 1299-1302,  
Richard of Oxford, sheriff of the county, was allowed  
15s. 2d., besides 20s. granted to him for superintending  
the construction. All these buildings—keep, courtyard  
hall—are closely surrounded on all sides, except  
where they abut on the lake, by a deep and wide fosse,  
which is used to be, no doubt, flooded with water from  
the lake. This fosse is also carried across the whole  
of the land in a south-westerly direction to meet the  
river in this way isolating by a belt of water not only the  
castle, but a considerable piece of land beyond, which thus  
became an island. This seems to justify and explain the  
statement in the Annals of Loch Cé (1236) that Felim and  
most went across the bádhun at Rinnduin and "over  
the ditch of the island in which all the cows of the country  
were." The entrance to the courtyard is through a round-  
headed archway of cut limestone, with grooves for the port-  
cullis, and just outside at each edge of the fosse are piers of  
masonry which probably bore the bridge repaired in  
1299. About 700 yards further to the north the whole  
of the peninsula is cut off by a wall extending from shore  
to shore. This wall is about 4 feet thick and 14 feet  
high. It has at intervals square projecting turrets  
about 8 feet internal measurement, with plain loops  
about 4 feet long and 3 to 6 inches wide; also a strongly-  
rounded gateway. Inside this wall was probably the vill  
at Randown, which is mentioned several times in our  
records, and in aid of the enclosure of which a grant was

made in 1251. The castle appears to have been built to  
command the navigation of the lake, and there were profits  
from the ferry (I suppose across the lake) at this spot. I  
have found nothing in the records to support (but much that  
seems inconsistent with) the assertion of Professor Stokes,  
that the castle of Rinnduin belonged from the first to the  
Knights Hospitallers. In 1372 John O'Dubagain, the topo-  
grapher of the northern half of Ireland, died in the com-  
munity of John the Baptist at Rinnduin. The Hospitallers  
were probably located in the vill; but I doubt if the foun-  
dation of their priory goes back, as has been stated, to the  
time of King John.

Finally, Roscommon Castle, built in 1269, and perhaps  
largely re-edified in 1278-9, is a large quadrangle, with pro-  
jecting round towers at the corners and principal gateway.  
It is purely Edwardian in plan and had no keep. It was  
restored from the O'Conors in 1569, and was afterwards  
restored to suit the times. The Tudor windows, &c., are,  
perhaps, due to Sir Nicholas Malbie, governor of Connaught,  
who got a grant of the castle, and was "a great builder"  
there about the year 1580.

Thus in these five castle sites I think we may recognise  
(1) a mote and bailey site, where the original wooden  
defences, perhaps of the time of Henry II., were never  
replaced by stone; (2) a mote which bears a nearly  
contemporary polygonal stone tower, dating from the close  
of John's reign; (3) a mote with its earthen bailey and wet  
ditch, dating from the same period, on which, after the  
lapse of some time, a rectangular keep and small courtyard  
were built; (4) a promontory castle consisting of a rec-  
tangular keep and stone courtyard, isolated by a wet ditch,  
dating in plan from the time of Henry III.; (5) a purely  
Edwardian castle, restored in Tudor times, which never  
had a keep.

## RESTORATION IN SCOTLAND.

AN "Old Glasgow Exhibition" has been held in the  
Trades Hall. One of the speakers was Principal  
MacAlister of the university. He said he did not propose  
to offer them a set discourse on Old Glasgow, its history  
and its monuments. He was too young a citizen to venture  
far on that subject in the presence of his seniors, who knew  
and loved Old Glasgow so well. A few reflections of a  
general kind were all he could fitly present them at the  
opening of that day's proceedings. They might have  
noticed that His Majesty the King had lately shown his  
enlightened interest in civic antiquity by his letter urging  
the preservation of Crosby Hall, an interesting and beauti-  
ful example of Mediaeval architecture in the City of London.  
The King recognised that it was fatally easy to destroy such  
a memorial of the past, and that it was impossible to build  
it up again. Once lost it was lost for ever. The hope of  
London seemed to lie in the munificence of a few wealthy  
men or corporations, who might be moved to preserve  
the structure in which His Majesty was interested.  
Here in Glasgow, faced with a similar problem, they ap-  
peared to have taken a better way. For the preservation of  
the ancient house from which the Society took its name  
they had relied on the many, not the few; and they  
proposed not merely to rescue the house from the des-  
troyers, but to maintain it on a wide basis of public  
support for the enjoyment of all, and the use and service of  
all. While it would stand as a landmark of the city's  
history, they had sought to invigorate the literary and  
antiquarian activities of a living Society with the grey  
traditions that clung to its ancient walls. Under their  
guardianship Provand's Lordship would not be a mere  
dead relic—venerable indeed, but unrelated to the intel-  
lectual life of Glasgow; it would become a visible and  
palpable link uniting past and present generations of  
Glasgow citizens. That aspect of their action it was  
which specially appealed to him, and he did not  
doubt that it would appeal also to multitudes of  
others who were not more professed antiquaries than  
he was. The cathedral close by would lose, for  
him at least, much of its beauty and value, considered as a  
memorial of the piety and skill of our forefathers, if it were  
left empty and unused, a mere gazing-stock for the passer-  
by. Its significance was enhanced by the fact that it was  
still made to subserve the sacred purpose to which that  
piety and skill were consecrated by the builders. Ancient  
history, whether embodied in mouldy annals or in crumbling  
stones, was apt to leave us cold unless it was brought into  
organic relation with the life of to-day and with the history  
that was being made before our eyes. But when it was



used to illustrate and exemplify the great principle of continuity which runs through life in all its ages and stages, then and then only the dead bones lived, and live men felt that ancient history touched them very nearly. The past became more than "a tale that is told;" it shed light upon the evolution of the present, and helped to explain this perplexing world, which so sadly needed explanation.

For the like reason he might confess, at the risk of obloquy from the "Anti-Scrape Society," that he rejoiced in the so-called "restoration" of the abbey church of Iona. It had long been a wind-swept ruin, gazed at by summer tourists and quarrelled over by archæologists. The inevitable processes of decay would soon have left nothing to gaze at or to quarrel over, and peace would have come when only a desert remained. Much criticism had been levelled at the manner of its structural repair; so at least his co-trustees informed him. On that subject it would be unbecoming for him, the last and youngest of them, to say a word either of agreement or dissent. But that the double purpose of its restoration was right and laudable he was persuaded. That purpose was the same as theirs—to conserve the ancient fabric by all proper means, but also to revive and maintain its serviceableness to living men. Time had been the arch-innovator; it had decayed the substance, it had obstructed the use of that temple of our fathers. That was the truest conservatism which sought to undo the innovations of time and to restore the venerable building to its venerable service. Another generation, if not the present, would be grateful for this effort of their own, when it found the tradition of that sacred site, hallowed by its memories of Columba and the early dawn of Christianity in Scotland, still alive and effectual after more than a millennium of years. The crudeness of our modern civilisation was redeemed and mellowed when we were thus made conscious of the subtle bonds of descent and inheritance that united us with the older world. To come nearer home again, it was, to his mind, a grievous loss to the community when the old College buildings in the High Street were destroyed. The visible embodiment of our academic traditions, the silent witness of our long and stirring academic history was then done away beyond recall. We were proud of the splendid pile on Gilmorehill, with its spacious courts and halls, round which in time no doubt memories would cluster like the young ivy which was here and there beginning to aspire at the foot of its walls. The new building was nobly fitted for its high purposes, as the old had doubtless ceased to be. But still the old had its spiritual value, even its educational value, for our students and graduates and citizens; and while he prized the amenity of the West, he could not but regret that so little remained to remind them of their origin in the East. Let him say, to prevent misunderstanding, that he had no thought of reverting to their old abode. He was not sorry that the houses of principal and professors now looked out on something brighter than the Vennel. He would not move a finger in the direction suggested by an American man of letters, who like many of his countrymen was strong for all that savoured of antiquity. He wrote thus to him during the summer:—"Of course you will cause the university to leave the fantastic modern buildings it at present occupies, and return into the truly venerable quarters where Francis and Rashleigh were parted by Rob Roy." No, he recognised unreservedly that the university had to flit or perish of asphyxia. But though, as he had said, he admired the grand new mansion, he wished that the old home also had been allowed to remain. It might have been adapted to some other academic purpose. It might have even kept an honoured place as the seat of literary and antiquarian fellowships such as their Society. We and our successors might still have taken "pleasure in her stones," and contemplated with profit the rock from which we were hewn. And the continuity of the modern with the early history of the university, which dignified our common life and gave it perspective, would have been more easily realised by the inheritors of its renown. Regrets like these are vain, however, unless they led us to action—such action as was still open to us, such action as their Society had taken in procuring the conservation of their eponymous abode and in bringing together that exhibition on its behalf. "Let Glasgow flourish," they said; let it flourish like the tree upon its shield. Yes, but do not forget its roots. They were worthy of solicitude, for through them the city has drawn its life from the rich soil of the ages. Principal MacAlister concluded by declaring the exhibition open and commending it to the citizens.

## ARCHITECTURAL EXERCISES.

THE subjoined exercises were offered to the students at this year's examination of the Board of Education. They will be found useful by many students. The exercises in other branches of art—viz. ornament, perspective, hand, &c.—are also deserving attention.

### Section I.

Draw in elevation one complete column with its base and entablature belonging to a Greek Doric order and a similar example of the same Roman order. The column, unless it belongs to a circular building, shall be an angle column, and the lower diameter in each case shall be 1 inch. Draw attention to any striking difference in Greek and Roman treatment of the order you select.

Make a careful sketch or drawings of a Greek Ionic capital or of a Roman Corinthian or Composite capital so as to measure at least 5 inches high; make to a scale a sketch of a single acanthus leaf from such capital, showing both a Greek and a Roman variety.

Make a section to measure at least 5 inches in height through a Roman Corinthian or Composite cornice. In addition, make sketches or geometrical drawings to a scale of one of the modillions and of one of the scrolls under the corona, or draw in section and elevation other members of the cornice each to measure not less than 1½ inches in height with the appropriate carved ornaments in each case.

Make drawings of a small Classic building or of a larger building; if not to scale, give a few of the dimensions approximately. The drawing should be sufficient to show the general character and appearance of the building, with some details of its construction, including the method of roofing it and of its mouldings and ornaments. A Greek temple or propylæum, a Roman basilica or the peristyle of a house would be suitable.

### Section II.

Make an elevation at least 6 inches in height of the front of an important church or cathedral of any period of developed Gothic; give the approximate date. Indicate about half the arch on either side and the string below the triforium. Draw to a larger scale a plan of the pier sections of the cap and base and of the arch mouldings. Indicate the joining of the masonry.

Make drawings of a rich or important example of Gothic woodwork and indicate the manner in which it is finished. Give detail sketches of any mouldings and of any carvings used to enrich the example. An ornamental open timber roof, a rich half-timber gable, a chancel screen or stalls are suggested as suitable.

Make a sketch plan of an English Renaissance building erected during the seventeenth century in which one or more orders are employed. Give details of part of the building showing how the order is applied and any special ornaments that are made use of.

Make drawings of two openings (doorways or windows) from Renaissance buildings of a somewhat ornamental character. One is to be an example of trabeated, the other of arched construction. Add brief notes pointing out the chief advantages of each form of construction and the precautions that must be observed in employing each.

### Section III.

Draw the plan and an elevation and section of a building that you have personally visited and studied. Show as clearly as possible the nature of the construction and any decorative treatment. Attention should be given to neatness and precision in drawing—any features which require need not be drawn completely more than once. Give name and approximate date of the example selected.

Make a careful sketch with figured dimensions, or make drawings to scale of some feature from a Mediaeval or Renaissance building that you have yourself measured. The subject selected, which should be typical of the period to which it belongs, should include some carving or sculpture. Show all details of construction, sketch to a large scale profiles of all mouldings, and add brief notes of materials employed.

### Section IV.

Write a short account of some building you have visited and studied, which should not exceed two pages in length. Notes as to the date or dates of erection should be included. Describe the general disposition and treatment of the various parts of the building and any noteworthy features, especially characteristic of the style or styles employed.



materials used in construction should be described and manner in which they affected the construction. Illustrate by sketches, with the addition of brief explanations when necessary, the following terms:—Acroterium, baluster, bema, bondstone, cartouch (one only), cymatium, dog-tooth enrichment, dripstone, eustyle, frieze, gable, guilloche, minaret, newel, pendentive, podium, purlin.

#### Architectural Design.

Section and plan of a sash-frame and a casement window, the latter in two heights with transome. Write a short specification for painting walls, door and floor of a bath-room. What is meant by priming, planing, sprigged, flatted, clere coling? Give examples of hinges. What is cross garnet, rising and falling hinges?

#### Subject.

Design a clock tower as a memorial in a large town. It is supposed to be an open one, in the centre of a square or "place." The base should be utilised for drinking fountains, and there must be access to the clock internally (a ladder is sufficient). The height of the tower must be more than 75 feet, and the width of the base not more than 25 feet.

Materials, brick or stone, or both in combination.

Drawings required are:—(1) Sketch plan and elevations, showing scheme to be adopted; (2) three plans, a plan, plan of clock chamber, and a roof plan, to the scale of 8 feet to 1 inch; (3) one section, to the scale of 8 feet to 1 inch; (4) one elevation, to the scale of 8 feet to 1 inch.

Further drawing must be attempted either:—(1) Some section to the scale of  $\frac{1}{2}$ -inch to 1 foot; or (2) a perspective.

### TORPHICHEN PRECEPTORY AND CHURCH.

On Saturday afternoon Glasgow and Edinburgh districts of the Scottish Ecclesiological Society paid a visit to the preceptory of Torphichen, the principal Scottish residence of the Knights of St. John of Jerusalem.

John Edwards said that the Order of St. John of Jerusalem early in its history established itself in Scotland, and it found the country a recruiting ground for the warriors required for Eastern warfare. Men were a valuable asset to the Hospitallers—owing to death and thinning their ranks—and they found that Scotland possessed this asset. It was generally stated that the story was founded by David I., and this, although not certain, is very probable. The first charter which mentions the Order in Scotland is dated 1160. Early masters are known to us only by name, as the story is very fragmentary in its early period, but at the time of the Scottish War of Independence the master, Alexander de Wells, who was an Englishman, was found with his followers on the side of King Robert, and is said to have been slain at the battle of Bannockburn. A few months previous to this Sir William Wallace had taken possession of the preceptory, the knights were withdrawn to Linlithgow. Here he issued the only charter granted by him that has come down to us. In it he himself "Guardian of the realm of Scotland and of the Armies of the same." Mr. Edwards then made a rapid sketch of the subsequent preceptors down to the time of James II., when Sir Henry Livingstone, second of the first Livingstone of Kilsyth, is found in office. His family became one of great importance, holding even two earldoms—those of Linlithgow and Callander. William Knollis, who succeeded Livingstone, was one of the most distinguished holders of the office. He was the first to be called Lord St. John, a title which his three successors—Sir George Dundas, Sir Walter Lindsay and Sir James Sandilands—also bore. Henceforward the lay character predominated over the clerical, and the head of the Order in Scotland sat among the peers of the realm. Sir George Dundas succeeded to the title in 1504. He was the schoolmaster of Hector Boece, and was noted for his learning. He was also strenuous in vindicating the privileges of the Order against all parties attempting to infringe them, and did not hesitate to take legal proceedings against the king and bailies of Stirling for "brekand ye prevelege of John's." His nephew and successor—Sir Walter Lindsay—raised a monument to his memory at Torphichen in 1538, part of which still exists with the following inscription:—"Valterus Lyndesay hujus successor et ex-

sorore nepos hoc monumentum fieri fecit 1538." Sir James Sandilands succeeded Sir Walter Lindsay in 1547. Having espoused the doctrines of the Reformation, he resigned in 1563 the preceptory—with the different lands, baronies and other properties—into Queen Mary's hands, and received a Crown charter regranteeing them to him and his heirs united into one barony of Torphichen. A short reference to the large estates belonging to the Order in pre-Reformation times concluded the paper. Sir James Balfour Paul, in seconding a vote of thanks to Mr. Edwards, moved by Dr. Cooper, stated that it was in the minds of some to form some kind of society, philanthropic or otherwise, to perpetuate the Knights Hospitallers, and he hoped that such would soon be an accomplished fact.

According to Mr. T. Ross, the architect, Torphichen Church had been a building of much importance. Along with the old-fashioned village, it is situated well up the ridge of hills that separate the valleys in which Linlithgow and Bathgate are respectively situated, and from either of which it is some three or four miles distant, and quite out of the tourist beat; indeed, few people go there, but it is well worth visiting, both for its natural beauty and its great historical associations. The church and village are situated in a hollow among the hills, and it is with something of surprise that one sees for the first time the great massive tower and lofty church in this lonely, out-of-the-way spot. One's first idea is that it is an old baronial keep, with wide ample chimneys on the gables, with its weather-worn battlements and roofs still intact. But the sight of the surrounding churchyard, with its many quaint monuments, the traceried windows, and the parish church with its belfry, soon reveals the true character of the building, which shows the remains of a large cross church, of which the north and south transepts and crossing, with the lofty central tower, covered with a saddle-backed roof, still remain in a state of fair preservation. The parish church, an interesting structure of the seventeenth century, occupies the site of the ancient nave. Of the choir, part of the north wall remains, along with the east gable. The whole length of the fabric has been about 155 feet from east to west, the transepts being about 70 feet from north to south. These latter are groin-vaulted in three compartments. In the centre compartment are the finely moulded piers and arches for supporting the tower, rising to a height of about 30 feet (the tower itself being about 70 feet high), with the usual round aperture in the centre so invariably found in the vaults of all Scottish towers. There is a fine traceried window in each transept, one in the south gable and the other in a side wall. From the north transept there has evidently extended outwards a long row of domestic buildings, of which the remains of one exist about 100 feet away, and from the apartment next the transept a window of an upper floor still remains looking into the church. This window is provided with side seats, so that the occupants of the chamber could participate in the church service without going into the church.

The peculiar feature of Torphichen is the upper chambers, four in number, one over each transept, and two, one above the other, in the tower. These are reached by a wheel stair, now in a very broken condition. These rooms are of a fair size, about 20 feet square, and with their thick walls and quaint small arched windows one can easily realise how comfortable they were with their blazing fires in the long nights of centuries ago.

These buildings probably date from about the beginning of the fifteenth century; but a small fragment, now built into the wall beneath the great west arch of the tower, is of the Transitional period of the twelfth century. It consists of a round arch supported on shafts having carved capitals, and may have been the chancel arch of the first church of Torphichen. The data for the early history of the place is not very great, but this arch is as good as a charter for its period. There are other details, built into the walls, belonging to the period between the foregoing dates, which quite bear out the statement of Mr. John Edwards, of Glasgow, when he infers from a grant by Edward I. of three oak trees to the Master of Thorfighyn that building operations were in progress then. Shortly after this, in 1296, the brethren of Torphichen sent a petition to Edward I., which shows how firm his grasp of Scotland was. They say:—"That whereas it is a great security to the English residents in Scotland to have access to a castle or fortress near them, in case of many accidents which might arise, although the land is now settled, he would be pleased to grant them of his Grace the privilege of access into the castle of Linlithgow, which is only two leagues from Torphichen, for the



safety of themselves and their goods when there shall be need, and as an aid and defence for the said castle if necessary, and that he would send a letter to this effect, if he please, to his Constable of Linlithgow." As Mr. Edwards remarks, the king was not quite sure about the hospitallers, but grants the petition, "provided that the Constable be sure of them." Two years later, in 1298, Wallace is in possession at Torphichen, and grants a charter, the only one by him which has come down to us, and the memory of this still survives among the inhabitants, as they can show you the sword of Wallace carved on an old tombstone now doing duty as the lintel of the curious window looking into the north transept already referred to.

### MODERN GERMAN FURNITURE.

A VERY marked change in the general character of interior decoration has occurred during the past few years in Germany. The present school of architects, painters, decorators and designers is aiming at artistic effects in which simplicity is the dominant note. The demand is for symmetry and grace of outline and broad, even surfaces with effective chromatic harmonies, but discards the mass of minor accessories and the elaborate detail which have hitherto characterised the treatment of a German interior and the art of the upholsterer. This change, according to the American consul at Chemnitz, was strongly pronounced last year in the exhibits of furniture and decorative designs at the industrial exhibitions held at Nürnberg, Yurikan and other places, and especially at the exhibition of German industrial art in Dresden. At the latter there were exhibits of over 100 completely furnished rooms. Nowhere were fringes, tassels, galloons or the like visible. Woodwork was almost invariably smooth, and but rarely touched by the carvers' tools.

The change in public taste is so marked that it has affected several well-established Saxon industries so seriously that the Government has felt compelled to carefully consider the situation, and ascertain whether any measures can be taken to relieve the stagnation in the group of trades directly involved. The Minister of the Interior recently called upon the Chemnitz Chamber of Industry for a full report upon the matter, together with its recommendations. Chemnitz, like other German cities, has, in addition to its Chamber of Commerce, also a Chamber of Industry—*Gewerbe-kammer*—directly representing in the productive industries both capital and labour. The Chamber has recently communicated its report to the Minister, and the following is a summary of its conclusions. In regard to such upholsterer's accessories as are produced by a branch of the so-called *passementerie* manufacture, there is no question on the part of the trade but that the tendency of modern art is completely opposed to the further utilisation of their creations. This is strongly marked in the costlier forms of furniture, less so in the cheaper forms. The chief cause is the demand for smooth, even surfaces, in harmony with the prevailing canons of taste. In the category of less expensive furniture the unwillingness to pay present prices for trimmings of good quality has limited the use to some extent. Upholsterers complain that heavy fringes, tassels and similar accessories, which formerly gave them much remunerative employment, now are completely banished, or are replaced by modest, inexpensive edgings. Until recently they were frequently called upon to undertake complicated designs of folded stuffs in the interior decorations of rooms, which involved preliminary sketches and a high grade of artistic ability in the execution of the plans. The present style of decoration calls for simple materials, free from folds, with a limited amount of embroidery, which are found ready made in shops, and involve no special ability in arranging. Plaster decorators and wood-carvers and turners state that their trades have all suffered seriously from the prevalent fashion for smooth surfaces on furniture and in decorative architectural features.

The Chamber has appointed a special Commission of experts to study the case, and the opinions of the members of this Commission are worthy of note. One member, an architect and professor in the technical college, declared that from the hygienic standpoint he was strongly opposed to any return to former styles, and in favour of extreme simplicity in all furnishings. Another member, the President of the Industrial Art Society, emphasised the fact that the modern decoration methods meant more light and a freer movement of air in the home than was formerly the case.

Further, the new movement had lifted German decorative art from a condition of stagnation, and it was now to meet competition in the world's markets. It was regretted that it involved temporary loss for a group of trades, but the future development would soon offset this for the workpeople now so seriously affected.

The Commission was, however, unanimously of opinion that the tendency towards simplicity was overdue, and was in danger of becoming a fad rather than a healthy, artistic development. Symptoms of this appear to be already visible. The older patterns favoured in the orders given for the choicest kinds of stuffs employed in upholstery. There is a fall in the demand for perfectly smooth and even surfaces of furniture. Projects for intervention on the part of the Government, by offering prizes for designs in harmony with the older fashions, and by influencing the courses of instruction in the schools of industrial art, were rejected as unwise and useless. It was regarded as entirely outside the province of an administrative body to attempt to stem or guide movements which are exclusively questions of public taste and fashion, and which intrude into the domain of æsthetics. This recommendation will no doubt be followed by the Saxon Government. In the present state of unexampled prosperity in the industries of Saxony, especially in the textile branch, the classes of workmen affected by these changes will, it is said, easily find occupation. At present, however, they are inclined to treat the apostles of "the simple life" with scant courtesy.

### THE NATIONAL GALLERIES OF SCOTLAND.

THE Board of Trustees for the National Galleries of Scotland decided some months ago that it was advisable in the interests of the National Gallery and the National Portrait Gallery to make certain transfers of works of art from the one to the other. This resolution has now been given effect to, says the *Scotsman*, by the director of the galleries, Mr. James L. Caw. A few traits, of which the interest was primarily historical, have been transferred from the National Gallery to the Portrait Gallery, and others in which the artistic interest predominated over the biographical have been brought from Queen Street to the Mound. Among the former class are specially mentioned the two portraits by Alexander Nasmyth of Robert Burns, the national poet—the known head and the cabinet full-length. These have been hung in the National Portrait Gallery, along with other three portraits of the poet—that by Peter Taylor of the earliest of the set, the Myres silhouette, done in 1787, and the beautiful Reid miniature, perhaps the most interesting of all the Burns portraits, which was executed by Dumfries shortly before his death. The whole forms a strong and quite unique group. Another portrait taken from Queen Street is that of David Hume, the philosopher, by Allan Ramsay, which constitutes an important addition to the Gallery of national men of mark.

From the Portrait Gallery there has been taken the portrait of James Oglethorpe, the founder of Georgia, by the Mound, by the permission of the trustees of the Duke of Hamilton, the noble full-length portrait of the second Duke of Hamilton by the Dutch artist, Daniel Mytens. By the Hague about the end of the sixteenth century an artist was for some time Court painter to King Charles II. until he was superseded by his more brilliant neighbor, Anthony van Dyke. The Duke of Hamilton here portrayed himself in the title—received a mortal wound in the service of Charles II. at the Battle of Worcester. He is also seated at the Portrait Gallery in a group with Laud, painted by Cornelius Janson. The young Duke, with an aristocratic mien, is elegantly posed. He is attired in silvery grey velvet corded costume of a Cavalier, a pointed doublet, slashed on the breast and sleeves, a lace collar, wide knee breeches and grey jack boots. His head is a full wig. In his left hand is a black Cavalier hat; the right, carried to the hip, holds a staff. For ground there is a Classic terrace with marble balustrade and pillar in a rich brown tint, a turquoise shaded curtain on the left, and a conventionalised landscape. The painting is careful and distinguished, especially of the picturesque costume, and the silvery coloring gives much charm to the portrait. This work has been hung in the first gallery not far from a splendid group formed by centring the Rembrandt and supporting it by two portraits by Franz Hals. Another portrait, of artistic and historical interest, is that of Margaret T.



Henry VIII. and queen of James IV. of Scotland. by the Flemish artist, Jan Mabuse, who flourished and of the fifteenth and beginning of the sixteenth s. This portrait is in his early Flemish style, he went to Italy and became Italianised. Painted el, the portrait, bust size, is that of a sweet young a rich brown hair, dark brown eyes, a dainty mouth ty chin. On her head is a quaint jewelled chaplet and silver and red tints. The dark velvet robe is ut and open at the bosom, and shows at the sleeves satin lining. Round the neck is a velvet band a jewel in pearls and rubies; and over the s is a massive gold chain with large open links. o little hand with rings on two of the fingers is to the bosom; the other is toying with an open resting on a rose-tinted piece of drapery upon a ry table. The face is notable for the warm, bloom- ur in fine preservation, and the portrait generally nished workmanship put upon it.

ie's portrait of himself as a young man—an admir- ce of work—is now at the Mound, hung in the last on the right of a new landscape by Crome, referred rmer notice. The subject of this latter work is a y in Wales, and out of simple materials the artist ted an impressive picture. An interesting portrait anferred from the Queen Street Gallery is that of er Runciman the artist, who was master of the school of the Board of Trustees in 1773, and his John Brown, a portraitist of the same period, in discussion over a passage of Shakespeare's est," which is open before them. Runciman, in a crimson cowl with tassel and striped gown, is a gure. The work, dated 1784, belongs to the Society quaries. There have also been transferred to the a portrait of Sir Hugh Paterson of Bannockburn, a Thomas Seton, a little-known Scottish painter he last quarter of the eighteenth century; and a roup in rich colour, showing some deterioration, by y Geddes, of Terry, the actor, and his wife, Elizabeth h, a daughter of Alexander Nasmyth, who painted ns portrait. It was this Mr. Terry who dramatised er of the Waverley novels—Scott called it "terrified" e Edinburgh stage in the beginning of the nineteenth

charming portrait of Mrs. Bruce of Arnot, by Allan y, the acquisition of which by the Board of Trustees ntioned about a fortnight ago, now hung on a screen, n much admired for its grace and delicacy. The work by W. E. Lockhart, "Gil Blas and the Arch- of Granada," has been placed in the fourth octagon. its story well and, alike in its correct draughtsman- d rich, glowing colour, it is in all respects an excellent e of the art of the painter. In this octagon, on the e great portrait by Gainsborough of the Hon. Mrs. n has now been centred, and is well supported by n's portrait of Dr. Adam and by Watson-Gordon's t of the Provost of Peterhead, by a landscape by and the "School Scalin'" by Sir George Harvey; opposite a fine wall has been formed by giving a to Thomas Duncan's group of "Anne Page and r," and supporting it by Raeburn's portraits of Major y, with his horse, and Macdonell of Glengarry. e piece of antique sculpture with which the Gallery st been presented by Sir Thomas Gibson Carmichael, an of the Board of Trustees, is that of the head of n found at Thebes. The nose is damaged, but other- e work is in good preservation. The face has great r, and the tint of the marble, with age, is soft and ivory- e head, it is suggested, is the work of a Grecian or, who lived not earlier than 200 B.C. and not later o A.D. One reason for assigning it to this period is ere are signs of portraiture in the face. It is not a y generalised face such as prevailed in earlier n sculpture. This antique is an interesting addition small collection of sculpture in the Gallery.

eresting Discoveries have been made during the now in progress, of repairing the parish church of rooke. The removal of loose plaster from the east as revealed two windows in the upper part of the one in perfect preservation, and also traces of wall- ings and one or two black-letter inscriptions. The of the famous chancel, which was destroyed by Wal- am, is coming out almost intact, and the foundations e ancient chancel are known. Another appeal is being for the restoration fund.

## BRITISH SCHOOL AT ATHENS.

ON Tuesday the annual meeting of the subscribers was held at Burlington House. Professor Percy Gardner presided. According to the report for the year excavations had been carried on continuously at Sparta and had resulted in important discoveries. Progress had been made in the survey of Laconia and various outlying sites had been explored. Mr. R. M. Dawkins, the director, reached Athens at the beginning of November and paid a short visit to Crete with Mr. Woodward in January 1907. The remainder of the session was spent in Athens and at Sparta in super-intending the excavations. The director acknowledged his obligations to the Greek Government and to Dr. Kavvadias and Dr. Stais for assistance in obtaining photographs and carrying out various other commissions for correspondents. The assistant-director, Mr. F. W. Hasluck, who arrived in Athens on November 22, 1906, had been able to determine with probability the site of Caesarea Germanica, and identified two Frankish castles, Combouclea and Catoecia, near Brusa, returning to Athens on March 11. Mr. Guy Dickens was in Athens from October 1906 till March 1907 working at his paper on Damophon of Messene and writing reports of the excavations at Sparta. Mr. J. P. Droop travelled in the South of Italy during November and December 1906 in search of Messapian inscriptions. Afterwards he and Mr. Wace spent a fortnight in Thessaly excavating the ancient site of the Magnesian promontory. Mr. Jerome Farrell visited Aegina, Epidaurus, Tiryns and Mycenae, but his work was interrupted by illness, and he was obliged to leave for Switzerland. Mr. Walter George arrived in Athens on October 11, 1906, visiting museums in Germany on the way. After working in the Acropolis Museum and travelling in the Argolid, Mr. George went to Egypt and worked at Cairo, Medinet-Habu and Abydos. After leaving Egypt he visited Salonika in April, and a complete and full survey of the following churches was made:—St Demetrius, St. Georgios, Eski Juma and the Holy Apostles. Miss Mary Hamilton, who held a fellowship from the Carnegie Trust for the Universities of Scotland, came to Athens in November 1906. Her special subject of study was the festivals of the Greek Church and their connection with the ceremonies of the ancient Greeks. Mr. T. E. Peet arrived in Greece in January 1907, and spent three months in the study of prehistoric Aegean antiquities. Mr. H. J. W. Tilliard arrived in Athens in February. In the National Library he studied a thirteenth-century manuscript of Greek Church music. Mr. A. J. B. Wace travelled in Greece during November 1906, visiting Monemvasia, Epidaurus, Limera, Asopus, Helos, the Hyperteletic Sanctuary, Krokeae Geronthrae and Sparta. Mr. A. M. Woodward arrived in Greece in October 1906, and worked at the literature dealing with the antiquities of Maina, and began to study the Spartan inscriptions of the imperial age from the point of view of prosopography.

In 1905, Mr. Wace observed some remains of a Greek building close to the chapel of the Theotokos, near the promontory usually identified as Cape Sepias in Thessaly, near Bromyri. It was conjectured that the foundations of a Greek temple would reveal themselves. The cliff was much corroded, and it was suggested that the temple to which the fragments belonged once stood on the cliff. The chief task planned for this summer was the complete exploration of the precinct of Artemis Orthia, containing two strata, belonging to periods before and after 700 B.C. It was also intended to continue the tracing of the city wall, to attempt to locate the Agora, and at the same time to go on sinking trial pits at various points. Another centre of labour was Sparta and the Sanctuary of Artemis Orthia. The Roman theatre (the "Circus" seen by Leake in 1830) had been completely excavated. The general plan, including entrances and steps leading to the seats, could be reconstructed from the remains, and Mr. George, whose architectural skill had been of the utmost value, was preparing drawings of the restoration. This theatre was built in the third century A.D. to accommodate the spectators who came in great numbers to view the contests in honour of Artemis Orthia. The arena of the theatre and the interior of the sixth-century temple had been cleared down to the solid earth, with the result that three strata could be distinguished. At the top was the Roman stratum in which stood the Roman altar. Below this lies a thin Hellenistic stratum containing remains and ashes, and in this stratum was a Hellenistic altar, immediately below the Roman one. The deepest stratum was a metre thick, and contained a large altar in very good preservation, made of roughly-



dressed stones. The altar stood near a fragment of cobble pavement, and was surrounded by charred remains. The rest of the lowest stratum consisted of a mass of objects ranging in date from the ninth to the sixth century B.C. These objects, the cobble pavement below them and the altar must be dated between the seventh and ninth century B.C. The temple of the same period had yet to be found. The temple which had been found should probably be assigned to the middle of the sixth century B.C., and to it might be assigned a fragment of a lion's head, brightly painted, and other scanty remains of archaic sculpture. The next object of interest discovered was the sanctuary of Athena Chalkioikos. The brazen house of Athena on the Acropolis of Sparta was a temple coated with bronze plates, in which Gitiades had fashioned the deeds of the gods and heroes. Athena Chalkioikos took her name from this temple. The temenos where the brazen house stood was surrounded by a colonnade and included other sanctuaries. Within the temenos Pausanias of Sparta took refuge as a suppliant, and was there starved to death. This famous sanctuary was identified when the first trial pit was sunk on the Acropolis of Sparta on April 4, 1907. The discovery of a roof tile with the descriptive stamp again left no doubt, and two more had since come to light. Many other interesting and instructive finds had been made.

The revenue account for the year showed a credit balance of 52*l.* 17*s.* 2*d.*, compared with a debit balance of 112*l.* 4*s.* 5*d.* for the preceding year, owing to the response to this year's appeal for contributions to the Laconian Excavation Fund. The deficit in respect of these excavations which was so prominent a feature in the preceding half-year's accounts had been nearly wiped out. The annual subscriptions amounted to 938*l.* 6*s.* as compared with 911*l.* 1*s.* for the preceding year.

The Chairman testified to the variety of the researches carried on by the school and the energy with which they had been pursued.

Mr. R. M. Dawkins exhibited several lantern slides illustrative of the excavations at Bromyri.

### GENERAL.

**The Plans** of Messrs. Mangnall & Littlewood, of Manchester, for the proposed pavilion to be erected at Weymouth have been accepted.

**Mr. Hewlett**, of Leeds, was on Monday selected by the finance committee of Barrow Corporation for the position of town clerk at a salary of 600*l.* per annum.

**Mr. Frankland B. Ware** has been appointed State Architect of New York in succession to the late George Heins.

**The Institution of Civil Engineers** will hold their first ordinary meeting on Tuesday. There will be an address by Sir William Matthews, K.C.M.G., the president, and presentation of medals and prizes awarded by the Council, followed by a reception by the president in the library after the meeting.

**Dr. Meredith Young** has been appointed by the Marylebone Borough Council medical officer of health for the borough at a salary of 600*l.* per annum. Dr. Young has been medical officer of Stockport for about ten years.

**The West Ham Town Council** have passed a resolution in favour of the borough being chosen as the cathedral city for the proposed new diocese of Essex. The Mayor said that West Ham had a population of 300,000, and the surrounding districts a further 800,000, and no town was, in his opinion, more fitted to become the centre of religious life in the county.

**The Stirling Town Council** have agreed that the time for receiving competitive plans of the proposed municipal buildings be extended from October 31 to November 30.

**The Town Council** of Lancaster last week considered the question of adopting an official badge for the town. The red rose was proposed, but it was pointed out that this was a "Royal emblem," and would cost a great deal to be registered. It was also urged that it would not be right to appropriate for the town a badge that belonged to the county of Lancaster. Eventually, however, it was decided to adopt the red rose, as it was part of the crest registered by the Heralds' College. It was agreed that the adoption of a part of a crest was quite in order. Notice was given to move a resolution to rescind the resolution by which "Luck to Loyne" was accepted as the town's motto.

**Excavations** are about to be carried out at the amphitheatre at Maumbury Rings, Dorchester, believed to be the most perfect of its kind in England.

**The United Free Church**, Scotland, are making arrangements for the erection of about sixty new churches about the same number of manses in the High Presbyteries. An appeal for 150,000*l.* was made some time ago.

**The Metropolitan Asylums Board** in May relieved J. W. Restler, the deputy chief engineer, of his duties as district engineer for the Southern District, in order that he might devote himself entirely to assisting in the control of the whole of the engineering department. The committee at the last meeting recommended that Mr. Worger, who is at present an assistant engineer of the Southern District at about 650*l.* per annum, should be appointed to the vacant office at an inclusive salary of 1,000*l.* A question, however, was raised as to the position of Mr. Worger in regard to compensation under the Board's regulations, and after some discussion the recommendation was carried back with the view of having the position made clear.

**The Dean and Chapter of Winchester** have issued a second appeal for a further sum of 59,000*l.* to enable them to complete the work that is absolutely necessary for the preservation of the cathedral. A careful estimate of the required expenditure amounts to no less than 80,000*l.* Towards this sum there has been received in payment of promises about 27,000*l.* The appeal states:—"We have no permanent fabric fund, and our revenues have been greatly reduced for some years past. Consequently we have no option but to appeal to the further generosity of the nation for help in securing the safety of a building, unsurpassed in beauty, which is also a national monument closely identified with the makers of our history and hallowed by memories of the great heroes of our country."

**In a Special Report** to the Hanley Town Council on the smoke nuisance, a sanitary inspector stated, with reference to steam boiler chimneys, that it was an acknowledged fact that the dense volumes of smoke which were emitted from these chimneys were unnecessary. He had visited a number of works, and in the majority of cases had found that nothing whatever was being done in order to try to abate the nuisance. In order to ascertain the best method of securing the abatement of the smoke nuisance he suggested that he should be allowed to visit several of the large towns where the matter had been dealt with. The Council decided that, under the direction of the medical officer, the inspector be authorised to visit other towns with a view of ascertaining the mode of smoke prevention there.

**At a Meeting** of Stirling Town Council last week it was reported that Mr. Fitzgerald, Assistant Secretary of the Office of Works, had visited the abbey along with the medical officer on September 25, and made an examination of the tower and ruins. Mr. Fitzgerald stated that he would favour a scheme for enclosing the tower and remains of the abbey church and chapter-house with an ornamental railing, and foundations of the walls of the ruins and bases of pillars being uncovered so far as possible, and the interiors of the buildings marked by being laid with gravel. The expense of the work and the annual cost of keeping the place in order would be borne by the Office of Works. He provided the patrons arranged with the farm tenant to give the grazing of the portion enclosed, while the public would be admitted to the enclosed portion as well as to the tower for the present payment of 2*d.* each. He further stated that at some future date the remaining portion of the tower might be similarly dealt with. It was agreed that after consulting the Board of Works and the Treasury officials Mr. Fitzgerald should submit a written proposal to the patron.

**At a Meeting** of the executive committee of the Scottish National Exhibition on Friday the spaces committee reported that allotments had been made to the value of 5,900*l.* that applications in hand were sufficient to take up the remainder of the space twice over. Considerable space was being reserved for any more applications that might come in, for which a system of selection by ballot or otherwise would be necessary. The committee had four proposals necessary to enlarge the machinery hall 50 per cent to accommodate the numerous and desirable exhibits. Satisfaction was expressed at the progress made under unfavourable weather circumstances at the industrial hall.



The Architect, Nov<sup>r</sup> 1<sup>st</sup> 1907



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UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.: ENTRANCE LOBBY.

H. T. HARE, F.R.I.B.A., Architect.







The Architect, Nov<sup>r</sup> 1<sup>st</sup> 1907.



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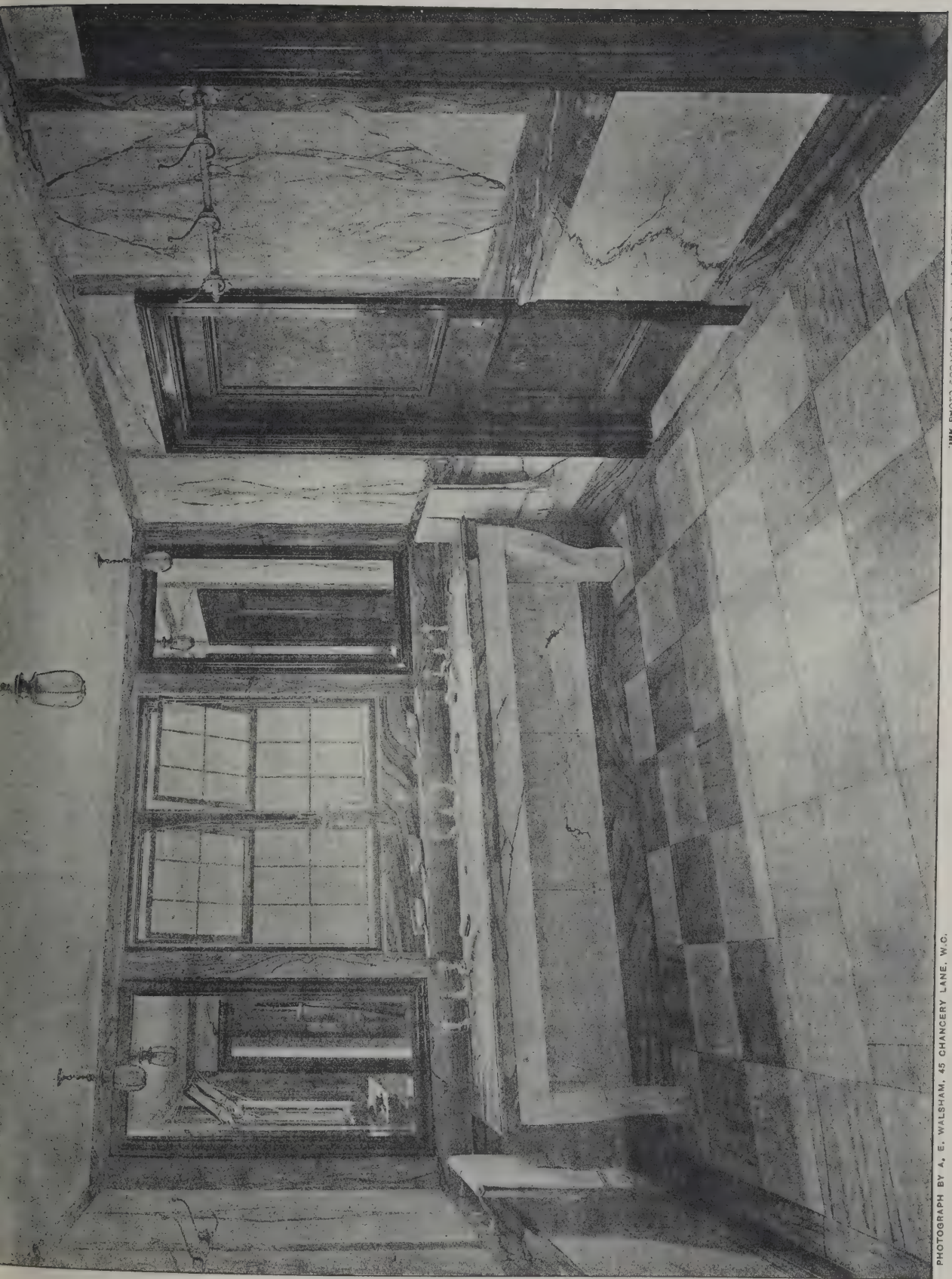
UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.: MARBLE STAIRCASE.

H. T. HARE, F.R.I.B.A., Architect.









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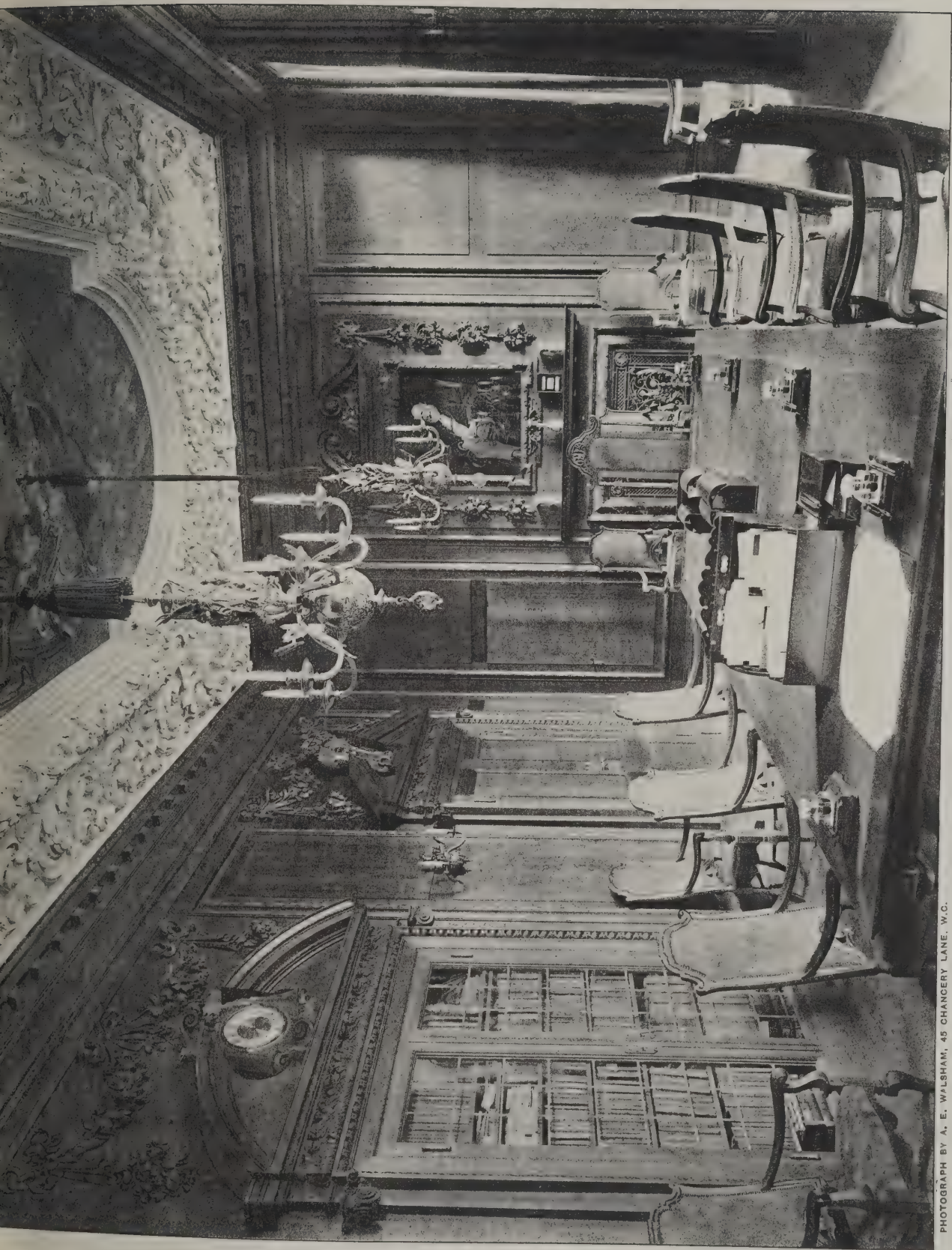
UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.: GENERAL OFFICE.

H. T. HARE, F.R.I.B.A., Architect.









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UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.: THE BOARD ROOM.

H. T. HARE, F.R.I.B.A., Architect.











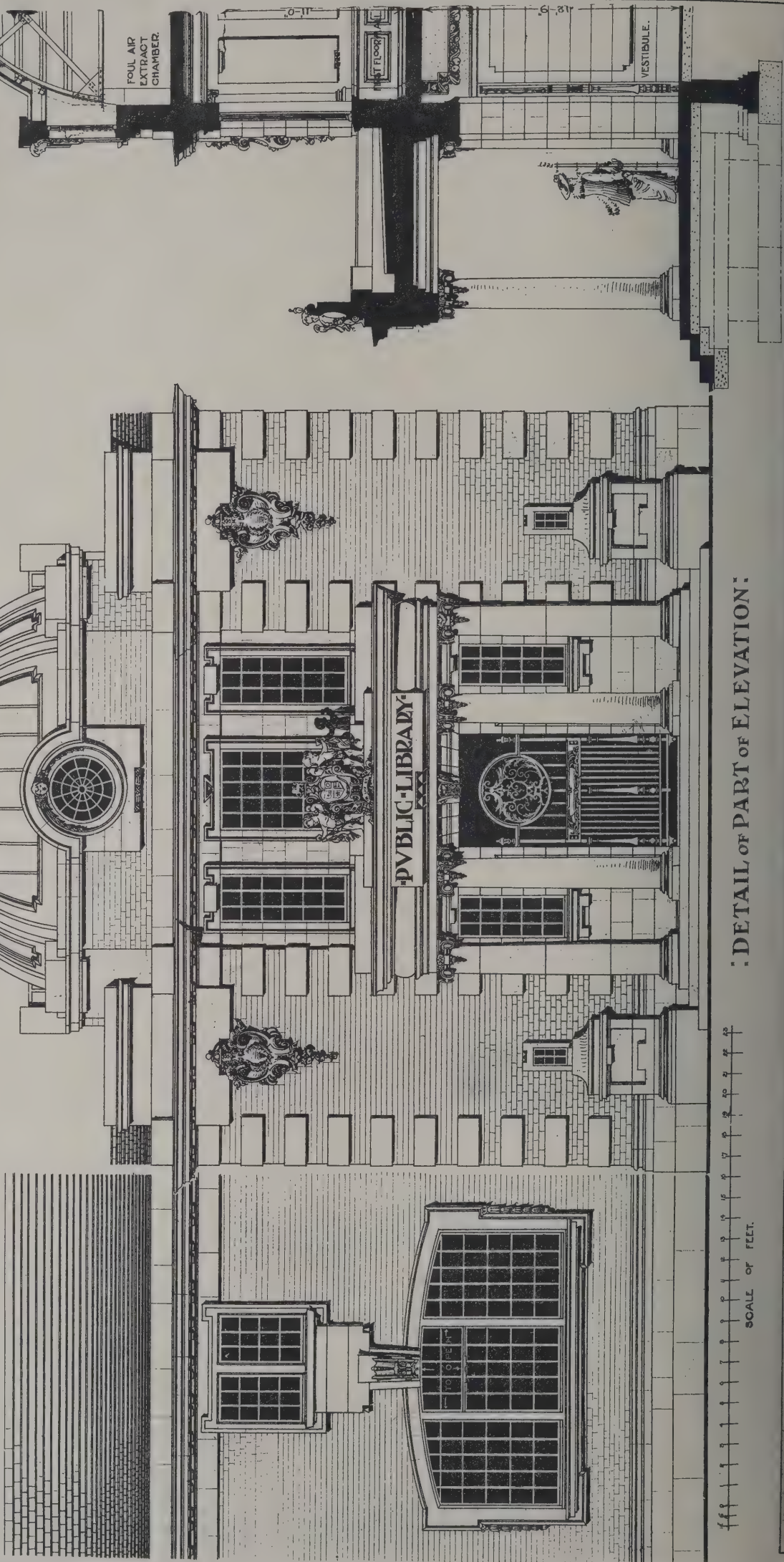
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BOROUGH OF BIRKENHEAD.

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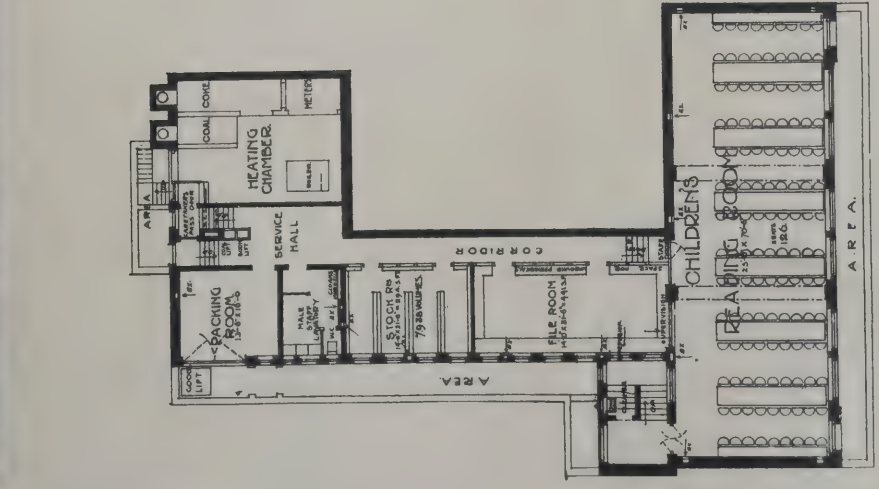
W. EDWARDES SPROAT & ELTON WARWICK  
ARCHITECTS.



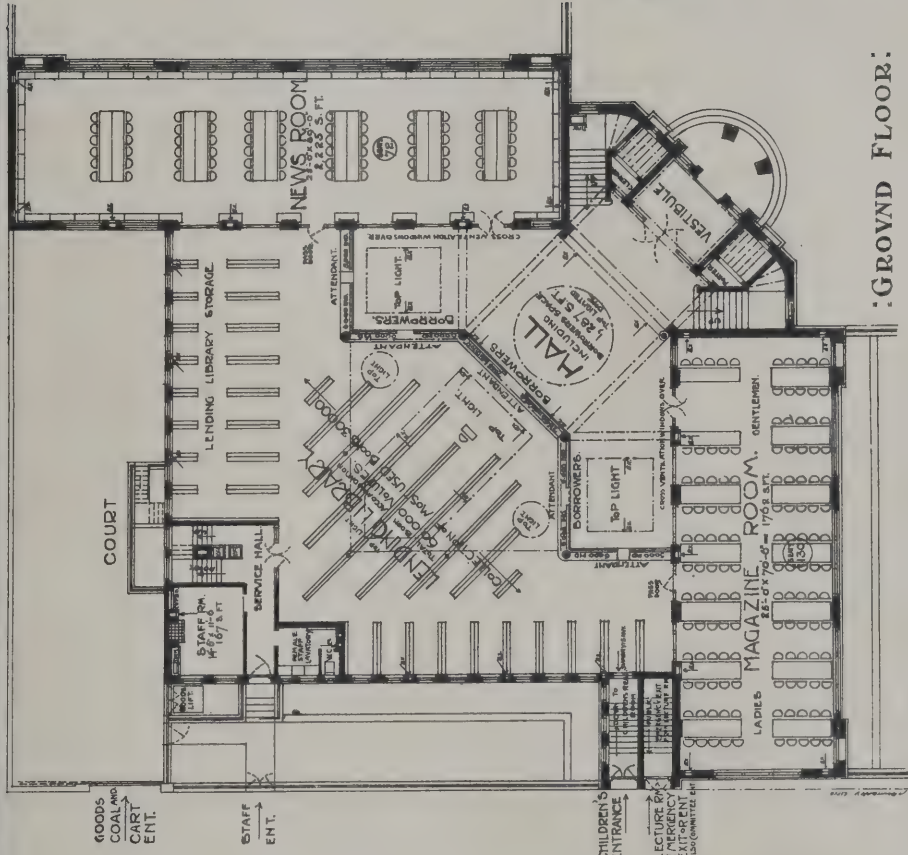
DETAIL OF PART OF ELEVATION.

SCALE OF FEET.

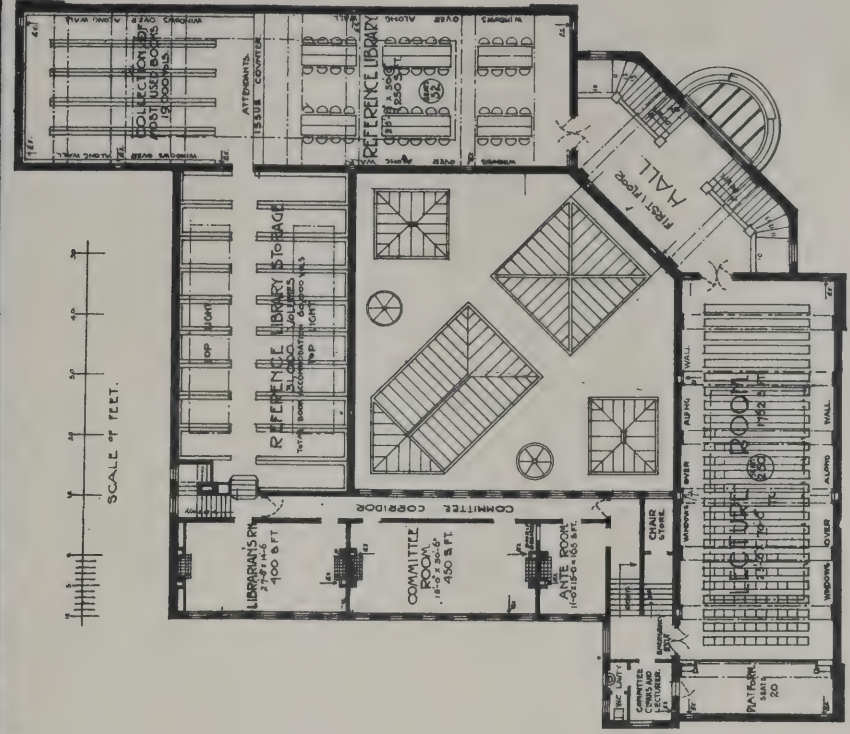




:BASEMENT:



:GROUND FLOOR:



:FIRST FLOOR:







# The Architect.

## THE WEEK.

WHEN commenting on the seizure of the paintings and drawings belonging to the United Arts Club for rent due by an under-lessee or yearly tenant of the premises, we said:—"It is doubtful whether a power which has been respected for so many centuries would be set aside by any judges." The decision in the Court of Appeal confirms the view taken by us. Their Lordships said they could discover no legal ground on which the exemption of the pictures could be supported. The action was dismissed with costs, and the stay of execution applied for in order to bring the case to the House of Lords was not granted. It was held down that by the common law a landlord is entitled to distrain upon any goods found on his premises without any regard to the ownership. That may be anomalous, as we said before, but the Court is bound by a long line of authorities. An effort was made to bring the case under the exception that paintings delivered to a person exercising a public trade, whether carried, wrought, worked up or managed in the course of his trade or employ," were exempt. But it could not be made out that finished pictures were things manufactured or worked up.

THE Hammersmith workhouse is likely to become a historic site, for it exemplifies the influence of some peculiar doctrines in political economy and sociology. The poor were supposed to be the victims of a false system, and compensation was to be provided for them by the State. At Hammersmith, the greater number of whom were engaged in a hard struggle to keep out of the workhouse, the whole of the bills have not been met, and we suppose if claims are brought into the Law Courts they will end in a similar way to the action taken for payment for the electric-light fittings. Messrs. FRYER & Co. claimed 606*l.* 18*s.* 4*d.* for standards, electroliers and sockets. The fittings were selected by the building committee from priced samples submitted. The Guardians imagined that a provisional estimate of 400*l.* could not be exceeded, and declined to pay more. Everything was done by the contractor in a proper manner, and the certificate of the electrical engineer was duly obtained. Practically there could be no defence. It was endeavoured to be made out that the contractor could be held responsible for the provisional estimate of 400*l.* But one of the Guardians, a builder, having declined to answer the question whether the contractor had completed the work was entitled to be paid, the court found for the plaintiffs for the amount claimed and judgment was given with costs. It remains to be seen whether the Local Government Board will allow additional money to be borrowed in order to meet such extraordinary extravagance.

An action was brought by Mr. J. C. SIM, architect, in the County Court, against the local School Board to recover 71*l.* 6*s.*, balance of his claim for fees in connection with the preparation of plans for alterations and additions to the school. After the plans had been prepared the Board decided to postpone the extension of the building, and they paid 70*l.* to the architect. Mr. SIM in his receipt acknowledged that the money was full payment for plans, schedules, &c., and for all work done up to present. . . . And it is understood that should the Board decide to proceed with the work of extension, the said 70*l.* will be an instalment of my fees." Subsequently the Board decided on carrying out the extension from plans by another architect. Mr. SIM accordingly claimed payment of the balance of his fees.

The Board denied that they were proceeding with the work as originally contemplated, and explained that the work that was being done was of the nature of alterations. They further pleaded that the claim was barred by the terms of the receipt. The Sheriff who heard the case considered that the receipt was a discharge of all claims for work already done. He also found that the additions and alterations represented on the plans were not identical, except in unimportant points, with the scheme of alterations recently carried out. As consolation, however, it was suggested that Mr. SIM might still bring an action against the School Board for breach of contract.

THE abatement of the smoke nuisance is most desirable. But care should be exercised when prosecutions are undertaken that they are based on rational and scientific grounds. Amateurs, artists and lovers of the beautiful in general regard themselves as superior to all mere business considerations, and so long as there is no sign of smoke in their district they do not care what industries may be hampered. There is no reason why manufacturers should like smoke; and if occasionally volumes of it are seen, the spectacle is due to causes which are not easily controlled. Mr. CURTIS BENNETT has decided one case which should be taken as a warning. The Chelsea Borough Council were induced to summon the Underground Electric Railways of London, Ltd., on account of the issue of smoke from the chimneys of the generating station. The magistrate declared the evidence given on behalf of the Borough Council was slender and unsatisfactory, and they admitted they were unable to find any fault with the works, which were as perfect as science could make them. The smoke was really dark brown, but looked black to the unscientific eye. The case for the prosecution having failed, Mr. CURTIS BENNETT said he considered that substantial costs should be inflicted. The amount would not recompense the company, to whom London owed a debt of gratitude for saving millions of passengers from the stifling atmosphere of the old trains. But he would order the payment of 300 guineas costs by the Council. It is to be regretted that the members of the Council cannot be made to provide that sum.

It is to be hoped the Australian Commonwealth will not decline to negotiate for a site for offices on the vacant land in the Strand created by the London County Council. It should have been long ago recognised that the land was too costly to be used for business premises, and unless acquired for colonial offices or allied institutions it will remain a wilderness for many years to come. It must be said, however, that the Australian Commonwealth had gauged the position of the Council. The land was valued at from 12*s.* to 20*s.* per square foot. But those are what are known as fancy prices. The Victorian Government obtained their site at 13*s.* per square foot. The adjoining site, which in some respects may be considered better, is the one sought by the Australian Government. It was valued at 20*s.* per foot, but the Australians offered in July 13*s.* per foot for a depth of 70 feet. The Council were willing to accept 18*s.* a foot. Every failure to secure a lessee must, as a matter of course, diminish the value of the sites, and the French fiasco was not without its effect. The Australians, therefore, reduced their offer to 12*s.* 6*d.*, and, instead of 70 feet, they proposed to take only 60 feet. That would make a difference of 3,000*l.* less per annum than the rent estimated by the Council. The improvements committee consider they cannot recommend the Council to accept such an offer. But unless there is a sacrifice it is very doubtful whether tenants can be found for sites having such peculiar characteristics.



## ANTONIO CANOVA.

FRIDAY last was the one hundred and fiftieth anniversary of the birth of ANTONIO CANOVA, the sculptor. It was anticipated that opportunity would be taken of the occasion to have public rejoicings in Italy. But it does not appear there were extraordinary celebrations. It is to be regretted if the countrymen of the sculptor have become indifferent to the reputation of so able an artist. Among foreigners the influence of CANOVA has declined, and it would be interesting to discover how far the Italians agree with them.

Opinion concerning his art has varied greatly in England. It might be said that contemporaneously with CANOVA a rival appeared among us. He was born in 1757, and two years before JOHN FLAXMAN was born in York. The English sculptor's style possessed the severity which was desired in CANOVA's works. Yet FLAXMAN was most generous in his appreciation of the Italian's genius, although he must have felt that the favour with which it was received by his countrymen was injurious to himself and his fellow sculptors. In the course of an address which FLAXMAN delivered before the Royal Academy after CANOVA's death he said:—

In considering the style of this artist's sculpture, we shall at once acknowledge a poetic fancy which gave a luminous interest to his conversation, equally with his compositions. His figures are graceful, his forms grand, muscle, tendon or bone most naturally distinguished, and the flesh seems yielding to the touch, by an execution as powerful as delicate. It has been observed by some that in Canova's sculpture we sometimes seek in vain for the severe chastity of Grecian art. This may indeed not be destitute of some foundation in truth, but we must not look for complete perfection in the works of imperfect man; he is most perfect in whom the fewest faults are discoverable. Canova in early life must have received a strong bias from the imposing and luxuriant paintings of the Venetian school, but many and great excellences counterbalance and, as it were, annihilate trivial and venial faults.

HAYDON, the painter, insinuated that FLAXMAN was morbidly jealous of artists who won public favour. But his treatment of CANOVA was a repudiation of the calumny. It should be remembered that several influential English amateurs had become CANOVA's patrons. Lord CAWDOR was one of the earliest; the Duke of BEDFORD was another; the Duke of DEVONSHIRE acquired several of his works; Lord CASTLEREAGH, the Duke of WELLINGTON, Sir WILLIAM HAMILTON, THOMAS HOPE, the historian of architecture, and others, including the Prince REGENT, preferred him to any English artist. He was even invited to prepare designs for a Nelson memorial. Towards the erection of his monument in the Frari, Venice, 4,000*l.* was subscribed in England. Yet FLAXMAN, although he must have regretted the tendency of taste, was not afraid to extol his Italian rival.

In our time it is doubtful whether any sculptor would venture to express so much praise. RUSKIN did not consider it was out of place in the early volumes of "Modern Painters" to condemn the "vile classicality," the "ball-room imagination" and the want of sentiment in CANOVA. Many amateurs have followed him. But it is satisfactory to find that one competent judge—the late Sir DIGBY WYATT—did not hesitate to speak of CANOVA as "the new bright light of modern sculpture"; and his works were said, if compared with those of his immediate predecessors, to stand out as light from darkness. Apart from the nature, purity and beauty of his figures, and the simple but most elegant execution of his work, DIGBY WYATT maintains that but for the energy and firmness with which he proclaimed his conviction of the value of the Elgin Marbles, our country might never have acquired them. But it is to be regretted, for his own sake, that CANOVA was unable to see the marbles until his career as a sculptor was ended.

The life of CANOVA is interesting, not only on

account of his success, but for offering a model instance of the system under which many of the great Renaissance artists were formed. He belonged to a family of stoneworkers. His birthplace, Possagno, was an obscure village about four miles from Asolo. The district abounds in marble; but more people visited the quarries than the village to which, prior to CANOVA's time, there was no other approach than the dried bed of a stream. When CANOVA was not more than three years old his father died and he was brought up by his grandfather. His education was in the workshop, and when he was a boy of nine he was recognised as an assistant who was able to earn wages. He was noticed by a Venetian gentleman, GIOVANNI FALIER, whom he was introduced to the Venetian sculptor BERNARDI, commonly called TORETTO, who accepted him as a pupil. We hear of incidents which recall the elder days of art. TORETTO was proud of the young man, and if he did not encourage him to undertake ambitious works it was because he realised that in so remote a district commissions of the kind were not likely to be forthcoming. But on the death of TORETTO, CANOVA was invited by his patron, FALIER, to Venice, and there he was engaged as an assistant by a relative, TORETTO'S. As he was employed for only part of the day the wages he received were merely nominal. He was without the modern desire for wealth, and poverty was not considered discreditable with a student.

It is easy to understand how a young mountain boy had seen no examples of painting and sculpture except those to be found in the simple churches of Possagno and the neighbourhood, could not fail to be impressed with the style of art dominant in Venice. He was able to study not only in the Academy, but in some of the private galleries. Apparently his first commission was for a pair of baskets of flowers and fruit, which he executed for the Commendatore FARSE. That they are not remarkable products for a lad of fifteen is, we think, creditable to CANOVA. Instinctively he felt that the representation of the human figure should be the aim of every true sculptor, and moreover flowers and fruit might have been imitated in the Possagno workshops by children. But such skill as he possessed was not obtained by the aid of any external machinery in the form of lectures, classes and prizes. The training was as simple as in any handicraft profession, and having the true spirit CANOVA succeeded.

CANOVA was occupied in his early Venetian apprenticeship with a subject which suggests that the old Classicism had still power among students of a humble class. Before his sixteenth year was completed he modelled at Asolo a figure of *Eurydice*. It was not in any of the lower regions, and a colossal hand was introduced as if to keep her within that bourne from whence the traveller returns. The model excited an enthusiasm such as was common in the golden age when masterpieces abounded. One of the results was an offer of a room in an Augustinian monastery to serve as a studio, and in which he worked for four years. He returned to Venice, where he undertook the companion statue of *Orpheus*, and he received a commission for a bust of the reigning Doge.

It was still the custom in Venice for an exhibition of recent works to be held in the Square of St. Mark, which was indeed a survival of a Greek custom. CANOVA was persuaded to send his *Orpheus* in 1777, when he was in his nineteenth year, and the approval it received was not only satisfactory, but convinced him that he had not mistaken the art for which he was competent. He obtained a commission for a statue of *Orpheus* in marble. Next he undertook a large statue of *Æsculapius*, and then an *Apollo and Daphne*, which was evidence of courage, for the work of BERNINI was just then admired. Next he was given a commission for a statue of *Dædalus and Icarus*, which was placed in the same room with *The Family of Darius*, by PAUL VERCESI, and which is now in the National Gallery. There were



ently an outcry against a sculptor in Paris who was supposed to have photographed a group of figures and reproduced them from the print instead of from the original. Some of CANOVA's rivals asserted that the two figures of the aeronauts were first cast in wax from the models and then recopied in marble. In no other way is it supposed so much accuracy could be attained. It can still be seen that the figures are not of an ideal cast, and that circumstance supported the allegation, which, however, there was no ground.

CANOVA was sufficiently advanced in his art to be convinced that he had still much to learn, and that the school for him was Rome. Accordingly he left Venice and arrived in Rome at the end of 1780. Seven years afterwards a similar experiment was made by FLAXMAN. Both the sculptors appear to have been encouraged by Sir WILLIAM HAMILTON. CANOVA, as an Italian, could however count upon official influence, and care had been taken to have his group of *Dædalus and Icarus* transported to Rome for the scrutiny of the Academy.

The Venetian ambassador gave him a commission for a group of *Theseus and the Minotaur*, and before the marble was completed the marble for it was placed at his disposal. The Venetian Senate had awarded him a pension of 300 ducats for three years, and this enabled him to give time to the study of ancient sculpture. His *Theseus* when completed was by some considered as inferior to a Greek work. But the statue was surpassed by his *Theseus and the Centaur*, which he executed a few years afterwards, and which was said to have surpassed the best Greek sculpture on its true basis. GAVIN HAMILTON, who possessed great influence in Rome at the time, declared that CANOVA was the only sculptor then living who was competent to undertake an important work. As a result CANOVA was selected to execute the monument of PIERRE L'ÉCLAIRÉ (GANGANELLI) and afterwards one of the predecessor REZZONICO. The latter is one of the most admired of CANOVA's works. It represents the Pope seated in a cope and kneeling, his mitre lying beside him. There is no suggestion of supreme power as in the other similar monuments, for what is seen is a bishop humbly kneeling. It has been imitated in memorials of other popes. That such a work could be produced by a sculptor who was known by his mythological subjects seemed at the time to be remarkable, and it is enough to suggest that if CANOVA had remained in Italy to Classic myths he could have anticipated a good deal of what is admired in modern works and might have become the pioneer of realism. The mausoleum of PIERRE L'ÉCLAIRÉ, which he had executed some years before, is less simple, but it had the effect of putting an end to the extravagance long tolerated in monumental sculpture.

A Papal monument was then supposed to place a sculptor in the highest rank, and CANOVA was able to include that he could remain in Rome and meet all the charges of his position. He was always a modest man, and the influence of his early life at Possagno was strong with him. He expected to be compelled to return to Venice, but after such a series of successes abandoned his humble Venetian studio. Much of his mechanical work on the two monuments was executed by himself, and as the labour was beyond his strength his health suffered during the rest of his life. It has been said that he preferred finish to all other qualities in a statue.

The outbreak of the French Revolution was as a catastrophe to CANOVA. He was only about forty, and it is supposed, like many of his contemporaries throughout Europe, to have hailed an uprising which was to promise a new era for every man of genius. He was one of the conservative Italians who found themselves both under the government of the Doge and the government of the Pope. He went back to his out-of-the-way Possagno, where he expected to live in peace. He could not expect commissions for his works of sculpture. But he hoped at least to find

enjoyment in painting pictures. His first work on a large scale was an altar-piece for the parish church of Possagno. He also travelled. But when NAPOLEON attained ruling power the sculptor could no longer hope to live in seclusion. There were moments when the Conqueror seemed to feel he had a mission to elevate Italy and the Italians. CANOVA was invited to Paris to model the bust of the First Consul, and projects were suggested by which he would become the chief agent in the glorification of his fellow-countryman. But CANOVA was obdurate to all the blandishments. Like a true Italian artist, he doubted whether the French had any real love of art, and the coolness with which the galleries of Italy were despoiled to enrich the Louvre he considered was due to a love of display rather than of art. CANOVA might have had the transformation of Paris in his hands and he would become in one way a dictator in Europe, but his heart was in Rome and he could not be happy outside the city. The only Frenchman with whom he was on friendly terms was QUATREMÈRE DE QUINCY, with whom he kept up a correspondence during several years.

If, however, he declined to be NAPOLEON's marshal in art, he was selected to represent nearly all the members of the new royal family—from Madame LETITIA, the mother, who is made to appear as if she were a Classic Priestess, to the Princess PAULINE, who preferred to be shown undraped. The large nude figure of NAPOLEON himself is in Apsley House, while a copy in bronze is in Milan. Many other Italians were taken as subjects by CANOVA, and he was invited to again visit France in order to prepare a bust of the Empress MARIE LOUISE. When Napoleonism vanished for a time CANOVA was deputed to recover the works of art which had been removed from Rome. It was a difficult duty, for, with the exception of Great Britain, the countries who had opposed NAPOLEON were eager to secure many of the masterpieces. By the aid of the Duke of WELLINGTON, CANOVA succeeded in having the claims of the Papacy respected. He seized the opportunity to visit London, primarily in order to see the Elgin Marbles, and here he was received with the respect due to his ability and honesty. On his return to Rome he was raised to a Marquisate with a pension of 625*l.* a year. He employed the whole of the money for charitable purposes. He died in 1822, and it was supposed that the inner complications which led to his death were mainly caused by working on marble in order to attain the finish which he desired. He designed a church for Possagno, and he left a large part of his wealth for the benefit of the inhabitants. Four years afterwards JOHN FLAXMAN passed away. It is not generally known that CANOVA sent works to the exhibition of the Royal Academy in 1817. He was described in the catalogue as "Principe Accademia de St. Luca." His works were *Terpsichore*, *Hebe* and a bust of *Peace*. In the exhibition of 1823 appeared his *Danzatrice*.

#### ARCHITECTURE IN AUSTRALIA.

THE last part of the Journal of Proceedings of the Royal Victorian Institute of Architects has a melancholy interest. At the beginning is the presidential address by Mr. FRANCIS J. SMART and a few pages further on is an obituary notice of him. Mr. SMART was born in Tasmania in 1852. Afterwards his parents removed to Victoria. At his own desire he was articled to Messrs. REED & BARNES, architects, who possessed an unusually large practice. After his pupillage he entered the Educational Department as an architectural assistant. In 1878 he commenced private practice in connection with the firm of Messrs. HENDERSON & SMART. Then he rejoined his old office, which during subsequent years was known as REED, HENDERSON & SMART; REED, SMART & TAPIN; and finally, SMART, TAPIN & PEEBLES. Mr. SMART was the architect for the National Museum and Public Library in Melbourne, the University and



the portico for the Town Hall. He designed a great many churches, convents, monasteries, mercantile buildings and stores. But his health broke down and he died on August 10 in his fifty-fifth year.

The address which he delivered a few months before did not indicate any feeling of weakness. On the contrary, it was marked by a hopeful and optimistic spirit. Mr. SMART considered that this year was a fairly prosperous one for architects; there was a large amount of work pretty well distributed, and they might safely conclude that depressed times and lean years had vanished. The members were feeling the prosperity and were able to display their individuality. The membership of the Institute was increasing, and there was greater evidence than before of spontaneous work and effort by the younger students. Mr. SMART compared other professions as strengthening the corpuscles flowing through the body of the community, while architecture was the "life blood itself, the very invigorating and colouring matter, and saves a community from being deadly anæmic. Architecture lies at the very portals of humanity. It is woven into its fabric and is part of its being, expresses its wants, its aspirations and its everyday life." Then he remarked how often nature aided in making a beautiful city. He contrasted Edinburgh, with its Castle Hill and Calton Hill as the termini of a thoroughfare, and Melbourne, "with its monotonous check-board squares and wide streets, more easily suited, as it turns out, to our modern tram and motor-car traffic—considerations which in themselves are practically accidental and happen to suit this practical age. To obtain a satisfactory result in such a case as ours, what is an architect called upon to do? Simply to content himself with the small or large site pointed out to him, and to work out his salvation as well as he can on a frontage, say, of 25 feet or 30 feet, or larger if he is lucky. He must design with care every moulding and form from the base stone to the top of the parapet, and enter into the requirements of his client in every particular by planning and arranging the details of rooms and fittings throughout, giving consideration to the style to adopt and its effect upon the surrounding buildings, and their effect upon it." The architect, according to Mr. SMART, should seek after something higher than his commission of 5 per cent. on the cost of his buildings. If he had no other motive he advised that the account should be made out in the following terms:—

To amount of account for professional services rendered in anxiously wondering if I could get your work, calling on you in a doubtful frame of mind to find if anyone else had obtained the job. Taking your level, making several bad sketches, in one of which you kindly pointed out that I had provided no doorway for one of the rooms and no proper position for one to be placed. Making a careful underestimate, or rather, an under-guess, of the cost, leaving out of consideration everything but the mere shell. Obtaining tenders and better work for you than was specified, and in checking grumbling contractors' heavy bill of extras and thoroughly displeasing you in many ways. Making-up contractors' account and the pleasure of sending in this one, which I hope you will settle by return post. Five per cent. on total cost.

He advised self-restraint, because the partiality for cement in Melbourne had led to excessive detail and bad architecture. It was easy to be showy, but too much flourish was wrong, and recalled the instruction to the village band, "When in difficulty beat the big drum." "Some architects," said Mr. SMART, "are fond of the big drum." He referred to the local Building Act, which had become obsolete, and was ill-adapted to the new methods of construction which had been introduced. The Institute had offered suggestions, but no definite result followed. Mr. SMART also drew attention to the exhibition which is to be held in Melbourne in 1908. The architectural section was to include not only drawings of new work, but views of earlier buildings in Melbourne and other towns. The hope

was also expressed that in course of time a Registration Act would be obtained.

In the speeches that followed further information was given concerning some of the topics introduced by the President. Mr. JOHN LITTLE, the honorary secretary, said that a report had been sent to the Council on the subject of the by-laws in 1905, and was still under consideration. There was little use in amending the by-laws, for they were antiquated, incongruous, and should be set aside and a new set made. Mr. BEVERLEY USSHER said that in connection with the Building Act the appointment of a surveyor for the city was most important. He would have to find a man of great ability, for, unless he were, with the methods there would be collapse of buildings and probable loss of life.

As regards registration, Mr. LITTLE said that he desired that the Bill for the purpose should be introduced into Parliament under normal conditions and discussed on its merits alone. They had no desire to pass hasty legislation. Other professions were acquiring legal status, but "the incompetent and worthless characters which had infested them were being driven out, and were at present making the architectural profession the theatre of their blundering work and their nefarious rascality." Mr. USSHER said they ought to be protected from the quacks and sham architects who were foisting themselves upon the public. Registration would do most of the architects who were practicing to-day very little good, but its effects would be seen twenty-five years hence.

Mr. HADDON argued that if dentists were entered to registration, and if a plumber could not work at trade unless he had proved his competency, surely it seemed anomalous that the men who built cities should not have their competency registered.

We may conclude from the reports that architecture in Melbourne is practised under conditions which are not unlike those in England. Business requirements are urgent in Melbourne, and it is believed they can be met only by the use of reinforced concrete. But the authorities imagine there are risks attending its use, and they hesitate to assume any responsibility for it. Yet with a competent adviser it would be as easy to prescribe conditions in Melbourne as in New York or Chicago.

As yet there is no sign that the Australian architects, although they have a free hand, have been able to improve upon the models long adopted in England. With a material like reinforced concrete they might be able to introduce other novelties besides piling storeys upon storeys. The only sign we can perceive of a reaction against stereotyped forms is in a criticism of a paper on a modern church building in the Journal of the Local Institute, where it is said:—"In our freer Australian religious atmosphere we decline to be bound by any of the traditions under which church buildings at home are erected. 'Orientation'—whatever it may mean—has no significance to us, and many of our Anglican and Catholic churches have their sanctuaries at other than the east end." It is also worth notice that a sketch proposed in the competition for a silver medal for a Roman Catholic church in the Byzantine style, which gave evidence that the Westminster experiment is appreciated in Melbourne. For the bronze medal the measured drawings an engineering subject is selected, viz. the abutment and half pier of Princes Bridge, Melbourne, at the south end facing east, showing the roadway span.

The practice of architecture in Australia, as in other countries, is not without difficulties. But it is evident that architects are doing their best to protect their own interests. Traders sometimes express disappointment at finding there is less desire to utilise new inventions than they anticipated. But it should be recognised that architects have not as much freedom as is desirable, and that antique modes and forms receive no less reverence in Australia and other Colonies than in Great Britain.



## THE ARCHITECTURAL ASSOCIATION.

MEETING of the Association was held on Friday evening last in the premises at Tufton Street, Westminster, Mr. Walter Cave, president, in the chair.

The following gentlemen were elected as members:—Messrs. T. H. Needham, O. G. Hunt, H. L. Geeson, F. S. St. J. H. Prynne, R. Woolley, D. J. S. Dawson, P. G. G. Small and J. T. M. Whitelaw.

## The Late Mr. G. F. Bodley, R.A.

The PRESIDENT said it would not be out of place if he made just a short reference to the death of Mr. Bodley. The deceased architect was not a member of the Association, but his work would be known to everybody in the country. He was the most distinguished exponent of Gothic architecture they had had in England for a great many years, and very probably the most eminent architect of the Gothic revival. Mr. Bodley's work bore an extraordinary distinction, and it was full of very deep thought and beautiful proportion. He was the means of introducing an entirely different note into the Gothic work in this country. Mr. Bodley was a gold medallist of the Institute. His charming personality, kindness and sweet disposition had won him many friends, and his memory was one which would long be remembered in England. On the motion of the President, a vote of condolence was passed to the widow and relatives of the deceased. Professor W. R. LETHABY delivered a lecture entitled

## Travelling Studies and Students' Drawings.

He said there was, perhaps, hardly a subject which could be made so delightfully interesting for them to hear about as the travelling studies of architects, and from many points of view. We might begin even a modern account of the search of architecture quite far back, and touch on various interests as they succeeded one another. There was the classical Greek phase, in which English research led the way, and the Gothic study in which we also led, and we were to be the first again in arriving at a stage of general enquiry in study. The adventures and discoveries of travelling architects—Adam at Spalato, Wood and Dawkins at Smyrna, Stuart and Revett at Athens, Cockerell at Nauplia and Barsoe—would make a most exciting and instructive story. So also would the enthusiasms and wanderings of the early workers on Mediæval architecture and John Carter recording so many things which had now been forgotten from England; Cotman, almost discovering the buildings of Normandy and making those wonderful drawings of them which remain still the most beautiful records of architecture which we have ever produced; the incessant activity of Pugin; and Ruskin, drawing all the details of Venice with one hand, while he was hanging the canals with the other. Or we might try to recall the impressions of our own impressions—the first look at some cathedral by starlight after a late arrival; the clearings, when the sky shone, never so blue, through the eaves of the parapets adorned with wallflowers; the views of Florence from the hills, Venice from the sea, the towers of Bologna against an evening sky, the drive to Apollinare in Classe, Rouen from St. Catherine's, and so on from the plain below.

For this purpose, however, was not to speak of these; nor was he going to argue for or against travelling studies, but to show that a good argument could doubtless be made out on either side. On the one hand, he thought it might be objected that such studies might even be harmful as leading to resultative ways, a sauntering view of architecture, and to discontent and disillusion. On the other hand, the knowledge of some of the world with a purpose, the possibility of making small discoveries of our own, the entering into the great part of art were all, assuredly, wonderfully valuable.

He passed by these ways of being certainly interesting, possibly even of being the most useful; for, after all, it was not one whether anything better could be done than trying to stir up enthusiasm; whether clapping one's hands and saying "Go it!" and "Tally Ho!" were not more to students than uttering opinions, arguing points and urging that we should get better value for our money. It was these last dull and troublesome things, however, that he was going to ask them to think about; but he was not arguing for the necessity of the study of ancient works of art through all future time, nor was he urging extension of the system. He did not even think that the studies stood high amongst the architectural principles of the moment, and his subject really limited itself to this,

Taking our facilities for study and our present methods of education for granted, how should they best be made not only productive, but reproductive?

In one's individual study the main things to be desired were definiteness of purpose and thoroughness of investigation. Without this definiteness of aim one might wander over half Europe without observing anything striking, without anything having been really seen. This definiteness might come in many ways—best of all for their purpose, he thought, from having attained the proper architect's way of looking at things, the seeing the object whole, and then resolving it into its component parts, not the ornaments, not seeing it in its atmosphere like a painter, but as active structure. It might come from marking down a certain era, or a geographical area, or it might come from having some other special interest for the time. But definiteness was essential. If they asked for a subject, he should almost say all subjects, for few have been attempted, and those that have been redone could be supplemented. Few subjects had been attempted in the modern light, for things were not done once and for ever; they perpetually needed doing over again, so that we could say nothing had yet been done finally. It was not a deep study of Gothic architecture to walk around Amiens and note the width of a buttress and the form of a diaper; then to go on to Beauvais and make a sketch of the towering spire as seen from the marketplace; and then to pass to Chartres, and so on. As to the different forms of Romanesque in Europe, or even in England, that was nearly an untouched field. For Italy, every town might be the subject of investigation, as Ruskin investigated Venice, Pisa and Lucca, Sienna, Bologna, and still Rome remained and would remain—many Romes, indeed; antique, early Christian, Mediæval. Better even than every town, every building of a certain standing and importance was a subject. If we might assume that the present type of civilisation was going to be long continued, every great building needed its special biography, for the time seemed near when many of them would only exist in books. Then as to thoroughness of investigation, only thus did the thing seem to enter through our thick skins to our hard hearts, and then only in small quantities—only at the end of a month did we discover some essential fact, and only thus could we begin to see the entire thing as made up of wall and roof and pier and arch as well as of cusp and pinnacle, colour, decoration and other overlays.

One of the great heresies of recent years was the sketching mania. He should like to say, never sketch. It swallowed up a lot of time, and resulted in nothing. Men he knew who had drawn carefully seemed to have more drawings than could be counted, for if they spent a week, or month even, over one study they soon increased, but the sketcher never got any forwarder. Drawings stood some chance of surviving, but sketches never. Nor did he believe that drawings ever got finished up at home; other matters pressed and they were put aside. Moreover, they would not work out; we could not decide whether a dimension should read 76 feet or 96 feet, and one got disquieted. Drawings finished at home got something unreal into them with every added touch. Everything done on the spot was something struck off between the object and the artist; that which was added at home was all artist. Let him beg of them to consider the importance of the studies they might make from the point of view of records. A great loss of seriousness had come about in many departments of art work by looking on it as only done for self-improvement and practice. In art schools a similar custom had sprung up of students looking on their drawings as a mere form of gymnastics: they were carried to a point, and were trampled on the floor, and the result of all this was that most life drawing was a very hollow business indeed. Now, the masters down to, say, Alfred Stevens looked on life studies as material for reference. Drawings should be collected and treasured, and when done with handed on to some museum to be preserved.

The central point of his story was really this. He did not think that students, or architects generally, or the public, had received sufficient return for the valuable yearly studentships which had been given for some generations, and the primary purpose of which was to encourage effective and productive study of old architectures. Properly, these scholarships were endowments for architectural research and culture, and must be double-sided in their aim, having a reference to the individual student and the wider public whose ambassador he is. The Institute disposed of between 400*l.* and 500*l.* a year in this way; the



Royal Academy of about 150*l.*, and other bodies of 200*l.* or 300*l.* in the aggregate. We might possibly estimate the total annual sum thus offered to students as about 300*l.* a year, which, capitalised—he believed this was the first time he had ever used that word—must represent something like 20,000*l.* He could not undertake to review what had been done as the result of this fine endowment, but at the highest estimate he could not think that the results could be considered other than disappointing. All these years French, German and Italian scholars had been minutely studying works of ancient architecture, and recording their observations in fine volumes and in many special publications of learned societies. Here, we must confess, it was hard to point to anything which had been systematically studied and recorded by the holder of a scholarship, anything which went beyond the formal task essay. Indeed, to go outside of the student question for the moment, and leaving living architects out of the count, we might venture to ask what contributions to the study of ancient architecture in Europe had been made by Englishmen during the last fifty years? So far as he knew, the last important original work on Classical architecture published by an English architect was the late Mr. Penrose's scholarly book on the "Principles of Athenian Architecture," while Mr. Street's study of "Gothic Architecture in Spain" was, he believed, the only one dealing with the Mediæval styles of the Continent which had anything of a reputation, so that one might see it referred to in the footnotes of foreign books. Professor Willis's learned treatise on vaulting, which did have an immense effect on the continental criticism of Gothic architecture (an influence which might be traced to-day, through Viollet-le-Duc, in Choisy's clear analytical diagrams), could hardly be mentioned, as he was not an architect. It was somewhat mortifying, indeed, that this work, which had more of what should be the architect's way of looking at things than any other that our country had ever produced, should have been written by one whom we must call an amateur, and so many architects' books were written by amateurs. But Willis, like Penrose, was disciplined in method. Our losses in this respect were manifest and manifold. While we did not take sufficient part in these things, we stood, in a sense, outside European scholarship, and necessarily acquired the characteristics of provincialism—characteristics which react, he thought, on all we do by way of architecture, and finally, on London itself, which had well been called "a colossal village," or a conglomeration of Batterseas. The loss in disciplined study to the architectural body and the individual was also momentous. Under the foreign system such study formed an opening to public art life and a contribution to science. With us it had been for the most part a sort of students' picnic—haphazard, desultory, faddy; such as it must necessarily be when no lines were traditionally laid down. A student gaining one of these valuable scholarships was apt to drift through France and Italy making notes of superficial forms, sketches of picturesque corners and water-colour drawings. The jottings, sometimes extraordinarily clever and individual, were brought back in various sized notebooks and half-finished sheets, and from that time were apt to disappear, so that it was almost as great a marvel what became of the immense mass as what became of the infinity of pins. Systematic travelling study should be clear in aim, accurate in record, and lead up necessarily to publication. Indeed, it was the lack of this last essential corollary to form a natural and necessary completion to their studies which showed the method to be wrong. Nothing else would brace them up to discard vagueness and unreality.

We did not, he thought, expect enough of our students. It was taken for granted that their views could only be secondhand reflections, and at the best of only academic value. But the body of students, he ventured to say, were not properly merely infant practitioners. They might, if rightly guided and wisely ambitious, fulfil a function necessary for the whole body—the real function of studentship. He more and more wondered at the gifts, aptitudes and enthusiasms of the young men, and felt assured that it was only suggestion and proper channels for their activity that were needed—these, and the aptitude of expectancy, not that of taking insufficiency for granted.

What we had to expect was that complete studies of great Greek, Roman and Mediæval buildings would be made by our students up to the standard of French and German work, and he could not think that if they were forthcoming there would be any waste of laborious study which had brought about the result he was venturing to bring to their

notice. When some of these scholarships were found means of publication were not so easy as they are now our methods of reproduction; but he could not think that was in the purview of enthusiasts like Soane and Pugin that collections made as a consequence of their benefactions should practically disappear.

Let them turn to the particulars of prizes and studentships in the Institute Kalendar—his copy, he found, was 1904. The first application of the endowments he had been speaking of was the announcement of an award of 25 guineas for an essay on the "Delineation of Architecture." The first thing that struck him on this was, not that there was anything necessarily wrong in the subject, or way that it was put, but that somehow it was obvious just an essay title "in the air." Those who set the subject and those who "wrote up to it"—if he might be allowed the phrase—were hardly likely to feel the pressing reality of the subject. Nobody wanted to know about delineation of architecture, and consequently there was a feeling of exhaustion and make-believe about the whole matter. He feared that former years might have been like it for he found that in the seven years previous the prize was withheld four times, the contributions not coming up to the pitch, whatever that might be. Who, indeed, was likely to play up to the situation when such questions were pounded as it were in a vacuum, and when the answers remained by custom in oblivion after judgment by incognito in camera? He could not help wondering, too, whether the essayists read the really classical utterance on architectural delineation by the late Mr. Emmett. The prize had now been given for twenty years, and it was not business to be getting a character for intrusiveness and inviolability, but he did want these things to be brought up to standard. The intention in the establishment of this essay prize could not have been to encourage mere exercise writing. He dare say all this because he did not know one of the essays, nor did he know where he could find them. It had not been the custom to treat the prize seriously, and he followed custom, and that was his complaint. To use the cant phrase, he complained of the system, not of the individual, and he could only wonder what a German university would do with such a prize endowment. The prize, it seemed to him, might be given on a set subject when it was desired to bring some branch of knowledge up to date; at other times it should be given for original researches, and all prize essays should be published as the standard introduction to the subject. Directly we want to know things it was easy to set questions by the score and hundred. If even it were a standing question like an account of the foreign architectural literature of the year, with a biography, how valuable would be.

He came next to the measured drawings prize of which had been given for twenty-five years and had brought forth nothing but good work. Still, he did not know what to lay his hands on the results, and he saw that in one direction it would be a valuable means for exploration and record. The valuable Soane studentship of 100*l.* followed. For fifteen years it had been of this amount, and for twenty years before that it was of 50*l.* That was, 3,000*l.* had been distributed in this way.

Then came the Pugin, the Godwin, the Owen Jones, the Tite, the Grissell, the Cates and the Ashpitel endowments and in all of them the vital and educative character of the exercises set had to be considered, and also the general ability of the answers and researches which followed. It ought to be possible to bring the general situation of architectural education to bear on the character of the essays and projects and records, and to make the endowments a very valuable accessory. He would like to see one of the events, the Institute prize for measured drawings, and so shape the conditions that the examples selected for prizes should be central and safe of their kind, and should be drawn in a plain, unaffected way, with readable lettering all more or less uniform. They should then be taken up by the Institute, and be printed and circulated as standard examples in the schools. Was there any student who would not be disciplined by thinking that his drawing might be "Standard example No. 22"? The Association had published a great number of years published in their sketch-book delightful views and valuable measured drawings of various ancient buildings which formed now a collection of immense value; but this sketch-book had no direct association with travelling students as such, and it did not propose to publish minute analyses of historical monuments. The practical aim of his paper was to suggest that a m



be found for the regular publication of worthy studies made by what he might call official students. His publication to bring about the actuality which was needed to make students' study in itself real and valuable. He could not believe there would be any difficulty as to publication if the books contained real matter. Indeed, up to a certain standard had to be bought by the great libraries all over Europe and America, and one of the consequences of what he had been speaking about was that they had to buy foreign books, whereas the students were not under the necessity of buying English books. Turning from this question of publication, he tried to bring to the mind of students the fact that the new conditions as to thorough study had arisen in the last few years by the establishment of British schools in Athens and Rome, to some extent parallel to French and German institutions in those cities, and that beside these exploring societies like the Egypt Exploration Society and the Egyptian Expedition Fund sometimes had work for young architects which was germane to their studies. To go out on a definite mission, self-imposed, or under the direction of others, stood in quite a different category to any of mere sight-seeing and note-taking, and this was the point that he wished very much to recommend to individual students. It was the old story of concentration which every virtuous lecturer dragged in, and which students received in the orthodox way as a pious commonplace. But really it was quite true that plenty of one thing was infinitely better as a stepping-stone to even universal knowledge than a smattering of many things. Again, they were not to be travellers to be students. They could learn of foreign art in their museums if they would really study the things. To do this they needed first to be drawn to special interest, and if they could not find what they were interested in it would not hurt to toss up. Then, after a general view of the things and where they were found, it was necessary to read all that was known of them, with some reserve of doubt that all that was said need not all be true. Then they should look at the things again and again and compare them with all others that were found, and at last they would be rewarded by finding that what somebody had called a cow was, in fact, a lion, and that one thing was a good deal like another, which was said to be English and not French. In conclusion, he hoped they would understand that he was not spoken entirely of ideals and principles, and that least of all he had any thought of less than reverence for the arts and their works. Studentship should be a spirit of youth, but for all our lives. We saw in those days and it and in whom it lasted—Cockerell, Penrose, and Street—types of mind which sweetened and ennobled the calling to which they belonged. Granted that to the extent it might be a matter of natural bent, it was, nevertheless, a matter of heart plus imitation. Without discipline and leading, perhaps two in a hundred could be brought through to be amateur students, but with proper guidance and discipline he could hardly think that so many of a hundred could remain untouched by its refining influence.

WALTER MILLARD proposed a vote of thanks to Mr. Lethaby for his lecture, and said he had often wondered how important it was for students to be set a method of study, and the lecture had emphasised this point. It seemed to him that the first endeavour of a student should be to master one single building no matter how large, and he should be taught to grasp the building as a whole and to know all that could be learnt about it. To draw it and represent it exactly to scale. Once the student understood all that was to be known of even a single building his knowledge would serve as a key to the secrets of architecture.

THEODORE FYFE seconded the motion, and agreed with the lecturer that a great deal of sketching was necessary, and he also suggested that the course of studies for architectural students should be more systematic.

H. H. STATHAM differed with some of the views expressed in the lecture, for he could not agree with the lecturer that the results of architectural studentships could be so much time lost. With regard to sketching, he thought that all the best architects in modern times were sketchers, and he believed that the same genius that made a man a fine architect impelled him to make drawings. He ventured to say that by sketching a building seen on one's travels more would be learnt about it by merely looking at it. With regard to the Insti-

tute essays, Mr. Statham could not agree with the views expressed in the lecture. He had seen the last Institute essay, and thought the subject set was a most useful one. The objects of the essays were the education of the essayist, the encouragement of the habit of thinking critically on architectural matter and the expression of such criticism in literary form.

Mr. W. CURTIS GREEN also supported the vote of thanks.

## GERMAN TOWNS.

IN his last report Mr. Thomas H. Norton, the United States Consul, writing from Chemnitz, says that the sojourner in Germany is frequently impressed by the evidence of many-sided efforts on the part of municipal authorities to gratify the æsthetic sentiment of the population at large in all that appeals to both eye and ear. The tendency is almost as strongly evident as the more distinctly utilitarian determination to abolish mendicancy, improvidence and suffering from poverty during sickness and old age. An interesting phase of this policy is revealed in the prize competition offered recently by the authorities of a neighbouring Saxon town. The Town Council invites architects to submit suitable plans for the fronts of residential and business edifices. These façades should be in keeping with the location and general character of the place, and aim at fitting and harmonious effects, within the reach of modest purses. Four substantial prizes are offered for the most successful competitors, and other projects are to be purchased if deemed desirable. These plans will be placed freely at the service of property owners who decide to build or to alter existing constructions. It is hoped by this means to combat unfortunate and all too prevalent tendencies on the one hand toward monotonous uniformity, on the other toward the baroque and grotesque, when architectural details of projected edifices are often confided entirely to builders destitute of adequate training or taste for the æsthetic. The idea is certainly one which, if intelligently carried out, should eventually improve materially the general appearance of the towns where it is introduced. It is of importance in a country like Germany, where even in villages buildings are erected in continuous blocks. As but one side of a construction is exposed to public view, it frequently happens that the services of an architect are not sought. This habit of compact building, even in small places, dates from the olden time when dictated by the needs of mutual aid and protection.

## LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

AT a meeting of the above Society held on Thursday, October 31, Mr. H. S. Chorley, president, in the chair, the report of the Council for the year 1906-7 was read. The total membership on April 30, 1907, was 169, namely, 32 honorary members, 70 members and 67 associates, as against a membership of 174 last year. During the year 1906-7 there have been nine general meetings and eleven Council meetings, compared with nine general and fourteen Council meetings in the previous year.

The silver medal and prize of five guineas given by the president, Mr. H. S. Chorley, M.A., F.R.I.B.A., for the best set of measured drawings of any ecclesiastical or domestic building erected anterior to 1800 A.D., was awarded to Mr. W. P. Rylatt for measured drawings of Methley Church, and Mr. Herbert Carnelly was given a bronze medal for his drawings of Howden Abbey Church.

The prize of three guineas for sketching was awarded to Mr. W. P. Rylatt. The prize for construction of three guineas was awarded to Mr. W. P. Rylatt. The prize for an essay of two guineas was awarded to Mr. W. Whitehead. The prize of three guineas for the best set of designs for subjects selected by the Council was awarded to Mr. H. Carnelly. A second prize amounting to 1*l.* 1*s.* was awarded to Mr. W. Whitehead. The prize offered by Messrs. Halden, value four guineas, for four sheets of testimonies of study for the R.I.B.A. intermediate examination, was awarded to Mr. W. Whitehead.

The school of architecture, under the auspices of the Society, in conjunction with the Leeds Institute and Leeds University, is proving of great advantage to the associates in preparing them in the subjects required for the R.I.B.A. examinations.



## NOTES AND COMMENTS.

M. EMILE TRÉLAT, who died last week in Paris in his eighty-sixth year, was a remarkable man. As the founder of the Ecole Spéciale d'Architecture he succeeded in doing what few would dream of attempting—that is, in creating a technical school which would rival Government institutions. It should be remembered that in France schools of science or art are closely connected, and to interfere with the organisation is perilous, but M. TRÉLAT was sufficiently courageous for the innovation, and his self-reliance and independence were rewarded. He was, however, trained in Government institutions, and distinguished himself in the Ecole Centrale des Arts et Manufactures. Then he took charge of a pottery, which in those days was a favourite occupation for laureates of that school. Afterwards he became one of VISCONTI's assistants in the works of enlargement at the Louvre. Next he was appointed professor of construction at the Conservatoire des Arts et Métiers. M. TRÉLAT also served as president of the Society of Civil Engineers. He had, in fact, gained a reputation in art and science before he founded his architectural school on the Boulevard Mont-Parnasse, and it soon was recognised as a necessity of the Quartier Latin. It is now in the Boulevard Raspail, having outgrown the original premises, and is directed by M. GASTON TRÉLAT, who took a prominent part in the last Conference of Architects. The number of distinguished Frenchmen, including M. EMILE LOUBET, who attended the funeral ceremony on Saturday, was evidence of the esteem in which M. EMILE TRÉLAT was held. On the same day his venerable wife expired in her eighty-third year. M. GASTON TRÉLAT has therefore a double claim on the sympathies of architects.

The lighting of schools in winter and on other dark days is so important, it is well to record the experience of the education committee of the London County Council. They have for some time past considered the relative merits of the systems of gas and electric lighting in the Council schools. Gas lighting by means of plain burners has been practically superseded in the schools by the introduction of incandescent mantles, which have been found preferable from the points of view of economy and efficiency. The committee endeavoured to obtain an accurate comparison of the merits of incandescent gas and electric lighting. As regards hygiene and general efficiency electricity possesses many advantages over gas, but from exhaustive comparative tables which they have had prepared it would appear that the cost of maintenance is about 50 per cent. higher. They are informed, however, that the present type of incandescent electric lamp is likely to be superseded in the near future by metallic film lamps, which will, it is anticipated, effect a very great saving in the consumption of current, and may even render electricity a cheaper illuminant than gas.

The organisation of the Franco-British Exhibition is so far advanced that applications from British manufacturers should be made before November 30. The different groups are presided over by chairmen who are representative of each. The Fine Arts will have Sir E. J. POYNTER, P.R.A.; Science, Sir NORMAN LOCKYER; Education, Sir WILLIAM MATHER; Engineering, Sir W. H. WHITE; Constructive Engineering, Sir A. BINNIE; Mechanical Engineering, Mr. T. HURRY RICHES; Gas Engineering, Mr. H. E. JONES; and Electrical Engineering, Dr. R. T. GLAZEBROOK. One of the most interesting sections for many will be the International Sports Exhibition. In order to have great public displays which will revive classic times a stadium in the form of an amphitheatre and having an area of 55,000 square feet will be constructed. It will accommodate 80,000 spectators and so international sports can be arranged on an unprecedented scale.

THE year 1911 will be the jubilee of the recognition of Rome as the capital of Italy. It was proposed to celebrate the occasion by a restoration of the Baths of Caracalla in "staff," and to use the structure for an archaeological exhibition. But the great expense of undertaking created opposition, and there seems probability of a worthy suggestion of the great meeting place of ancient Rome being raised to delight millions of visitors. A lesser project has been since brought forward. The Baths of Diocletian have not been entirely annihilated. The church of Santa Maria degli Angeli was one of the halls, and eight of the original granite columns remain. In two other buildings of the neighbourhood there have also survived parts of ancient baths. It has been suggested that no better memorial could be devised than to isolate as far as possible the Baths of Diocletian, and for that purpose purchase some mean houses which conceal some of the original walls. In the interior it would be possible to hold an archaeological exhibition. MICHEL ANGELO directed many of the alterations of the ancient building into the church, and a monastery for the Carthusians. But it is now considered more desirable to reveal much of the thermæ as is practicable. The building would not, however, be sufficiently attractive to serve as a temporary memorial.

## ILLUSTRATIONS.

MOOR CRAG, WINDERMERE.

THIS residence was erected for Mr. J. W. BUCKLEY by Mr. G. H. PATTINSON, contractor, Windermere, from the designs of Mr. C. F. A. VOYSEY, architect. The windows were in Buttermere green slate, fitted with wrought-iron casements by Messrs. WENHAM & WATERS. The roof was of green slate, also the pavements of passages, entrances, kitchen and kitchen garden. The joinery was all in oak by Mr. JOHN EDMONDSON. Windermere, the cost of painting, decorating, and upkeeping generally being reduced to a minimum. The garden was carried out by the Brothers MAWSON, Windermere.

UPCOTT HOUSE, OKEHAMPTON.

THIS house was built in 1904 for Mrs. MICHAEL WILLIAMS from the designs of Mr. GEORGE FELLOWES PRYNNE, F.R.I.B.A., of 6 Queen Anne's Gate, Westminster. It is placed on a fine site on the side of a hill facing the south, with a good view of the Dartmoor hills. Being in an exposed position the walls are very massive, and are built of local granite with granite dressings, and the upper storey is built with rough-cast. The accommodation consists of a good-sized hall, four sitting-rooms, eleven bedrooms, and usual offices, including outbuildings, &c. The house was very well carried out by Mr. H. HARRIS, builder, of Okehampton, at a cost of 3,990*l*.

TURNBERRY HOTEL, AYRSHIRE, N.B.

WINDOWS IN THE NAVE ROOF, ST. MARY THE VIRGIN, BEDDINGTON, SURREY.

THIS ancient and interesting church is undergoing repair. Considerable portions of the roof are to be stripped and retiled, and the stonework in the parts as the cills and mullions of the windows which has decayed is being carefully restored. Steps are being taken at the same time to improve both the ventilation and lighting of the nave by the construction on either side of the roof of dormer windows of English oak, effecting the desired result by the addition to the building of an interesting and quite characteristic feature. The work generally is being carried out by Messrs. DAWSON & SON, builders, of Beddington. The stonework and carving by Mr. N. HITCH, of Vauxhall, under the direction of Mr. H. P. BURKE DOWD, F.R.I.B.A., architect, of 12 Little College Street, Westminster Abbey.



## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE first meeting of the Institute of Architects for the session 1907-8 was held on Monday evening last, Thomas E. Colclutt, president, in the chair.

THE PRESIDENT announced that the Cape Institute of Architects had been admitted by the Council to alliance with the Royal Institute of British Architects under law 77.

THE PRESIDENT said he wished to present the new Institute silver medal, designed by Mr. George Frampton, R.A. medal, he thought, was a very beautiful work of art, would be in itself an incentive to students in the future, a hearty vote of thanks was passed to the designer.

ALEXANDER GRAHAM (hon. secretary) said that since last general meeting in June the Institute had lost several members by death, among whom were:—Thomas Bull, of New Zealand, elected Fellow 1884; Nathaniel Stanger, senior architect in the Office of Woods Forests, elected Associate 1882; Augustus Eldred Jones, elected Associate 1878; William Leck, of Amesbury, elected Fellow 1904; Richard Lloyd Jones, of Denbigh, elected Associate 1856. Continuing, Graham said it was with sincere regret that he had to add to this list the name of George Frederick Bodley, who died away full of years. His enthusiasm for the art he made him hopeful to the very last that he might outlive the many monumental works that had been entrusted to him not only in this country, but in many other parts of the world. A vote of condolence and sympathy was passed to the relatives of Mr. Bodley. The Secretary announced that at the October statutory election fifteen candidates were examined, and that the following seven having passed had been granted by the Council certificates of competency to act as district surveyors under the London Building Act:—Mr. T. James Sidcup; Mr. P. Boothroyd Dannatt, of Greenwich; R. H. Jewers Mayhew, of Anerley; Mr. H. Blinman Kenzie; Mr. J. Douglas Scott, of Bedford Row; Mr. T. Tinsley, of Chelsea; and Mr. Stanley Towse, of St. John's Inn.

THE PRESIDENT then delivered the following

## Opening Address.

adies and Gentlemen,—In opening this the seventy-first session of the Institute, my first duty and pleasure is to thank my brother architects for the confidence they have shown in electing me for the second time to the position of President; and I desire to express my gratitude to the Council for the courtesy, forbearance and loyal support which they continually afforded me during my term of office in the last session.

In reviewing the work and the proceedings of the last session, it is with very great pleasure that I refer to the successful result of the visit to Edinburgh and the annual meeting there in July last. It is, however, much to be regretted that there was not so full a representative attendance from London and the provinces as one would have expected and as the occasion demanded. This may have been due to several reasons, such as the inclemency of the weather during last summer, the distance from London, and consequently the length of time that was required for the visit. It was satisfactory to note that a very fair proportion of the Council were present during the whole of the proceedings. There were present nine Fellows and many members of the allied societies. The programme of proposed visits to buildings prepared by the Edinburgh Architectural Association was a highly interesting one. The opening meeting was a reception given in honour by the Lord Provost and the magistrates, which was attended by a large and representative gathering of the citizens of Edinburgh, and was a very brilliant success and highly appreciated by the visitors. We were conducted to many buildings of exceptional interest, of which none, I think, appealed to us more than the Holyrood Palace and the latter building was the object of close study on the part of the visitors. Beyond the acknowledged merits of its architecture, especial interest and consideration were given to the very important subject of restoration, a question which has given rise to a keen controversy among the citizens and architects of Edinburgh. It will be remembered that a considerable sum of money was devised by the late Lord Melville to be used at the discretion of an architect nominated by him in a complete restoration of the Palace. Very many prominent architects and other authorities, however, have expressed considerable alarm at any

restoration of one of the most interesting remnants of Mediæval work.

The consensus of opinion among the visitors appeared to be very strongly in favour of non-restoration, the general verdict being that it was only desirable to devise some simple means of protecting the upper parts of the walls from the ravages of rain, frost and snow, and that very little need be done in the way of repairing. It was thought that restoration would practically mean rebuilding the greater part of the chapel and adding a new roof and vaulting. At present there is no roof, and the greater portion of the north arcade has practically disappeared. In fact, it was felt that restoration on such a large scale would practically mean that a new chapel would arise, and that much of the work of our forefathers would be obliterated, or at least renovated out of all knowledge. As it now stands this building forms a monument of Mediæval work, beautiful in design and workmanship; and properly protected it would continue, for ages to come, to afford an example of a phase in our art which can never be reproduced. By the courtesy of those in charge of the palace we were enabled to visit the suite of private apartments not generally open to the public, and these rooms we found to be of quite exceptional interest and beauty. This work is of the latter half of the seventeenth century; it acquires additional interest from the fact that something more than tradition exists as to the workmen employed in modelling and carrying out the various ceilings. These ceilings are of great beauty of design, and the modelling of the plasterwork ranks among the best ever produced in this style. The greater part is said to have been modelled *in situ*. We are shortly to have a Paper on the Royal Palaces of Scotland, by Mr. W. T. Oldrieve, the architect who has charge of these palaces on behalf of the Government. The subject is a most interesting one, and it may be confidently anticipated that Mr. Oldrieve, with his great knowledge of the subject, will treat it with the appreciation it deserves. I think we visitors were much impressed by the intelligent and keen interest in architecture displayed by those gentlemen present at our meetings who were not members of our profession. Their evident desire to encourage the production of what is best in our art must be as gratifying as it is fortunate for our Edinburgh brethren. In Edinburgh this interest and enthusiasm is not confined to the exhibitions of pictures and the permanent art galleries; it is generously accorded to our art both in public and private enterprises.

I think this feeling is not as evident in London as it is in the large provincial centres. Perhaps the reason is that a closer personal relation between the public and the architect exists in provincial centres than is possible in our overgrown London. For instance, I cannot but feel that the Corporation and the London County Council as corporate bodies show only the slightest knowledge of architecture. I think I may say that not a dozen architects of repute and position are known to either of these corporate bodies; whereas in the smaller cities, such as Edinburgh, architects and public bodies are better known to each other, and perhaps in consequence of this the citizens have more knowledge and greater appreciation of our art. In the northern capital the rise of the younger men is watched with interest and pride, and they are thus encouraged and stimulated in their careers. No less interest is taken in the work of those architects who in the past have created the buildings that adorn the city of Edinburgh and make it one of the most beautiful in the United Kingdom. Human beings, and especially artists, are so constituted that they demand sympathy, encouragement and appreciation. In the smaller communities this is given more freely and more generously than is possible, I fear, in our unwieldy London.

I now ask your permission to refer in a few words to the position of affairs in regard to the proposed revision of the charter and by-laws. In a note in the Journal of July 27, 1907, it is stated that "the recommendations of the Council for the revision of the charter and by-laws were duly brought forward and considered at the special general meeting convoked by the Council for the purpose, and held on Tuesday, July 2. These recommendations were the outcome of the Council's report on the resolutions respecting the question of registration passed at the meeting of April 3 last year. This report was presented to the general body, and was adopted at the meeting of March 4 last." At this meeting, in response to a question from a member, I ruled that Associates had no more right to vote on matters concerning the charter than they had to vote on matters



concerning the by-laws. The question as to whether Associates had this right came as a surprise to me, as it did, I believe, to most of the Fellows present at the meeting. I had to decide this matter on the spur of the moment. It appeared to me that if Associates had the right to vote on the revision of the charter they would be in a position to move and carry a resolution giving them by charter a right to vote on matters concerning the by-laws. This appeared to me to be contrary to the whole spirit of both charter and by-laws, and I ruled against the gentlemen who had brought forward the question. The business of the meeting then went forward without interruption, excepting that about half a dozen Associates left the room; but this, of course, did not affect the number of voters. There were still many Associates in the room and we had the benefit of their suggestions and criticism in considering the whole document before the meeting. The recommendations of the Council were carried with some slight alterations. Upon the question being put whether these recommendations should be forwarded to His Majesty and the Privy Council for approval a unanimous vote was given in the affirmative by a show of hands. A special general meeting to confirm what had taken place was then called for July 15. In the meantime a communication from an Associate enclosing counsel's opinion as to my ruling was received by the secretary: this opinion was an adverse one. The matter was then considered by the Council, assisted by their legal advisers, and they arrived at the decision that the whole of the proceedings of the meeting of July 2 were invalid. I announced this decision to the meeting of July 15, which therefore was immediately closed. Had the question of the rights of Associates not been raised the document relating to the revision of the charter and by-laws would have been at once submitted to the Privy Council prior to going to Parliament for a Bill. The delay is a matter of great regret to the Council, who had hoped to be in a position to assure the Institute that this important reform in their constitution was likely to be legally established before next Christmas. Their regret is the keener because the question of the election of Fellows, which was to have been on a different basis, may have to be left open for an indefinite period. This point, however, will be submitted to the consideration of a general meeting at an early date. None can regret the delay caused by my decision of July 2 more than I do myself, but I do not intend to make any apology for my action on that occasion. As I said before, I consider that the whole spirit of the charter and by-laws is against the presumption that Associates can have a vote in either case. I firmly believe that with very few exceptions this is the opinion of the whole body of members, both Fellows and Associates. It is sincerely to be hoped that the consideration of this important matter will be prosecuted with vigour and without unnecessary delay during the coming session. The question has to a large extent engrossed the attention of the Institute for nearly four years, and I believe that it has done so to the detriment of other important matters. I have no wish to minimise the gravity of the question, but I think there are other subjects which should receive our serious attention—subjects which in my opinion may better serve to further the object for which the Institute was established, namely, the advancement of civil architecture. It must be remembered that the number of capable and experienced men who can devote a considerable amount of time to committee work is naturally limited; at the same time one need not anticipate any difficulty in forming strong committees to consider the many important matters that should engage the attention of the Council in the coming session.

Among such questions are the architectural development of towns and suburban areas, the possibility of legislation respecting building by-laws, and the laws of light and air. The latter surely call for careful consideration by architects, not so much in their own interests as in that of the building owner. Until architects take definite measures to secure reform in this direction, I am afraid that little will be done, and that there will still be vexatious and unjust impediments placed in the way of those who are obliged to build. In this connection Mr. Simpson's suggestion that a Building Board should be established deserves the consideration of those who see the necessity for reform, both in Building Acts and in the laws of light and air.

The Institute would do well to take a more prominent and active part in the support of such societies as that for the Preservation of Ancient Monuments, the National Trust for Places of Historic Interest or Natural Beauty, the Society

for the Abatement of the Smoke Nuisance and other similarly useful institutions.

In speaking a few words on the subject of the architectural development of towns and suburban areas I must ask your forgiveness if I refer for a moment to my address of last year. It may be remembered that I then made suggestion that the south of London could become an integral part of the city of Westminster by means of the erection of "street bridges." I did not then know, or it has escaped my memory, that in an address previously delivered here a suggestion had been made, not entirely dissimilar to my own, but differing from it in that the idea conveyed was not that of complete street bridges, but of the addition of covered ways to existing bridges. In his address of November 2, 1903, Sir Aston Webb said:—"The widening of London Bridge is in full progress, and the temporary covered footways on either side suggest what pictures and welcome adjuncts they would be to our bridges. The most exposed portions of our roadways, cannot be crossed in wet and windy weather without great discomfort, which these covered ways would entirely obviate." I have drawn special attention to these words of Sir Aston Webb because I wish to apologise for my ignorance of them when I addressed you last year. It is a most surprising fact that no enterprising person discovered and drew my attention to my omission on that occasion, or since.

It gives me great pleasure to emphasise Sir Aston Webb's words by repeating them to-night. I still adhere to my former belief in the desirability of street and street bridges, but failing the possibility of these I think Sir Aston's suggestion should receive the closest consideration. Could not suggestions of this character be brought directly to the notice of our civic authorities? Surely it is advisable that the opinions of experts should be made known to these bodies.

A step towards that end was taken when at the close of last session a committee was appointed by the Council to deal with the architectural development of towns and suburbs. This committee was appointed in accordance with a recommendation of the art committee, and in consequence of a statement in Parliament by the President of the Local Government Board to the effect that the Government had before them Bills "to carry out what is immediately pressing" on this important matter. A full Bill is promised at an early date. The members of the committee were of opinion that this great question should receive the fullest consideration, and the Council concurred in their opinion. It would be difficult to suggest a question of greater interest to architects, affecting more intimately the art they practise, than one of the development of towns. The business of the committee will be to make themselves acquainted with the work in this direction that is being done by other countries, notably by Germany and by the United States.

During the last year we had several competitions which were of interest in many ways. I need not refer to that of the hall of the London County Council except to say that it gave rise to much discussion and criticism, and to no less than one animadversion; but on the whole the conditions of the competition received the approval of the Institute. The result, as you are aware, is not yet known. There are many other competitions, however, which I think call for some remarks from me. There always has been, and probably always will be, a strongly antagonistic feeling towards the principle of selecting an architect by means of open competition. Generally speaking, I do not consider the arguments against competition to be either very sound or very convincing. I think it may be admitted that our art has made considerable progress during the last thirty or forty years, and during the last few years especially this progress has been very remarkable. The advance may not always have been in the right direction, and certainly much of what has been done is open to adverse criticism. But results must be judged in a broad and generous spirit. The notion that open competition has been the rule is, I maintain, one of the causes why the art of architecture has advanced so wonderfully of late years. I therefore consider that in spite of certain obvious drawbacks, open competition is beneficial to our art. I believe that our younger men, by continuing the advancement of architecture in a manner quite admirable, and it is not too much to say that some of them, even the most distinguished, might have been left in obscurity had it not been that they were able to make known their genius by means of competition.

I have dwelt at length on the question of competition because I wish those who compete fully to understand



sympathies are entirely with the competitor. They therefore, I hope, listen with patience and forbearance. I make a few remarks, and those of an emphatic nature, in reference to two competitions which have recently taken place. I refer to those instituted by the Bethnal Green Local Board and the Acton Local Board, the latter being still in the open market. I use the word "market" advisedly, because in employing this term I wish to protest against the tendency to engage in competitions as a means of increasing business opportunities, at the expense of what is due to our art and to our members as members of an honourable profession. It should be our aim to oppose what is harmful in the spirit of mercantilism; we should not send our wares to any market that is open to us, regardless of whether the conditions are honourable to our profession or not. On the other hand, if we enter into competition in a healthy spirit of emulation, and maintaining the just tradition and dignity of our profession; if the unsuccessful make generous acknowledgment of the deserved success of those more able than themselves, then I think competition may be regarded as beneficial to our art and also to those competing. I tried to indicate what may be called the ethics of competition and the conditions under which competitions should be conducted.

I am with great regret that I feel called upon to refer in connection to the want of judgment shown by certain members in entering the competitions referred to above, to say, those instituted by the Bethnal Green and Acton Local Boards. I hope I shall have the sympathy of the members of the profession of all ages and degrees in recognizing the lack of perception of these competing architects. The conditions published by the Bethnal Green Local Board are not at all in accordance with the suggestions issued by the Institute for the conducting of competitions. No notice was given that the successful architect would be required to include any possible work in the way of arbitration, or to light or any other legal question that might arise, or of the fact that these matters are never included in the recognised fees sanctioned by the Institute and by local usages.

On being invited to nominate an assessor my attention was drawn to these conditions, and I endeavoured to prevail upon the Bethnal Green Board so to modify the objectionable parts in their conditions as to meet the views of the competitions committee and of the Institute. But any influence the Council or the President might bring to bear on their attitude was very much weakened by the fact that architects were known to be preparing designs, and could submit them, notwithstanding the veto against competition published in our Journal. Eventually, however, and after several interviews, the Board acceded to my suggestion. The competition was then placed on a proper basis, and I was enabled to nominate an assessor. When my decision to decline to appoint an assessor was made, I received remonstrances from several architects, always couched in courteous terms. These, however, failed to convince me that my first decision was an error, and I venture to think that my decision was justified by the sequel.

I have before said, I am a believer in the system of competition, but I feel very strongly that those members of the Institute who enter the lists should do so in a spirit of noble enterprise, and that they should be actuated by the desire to improve the *corps*, and should loyally support the competitions which are called into existence by themselves and for the purpose of protecting their interests.

I fully appreciate the struggle many of us have to make in a practice, and the consequent desire to enter into competition, but competitions should be entered into only when the conditions are fair and reasonable. Those members who in a thoughtless manner consent to compete while ignoring the usual conditions under which competitions are instituted, are doing an injury to their more cautious brethren and lowering the tone of the profession.

In regard to the competition for the Acton Municipal Hall, I must ask you to allow me to recall the circumstances so far as they affect the Institute. In the first place, the competition took place which was adjudicated upon by Mr. J. C. Anderson, and the successful architect, Mr. J. C. Anderson, prepared designs and obtained estimates. The estimate, however, was in excess of the sum the Board had at its disposal, and the design was abandoned. Mr. Hunt was paid his fees for this work, and again

instructed to prepare plans for a modified scheme. This he did, and a contract between him and the Local Board was then drawn up, and the official seal was to have been affixed at the last meeting by the then Council. Attention, however, was drawn to the fact that this meeting had been called on the day after the official year had terminated, and therefore the stamping would be illegal. It was then arranged that the document should be sealed by the new Board. But the new Board determined to abandon Mr. Hunt's second scheme and instituted a second competition. Mr. Hunt then applied for payment of his fees due on the work he had done. The Acton Local Board then took the extraordinary step of repudiating Mr. Hunt's just demands on the plea that their contract with him, approved and drawn up by the Board, was invalid by reason of the official seal not having been affixed. The matter was first brought before our competitions committee and the Board of Professional Defence, and ultimately before the Council of the Institute. The Council agreed with the recommendations of its committee that under the circumstances the competition should be vetoed, and a notice to that effect was put in the Journal. It was felt that if a public body could thus take advantage of a legal quibble there was nothing to prevent them recurring to the same tactics in the forthcoming competition, and that, in fact, it was inadvisable for any architect to have dealings with a public body who were acting in a manner which in a private individual would not be considered as honourable. It was also felt that as strong a protest as possible should be made against such extraordinary treatment of one of their brethren. The Council having vetoed the competition, I, of course, could not nominate an assessor when invited by the Acton Board to do so. I quite concurred with the action of the Institute.

I believe that some members of the Institute were not satisfied with my refusal to nominate an assessor, and that directly or indirectly they were instrumental in bringing to the notice of the Acton Board the name of an architect who was willing to undertake the duties of assessor. The result was that this gentleman was invited and has consented to act. I felt it my duty to place before him the facts of the case, but I regret to say that he was unable to take the view adopted by the Institute and by myself as President. With regard to the necessity of architects demanding a sealed contract when employed by corporate bodies, my experience, and on inquiry I find that of others, is that such a practice is seldom resorted to. However, I understand that the appointment of the gentleman now acting as assessor to the Acton Local Board is under sealed contract.

In July last an International Congress of School Hygiene was held in London, and I then had the honour of presiding over the section devoted to school building and equipment. On this occasion many papers were read, the greater number of them being in German. No doubt all these were of the greatest interest, but very small audiences were present, and I cannot help thinking that had the papers been read in English the attendance would have been larger, and the discussions which followed would have been more apparent and more satisfactory. Among the work in other sections a paper on the lighting and ventilating of classrooms, by Sir Aston Webb, calls for especial notice. This paper dealt not only with the title-subject, but also with school-planning generally, and should be invaluable to architects engaged in school building.

It will be remembered that the committee appointed to inquire into and to report on the condition of St. Paul's made an interim report dealing with the proposal to construct a sewer, the site of which would have been in close proximity to the south-west corner of the cathedral. This report had the desired effect of preventing possible disaster. The full report to the Dean and Chapter was of a reassuring character, and allayed the public feeling of keen anxiety in regard to the stability of the church. I think the expression of concern from all quarters serves to show what veneration and love is felt for Wren's masterpiece. It is with great pleasure that I announce a Paper on St. Paul's Cathedral shortly to be read before the Institute by Mr. Mervyn Macartney. We may confidently anticipate that this paper will be one of absorbing interest, dealing as it will not only with the architecture but also with the rich and varied history and associations of the cathedral.

The question of the destruction of the historic building known as Crosby Hall has occupied the attention of the public for many months. Its survival is justly considered of great importance from an antiquarian and historical, as



well as from an architectural point of view. Built in the year 1466, it remains almost the last example in the City of London of the continuity of English architecture before the advent of the Renaissance. Crosby Hall is one of the few buildings in the City that antedate the Great Fire. It is therefore a most important link between our own time and the Middle Ages. I believe the only other genuine Mediæval works remaining in the City are the Tower of London, the chapel of Ely House, and the Temple Church with its adjoining garden. For architectural and historical reasons the loss of either building would be irreparable. The work in Crosby Hall is most excellent and instructive, the associations are of supreme interest, and the preservation of this fine building concerns not only architects, but the nation at large. We cannot afford to denude our capital of every valuable relic surviving from former times. Much has been already destroyed that might well have been spared, and it is an inevitable consequence of progress that much will still be sacrificed. But though the London of to-day must of necessity lose many of the features that endeared it to Charles Lamb, to Dr. Johnson and to others of bygone years, surely we cannot struggle too hard against the devastating spirit that would spoil us of one of our most ancient civic buildings. We cannot expect or desire to oppose the progress of our day, but it behoves us to preserve and cherish those of our ancient treasures that can be saved. Not much of Shakespeare's London is left to us, but the places I have mentioned are all alluded to in his plays, and this should be a strong, I had almost said a sacred, reason for maintaining and cherishing such a work as Crosby Hall. When we read that the Duke of Gloucester commands the Lady Anne of Warwick to "presently repair to Crosby Place," or, again, that he bids Catesby to meet himself and Buckingham there, it is pleasant to feel that some portion of this house is still in existence; that its pavement has been trod by those who are immortalised by Shakespeare and is still left to us of a more prosaic age. Perhaps you may quite rightly charge me with being prosaic in dwelling at length on this subject, but in venturing to do so I am actuated by the feeling that so little is left in this City of the works of our forefathers, and so little of that work is known by the general public. We have still some portions left to us of the chapel to Ely House in London, but of the house all has gone. The garden lives in our memories by the work of Shakespeare.

I am venturing on an innovation during the coming session in respect to the duties which are generally considered to be the especial privilege of the President. You all know that it is his duty, and I may also add his pleasure, to give an address to students some time in February, and I had the honour of giving such an address last session. It occurred to me, however, that in a second address on the same subject I should more or less repeat the advice I gave in February last; and although repetition may sometimes have value, there is a possibility that it may descend to tediousness, and feeling this I ventured to approach a gentleman who not only feels the keenest interest in architectural education, but who also brings to the subject great experience and erudition. It is with the greatest pleasure that I now announce that Professor Lethaby has very readily and generously consented to deliver the address to students in February next. I am sure that not only the students but also the older members of the Institute will eagerly embrace an opportunity of listening to a paper by such a learned and cultured architect.

This innovation in the work of the coming session will not necessarily be followed by succeeding Presidents; they will of course act in accordance with their own judgment.

In bringing this short address to a conclusion, I must ask the pardon of my audience if they think I have touched on subjects of too controversial a nature. I feel, however, that one cannot be too earnest or too candid in dealing with matters affecting equally the welfare of the Institute and the advancement of architecture.

Mr. JOHN SLATER proposed a vote of thanks to the President for his address, and said that all the members of the Institute looked forward to his tenure of office with confidence, and they were all united in wishing him a very successful year. Allusion had been made in the address to the new charter of the Institute, which was still in the making, but Mr. Slater was glad to think that what appeared to be almost insurmountable difficulties two years before had been smoothed over. It was quite certain that in arranging a new charter they could not satisfy everyone, but he ventured to hope that by sinking individual proclivities they would arrange a practicable and workable

charter, which would foster education and further the interests of their art. Mention had also been made of the work of the Board of Architectural Education. Mr. Slater was very pleased to be able to state that the Board had with much encouragement in its endeavours to codify and bring into line the various methods of education in architecture all over the country. It was thought there might be some antagonism between the Board of Architectural Education and the Board of Examiners of the Institute, but he was glad to say that when those two bodies met the difficulties were found to be more imaginary than real. Mr. Slater held that the starting of the Institute examination was an impetus to architectural education which no other body could have done. There had been so much progress in education that the Institute were now asked to accept the examinations held by universities and other educational bodies as qualifying for the successful dates for exemption in the Institute intermediate examinations. In regard to competitions, Mr. Slater said he sometimes regretted that the word could be deleted from their vocabulary. In the last twenty-five years he had more or less taken an active part in the affairs of the Institute, and he remembered that there had been always almost acrimonious discussions on the results in competitions. It was perhaps certain the decision of an assessor or assessors in a competition would not be received favourably by all who entered it. It was not always unpleasant, the speaker added, to have a grievance, but he questioned whether it was always dignified to air it. Referring to the development of towns and suburban areas, Mr. Slater hoped the Government should take the matter up, and suggested that an Act might be passed empowering and compelling municipalities to provide open spaces in the areas controlled by them.

Mr. LEONARD STOKES seconded the vote of thanks, but did not quite agree with all the President had said concerning competitions. The speaker felt such work tended to encourage paper designs rather than building.

Professor BERESFORD PITE supported the motion, referring to the condition of affairs generally in the Institute. He said he longed for the day when they would forget politics and resume their art. Too seldom, he thought, did they mention made of the vital question, "What is the position of architecture of the day?" and yet that was the burning question of the profession, the question that underlies their purpose when they sat down to do their building.

Mr. H. V. LANCHESTER also spoke, and the vote was carried amid acclamation.

### EXCAVATION OF MEMPHIS.

ONE of the officers of the Royal Scottish Museum, Mr. Edwin Ward, will leave Edinburgh early in November for Cairo, where he will join Professor Petrie's party, and will be engaged during the winter and early spring in the work of archaeological excavation in Egypt. Last season Mr. Ward was for a time at Abydos, where several interesting discoveries were made, the principal work, which continued on to the end of March this year, was at Asyut, in Upper Egypt, about 200 miles south of Cairo, where Professor Petrie had secured a large area for excavation. During the coming season the work of excavation will be on a still more extensive scale. Memphis, whose site extends over the whole course of Egyptian history, and which at one time the finest school of Egyptian art, has never been excavated, and it is to Memphis that Professor Petrie and his assistants are to devote their attention during this and probably many succeeding seasons.

The director of the Royal Scottish Museum, in a letter to the *Scotsman*, says:—The task which Professor Petrie has set himself is perhaps the most important that has ever been undertaken by an explorer in Egypt. He proposes to do what has hitherto never even been attempted, viz. to bare the foundations of Memphis, the once renowned capital of ancient Egypt, a city whose history reaches to the beginnings of Egyptian civilisation, whose sculpture art was the finest Egypt ever possessed, and whose temple was planned on a scale of unrivalled magnificence, enlarged again and again, and adorned with innumerable sculptures by a long succession of kings. The reason for believing that this site will prove more than usually fruitful in the discovery of important remains, not only



ancient period of the history of the city; but of the when Memphis, as the emporium of Egyptian trade, brought into contact with the early civilisation of the Mediterranean, have been fully and convincingly stated by Professor Petrie in a circular issued by the committee of the British School of Archæology in Egypt.

Two practical ends are served by scientifically conducted excavations such as Professor Petrie is about to undertake at Memphis. The one which no doubt bulks largely in Professor Petrie's outlook is the extension of knowledge of a great people who in their monuments left continuous records of their political history and domestic life extending over a vast period of time. The other is the conservation of the objects recovered in the excavations, where they may remain for all time available to the public as a part of the actual evidence on which the history of the subject is based.

With regard to the cost of the excavations and the distribution of the antiquities which may be discovered, I shall quote Professor Petrie's own words from the circular to which I have already referred:—

"The clearing of this site, with gradual exchanges of land as required, will occupy many years; and it is estimated that an expenditure of about 3,000*l.* annually for fifteen years will be required to excavate the temple area apart from the city. As half of the discoveries will be made by the Egyptian Government, this clearance is expected to yield a considerable return to the museums of the country which undertakes to find the cost. It is hoped that this work will be effectively provided for by British resources, and that the School of Archæology will not need to depend upon foreign supplies, which would constitute a claim upon the results."

It would be a reflection upon our national spirit as well as an irreparable loss to our museums if the contingency mentioned in the last sentence should arise. It may, however, safely be assumed, I think, that the money required for the work will be found in Britain. May I be allowed to express the hope that a substantial share will be contributed from Scotland? Hitherto we in Scotland have given but meagre aid to the work of exploration in Egypt, and the claim upon the results has been a proportionately restricted one. In England, on the other hand, contributions are on a much more liberal scale, and the fruit each year in the addition of many valuable objects to the English collections. I would ask that similar public-spirited liberality should secure for Scotland a share of the results of Professor Petrie's work, as would help to place our collections on a level with those of England. I am not here referring to the great collections of the British Museum, which occupy the attention of themselves. But it is surely neither idle nor impetuous to attempt to place our Egyptian collections on an equal footing with those of Manchester, Oxford, or Cambridge, to which at present they are inferior both in extent and in the variety and beauty of the objects which they contain. As an illustration of the importance of the subject which is attached to this subject in the great provincial cities, I may mention that in Liverpool gentlemen have shared amongst them the expense of an exploring expedition which has worked in the neighbourhood of Beni Hassan for several years in succession, the result that Liverpool now possesses very fine collections of Egyptian antiquities, containing many objects of great interest.

It is unnecessary to enlarge upon the great and growing interest which the general public exhibit in the study of antiquities of Egypt, and the importance from the point of view of augmenting and improving our national collections. I desire rather to emphasise the importance of Egyptology to students of history, archæology and art. It is fully recognised now in England, in the United States, and on the Continent, and will no doubt in time be fully recognised here also. But in the meantime the study of Egyptology is essential to the study of Egyptology is absorbed by other museums, and the opportunity of studying the collections which we already possess reason-ably complete for the purposes of the student will soon no longer exist. It is true that we have acquired a large number of valuable specimens in the course of the last few years, but our collections are still wanting in many of the objects which are indispensable to the full illustration of the life and history of Egypt, and they are entirely without fine specimens of sculpture, which alone can give a true idea of the high level to which Egyptian monumental art attained. It is precisely specimens of the latter

class that Professor Petrie expects to find at Memphis, and it will be matter of profound regret if we are unable to secure for our museum a share of his discoveries.

In arranging to send out one of our officers to assist Professor Petrie we have done all that is possible with our ordinary resources. More, however, is required if we are to establish a claim to an important share in the distribution of the antiquities discovered, and I venture, therefore, to appeal to the public of Scotland to assist in the undertaking.

Any subscriptions or donations sent through me to Professor Petrie will be remitted to the treasurer of the British School of Archæology, and will be credited to the museum in the distribution of the antiquities.

It should be added that in this undertaking Professor Petrie receives no help from the Egypt Exploration Fund, which has done so much for the exploration of Egypt in past years, and with whose work he was for many years so intimately associated. The British School of Archæology, of which he is director, is an entirely independent organisation.

### SPANISH INTERIORS.\*

SPAIN is so vast in extent and varied in its people as to reveal many types of domestic dwelling. The north and south mark two broad divisions of the people and their architecture, whilst local resources are usually seen to be the governing factors in both design and fittings. Apart from palaces and the great houses of stately cities, Spanish homes are fashioned almost entirely of purely local material. The northern houses are usually destitute of both comfort and beauty, strength and economy being their dominating features. But those of the south are generally comfortable and frequently of great beauty. True Moorish houses always show the plainest of exteriors with all the interior wall, ceiling and floor space elaborately ornamented; but Roman and Gothic survivals reveal most beauty in design and exterior treatment and show nothing but the plainest interiors. Of course a great many "amalgams" are met with, and these if really old are usually the most interesting.

In the north the churches and town halls are the only buildings which attract attention, the streets of even large towns representing so many granary-like stores with rows of small square windows, destitute of glass and guarded without by ironwork and within by heavy wooden shutters. Perhaps the most interesting feature of the old northern houses is that which shows they were built as means of defence more than out of domestic considerations. The shapes and sizes are varied as the brains which conceived them, and there never was a land with a more "go-as-you-please" manner of building than is found in Northern Spain.

But some features are common to all. The house is invariably the stable, cow, pig, goat, dog and poultry shelter, hence one large portal through which a load of hay or the traveller's covered van may enter with ease. This door is usually in two leaves and is bound with a network of fancifully hand-wrought iron, and surmounted by immense nail and rivet heads. Sometimes there is a manhole in the main door, but always a little square or oblong hole just above the keyhole. This hole is called *el viso*, or the "look-out." It is guarded on the outside by cross bars of iron, and has a solid sliding block of wood or a thick iron plate to act as a screen within. During daylight the great doors stand wide open, but the moment evening falls the head of the house calls in a voice which alarms and thrills the stranger and native alike as it conveys the fears and dangers of nights long past. "Shut the door—shut the door," the man or woman will cry in singularly terrifying tones, and then again very impatiently, to the timid and slow moving child, "Go quickly; shut the door." But there is really very little to lock up if we except the human elements, and to-day they are in no immediate danger.

Inside the house is a barn, or more closely resembles the plan of a livery stable. You enter to find all the floor space given to one chamber with little "alcobas" running off at the back and sides as do the stalls in our livery stable. The carts, farm implements, conveniences of trade and the domestic properties—and these are singularly few—are disposed over the floor space. The animals usually arrange themselves as they please. One looks up to see the roof of tiles, and if it is high there may be two or even three or four tiers of "alcobas" or balcony-like galleries following the

\* A lecture given by C. Bogue Luffmann, director of Horticultural Gardens, at the Royal Victorian Institute of Architects.



walls. These are reached by hanging stairways, usually in stone and most ingeniously balanced and turned about. Here and there the stairways are of wood, but it will always be found that the house has been fashioned with due regard to the scarcity of this material. Wood is the dearest and therefore the rarest building material in Spain. Wooden floors are occasionally seen, and stout beams also as supports for upper chambers, but ordinarily floors from ground to roof are composed of stone, marble, tile, brick, pebbles and lime cement. The column is therefore the interior medium of support, and one may infer that its universal employment is due to the long-continued scarcity of building timber.

Spaniards of all classes are justly proud of their floors, and in houses of all types and occupied by all classes more attention is given to the ornamenting and care of the floor than all the rest of the house put together. This appears to have grown out of the Oriental idea of cleanliness—an idea which shows itself in many ways in Spain to-day.

Certain it is that one rarely meets with earth floors, not even in cave and hillside "dug outs," of which there are many in Spain. The most primitive and interesting floors are of pebbles of selected shapes, sizes and colours. They are usually set in a lime concrete and afford many quaint and storied designs. The most common pebble design is the Indian palm leaf, but there are also knights in armour, warriors and monsters, and all well figured out on the floors of quite small and unimportant houses. This class of work is to be seen at its best in the provinces of Old Castile, Aragon and Navarre.

Black, white and red marble provide the floors of the best houses, and the favourite pattern is a nagpie in squares a foot or so in breadth. Tesselated floors exist only as early Roman remains, but a kind of Brescia floor is seen in the north of Spain, and its existence is probably due to Roman colonisation; for the present Quirinal and other buildings in Rome have floors practically identical to the "pastas" of Spain. This "pasta" is made of a highly composite paste formed from mixing a number of burnt earths and sands and then adding a lime cement. When laid and dry this floor is rubbed down till it is smooth as glass. It presents a speckled appearance, dark red and white spots showing on a rich brown or greenish black ground.

Roofing, flooring and lining tiles of splendid quality are made from the clays of Navarre and Aragon. The best come from Ariza, a small town in Aragon, and these are much favoured by modern French architects and builders.

The "azulejos" or enamelled tiles are still common, though of course the most ancient and beautiful are much prized. The rare colour is a singularly rich celestial blue. Very good azulejos are still made in the south of Spain.

Inclined planes instead of stairways are not at all uncommon in tall houses and such as possess towers, so when the great Ferdinand rode to the top of the Giralda, as he is said to have done, he performed no remarkable feat, as it is equally easy for any horseman of to-day. These inclined planes were introduced by the Moors.

From end to end Spain shows remarkable examples of hand-wrought ironwork and one or two features which might with advantage be employed in Australia. The "reja" or iron window guard is often of great antiquity and rare beauty. Floral and animal figures as well as many ingenious designs are carried out in this ironwork, which, though strong to resist thieves and Lotharios, is none the less graceful and distinctly ornamental when used to bar entrance to door and window spaces. One great advantage of the "reja" and iron gate is that it admits of shutters and doors remaining open both day and night at periods when the house would be objectionable if closed. It must be borne in mind that there is practically no glass in Spain, hence the necessity for a guard when the shutters are not closed and barred. Where the "patio" or interior court exists the iron gate is indispensable as a means of revealing the opulence and comfort of those within. Crests and coats of arms in wrought-iron are frequently seen interwoven with the "rejas" and gates in front of doors.

It is not generally known that many of the finest old gates in Great Britain are of Spanish origin, and were presents or purloinings from Spain during the early Tudor period.

The Spanish cooking fireplace takes on many forms, but it is always primitive in design and usually capable of consuming one fuel only—charcoal. In the homes of the poor, and also in the inns and farmhouses, the fireplace is exactly the same as the blacksmith's forge—a round or

square pile of stone or brickwork with a hollow wherein the charcoal is placed. All round the platform are draught holes, which pass to the centre that no matter in what quarter the wind, there is enough draught to keep the fire alight. To quicken the embers a small fan of native palm leaf is used. Where the family is large several hollows may exist in the platform and a single fan or draught hole serves for each. Chimneys exist, and the fumes and smoke—of which there is certainly very little—find their way out of the house through the door and windows. Here and there is a kind of shoot in wood or iron to conduct the smoke through light holes, but this is only where husks, fern root or uncharred material is used as fuel. In houses of a higher grade the cooking range resembles a massive stone marble mantle-shelf, and is built against a wall. It has hollows for the charcoal and flesh pots and a draught hole in front of each. A marble or stone column is ranged alongside the fireplace, on which stands an active pestle and mortar, since all the sweet herbs of the "campo" are pulverised and employed in cooking, and many other things require to be milled and ground before placing them in the soup bowl or frying pan. In Spain it is the custom to pay a special surcharge for a fire and then get warm by stoking and abusing the heat. Heat and comfort are obtainable in no other way. As a matter of fact, no provision is made for warming the house or the person by means of anything worthy the name of fire. The "brasero" or charcoal pan is an ancient and often an elegant piece of domestic furniture, but it emits heat, or should it chance to do so it sickens with its effect by robbing the atmosphere of the necessary oxygen. Fuel for charcoal, nut shells and husks, pine cones, bark, corn cobs, peat, chips, "marc" of grapes and other odds and ends are consumed in the "brasero" and also in a birdcage-like contrivance, which is charming to look at but a trial to the flesh and the spirit when one wishes to be warmed. Lavender, broom, rosemary, leaves, cholla, husks of grain are consumed in these wicker fires, which in turn stand on a "brasero" or more elaborately legged stand either of wood or metal.

The Spanish poker requires deft handling, since but an old man or woman or a thoroughly experienced domestic can turn charcoal as it should be turned. No one is so likely to cause trouble as interfering with a Spanish fire or what passes for such. Charcoal moves and rekindles or extinguishes itself by remarkably fine distinctions in the way of handling, and those who interfere generally stand not these fine distinctions. To see a master of the "brasero" turn and reanimate all the blazing slumbering surface of a whole heap of charcoal is as fascinating as it appears mysterious. The poker is a spoon-like weapon, which placed at the side of the pile and given a deft twist performs a miracle. This is as it should be, for in the presence of such an entertainment one is liable to grow cold and abusive.

Furniture and fittings are extremely few in the homes of the common people. Tables and chairs are scarce to be seen. A small stool holds the single bowl or platter on which the meal is taken, and it is customary to stoop or squat when partaking of food. In some districts the seats follow the walls and stone or marble slabs take the place of tables. Stone and brick beds are seen of the same size and character as those of Pompeii. In the wall space a water pitcher hangs eternally, and usually not far from it is a long reed or tin tube used for conducting water to the fountain rock or spring whence the family is supplied. The principal chamber receives its distinctive character chiefly from the array of copper and brass ware employed in warming, lighting and cooking. These comprise braseros or charcoal pans of copper and brass, large copper, iron and brass; drinking vessels in the form of carafes, cantaros, jugs, mugs, cups and flasks; tea, coffee, chocolate pots and services, all in pure metal or of curiously shaped stands known as "partadores," and, as the name implies, used to keep the stool or table clean. The cooking vessel is brought directly from the fire. Spoons are commonly of horn or wood, knives are scarce and means so liable to be used as most strangers imagine.

The most picturesque cooking vessel is the "olla podrida" or pitcher, which is employed in boiling the "olla podrida," the appetising and most popular dish in Spain. Pitchers are invariably of copper and usually follow one pattern. This is easily explainable from the fact that the vessel is grown out of an ordinary water pitcher. The pitcher, and all other genuine Spanish domestic utensils, is of



made, and the art of brazing and patching is everywhere carried to perfection. In "lagars" or "haciendas," given to large rural establishments for the production of fruit, wine or other produce, one sees enormous pans in copper and which are employed in the making of boiling soups and carrying and serving food and water to the men employed in the "campo"

"panadero" or bread pan is the largest but usually finest of these vessels, as its use does not admit of ornamentation. On the other hand, the huge "cantaras" or "alderas," which carry the liquid and more solid fare, are often elaborately beaten and chased, so that the pans are thoroughly cleaned and set up on the walls of these Spanish interiors they reveal a strength and character barbaric, yet by no means devoid of charm.

A plate of all classes not infrequently take their meal on a common dish, bowl, or platter. With the poor this is general; hence vessels are found of a shape, size, and material almost peculiar to Spain. The earthenware clay dish is on the same model as an ordinary pan, excepting that it is deeper and has a much more perfectly flat rim. It is often met with in an aged state, especially in the north, where the earthenware vessels are still as primitive as those of the Iberians 500 years ago. Hand-wrought iron dishes and shallow pans with beautifully curved sides are also met with in the north, and these when kept bright and set off with massive hoop handles in copper or brass become articles of great charm. The reverse of this is sometimes seen—pans of beaten copper and the handles of iron. Spanish earthenware pottery bears a remarkably close resemblance to the Chinese in form, glazing and decoration. This is due to the long-continued commercial intercourse between Spain and the East, for it is undeniable that in China silks and other fabrics, woodwork, shapes and patterns on metal ware, the materials, colours and designs employed in glazing and enamelling, as well as a large amount of genuine Chinese work of the last few centuries, are met with throughout the coastal regions and in many inland towns and villages. The willow pattern and many other interesting variations have been employed in Spain for hundreds of years, and the most favoured garment of the Spanish maiden and matron—the flowered silk—of which they have come to regard as Spanish as themselves, is entirely of Chinese origin, the modern shape excepted.

Spanish plates are in form like huge saucers. They are moulded on a single and unbroken curve, and usually form a section of a circle as it would be possible for an artist to select. It is a feature of Spanish domestic ware that the lines and shapes are artistic, and this without attempt at adding any more ornament. The kneading of copper ware, the moulding of brass, the working of iron and the various treatment of earthenware all reveal a studied regard for the beauty of simple domestic utensils. Copper dining platters are lined with brass and have huge and rudely beaten iron rings attached to their sides that they may be hung on the walls.

There was a fashion in Spain some 200 years ago, but no longer respecting Spaniards of either sex sipping the beverage. The only traces of the tea-drinking habit in Spain are to be seen in the rare old brass and copper tea-pots which are set on the walls of houses. These are undoubtedly from the models; there is practically no difference between the Chinese and those of China of the same period. Anything but a tea service is extremely rare; in fact, it may be doubted if such exists anywhere, but little bowls and without handles, identical in shape and size with the English tea ware, and the same as the Chinaman uses to-day are frequently found, especially in the towns of the south. Chocolate and coffee were widespread and lasting luxuries, and pots for making chocolate are fairly common in all parts. The chocolate pot assumes a shape unique among European domestic vessels. It is purely utilitarian in design and may not be said to look handsome. It is rather singular or

It suggests its use, and being of copper with a rude handle and a kind of wild pride about its upright and shining face. The lamps are all made to consume oil, and are from a primitive Oriental design brought into Spain by the Moors. The "Mariposa," or "Mary's," is the lamp sacred to the young girl. It is literally a lamp of love, and the manner of its disposal in a window is a sign for the welcome lover. The woman's spoon is either of horn or wood, more

often of the former and fashioned by himself. Consequently spoons of singular shapes and sizes, and some most elaborately carved, are found in all parts. The foregoing list pretty well exhausts the prominent and everyday features of the Spanish interior. Of course the influence of machinery and the ubiquitous commercial traveller has been felt in Spain, and in the larger cities, more especially those on the coast, Brummagem, German and American utensils are rapidly replacing those of Spanish manufacture. Still it may be doubted if Spain will ever stand abreast of the other European nations. Guizot's remark that "Africa commences south of the Pyrenees" is in great measure true. Spain subdues and moulds to her ancient ways, and the charm and strength of the old will probably remain to her in everyday life when the rest of Europe has gathered the labours of her primitive handicraftsmen into museums.



#### Crosby Hall.

SIR,—The negotiations which aim at securing and transferring to the Chartered Bank of India, Australia and China a site which they will accept in exchange for the site on which the famous hall stands are not finally closed. But the position is very critical.

The committee had before them to-day a communication from the bank, stating definitely the matter must be brought to an early decision. That decision can only be that the committee's efforts to save the building have failed, unless donations or guarantees are received within the next few days. The fate of the building, therefore, hangs upon the response the public may make to this appeal to support the preservation scheme.

About 48,000*l.* has been subscribed by the citizens and general public within a few days. The balance to make up 120,000*l.* remains to be provided. It is clear by the great number of small subscriptions which are coming in that the public interest extends even to those of very limited means. Thus there is no room to doubt that the total amount will be ultimately forthcoming. But it can hardly be expected that it will all be received in the short time now remaining.

For this reason a guarantee fund is necessary to enable the committee to close with the bank. The guarantee will only be drawn on, in any case, pro rata, to supplement or anticipate donations not received at that time.—Yours, &c.,  
T. VEZEY STRONG, Chairman.

Guildhall: November 4.

#### Municipal Advertising.

SIR,—The trader must advertise and, therefore, when our municipalities become traders it is not surprising to find them advertising their wares, but surely we might expect them to do this in a seemly manner. At the present time the Borough Council of Hampstead have arranged for an exhibition of electric appliances in the town hall, and the method of making this known has been to placard the announcements on lamp-posts, fences, gravel bins and other public structures. I am sending a protest against this to the Council and trust that other residents of Hampstead will do likewise.—I am, &c.,  
MARK H. JUDGE.

7 Pall Mall: November 4, 1907.

#### Impermeable Concrete.

SIR,—I have read with much interest the article entitled "Impermeable Concrete" in your issue of 1st inst. With all that can be said in favour of really efficient waterproofing for concrete work, and especially reinforced concrete, I am most heartily in accord. Your statement that "it is of the first importance to protect the steel reinforcement from corrosion" merits all the emphasis it is possible to place upon it. Indeed, such protection is absolutely vital to the future safety of the structure. To drive this fact home let me quote the following extract from a report (dated September 11, 1906) to the Structural Association of San Francisco by a committee appointed to make an examination of certain cases of corrosion of metal in cinder-concrete floors:—"The cinder concrete is somewhat porous with occasional voids, and also contains coal from dust up to lumps  $\frac{1}{4}$  inch diameter. Rust spots occur in the concrete, and where such spots are in contact with the metal, the corrosion is severe. The rust spots are sometimes an inch



across, quite soft and easily removed by the finger nail. Occasional splinters of wood occur in the concrete, which shows that the heat was not severe, as the wood is not charred. From the position of the floors it is certain that no water has reached the concrete since April 18, and that the corrosion was prior to the fire; but it appears to be more marked where floors have been exposed to rains since the fire. The corrosion is irregular in amount. In some cases the expanded metal is only slightly rusted, and in places it is entirely destroyed; several places were noticed where a small semicircular patch had been removed from the edge of a metal strip; also at times it crossed the surface of the strip in a line, which suggested that it followed a surface crack in the metal. There seemed to be a tendency to corrosion at certain points in the diamond mesh, which would indicate that the metal had been strained in the process of setting and expanding, but there is not positive proof of this.

The extent of the corrosion is great enough to seriously endanger the safety of the floors, and it is not probable that the floors would have supported their loads more than one to three years longer."

The committee recommended that their Association try to have the building laws amended, so as to exclude the use of cinder concrete in floor slabs or for fireproofing. The protection of the floor from moisture or water, however, seems never to have occurred to the committee.

This danger is present in every structure where the work is not so thoroughly waterproofed as to absolutely preclude the possibility of moisture reaching any steel or iron employed, and should be specially guarded against in the case of foundations of buildings standing in wet soil.

When we come to consider the question of the means to be employed to secure waterproofness, I wish to protest against placing reliance on "impermeable" concrete, and for the following reasons:—

1. Even assuming absolute impermeability to be obtained, it is a physical certainty that cracks will develop in the work. Even apart from any slight settlement, cracks must appear from simple expansion and contraction, and these, even though they are but hair-cracks, will be sufficient to allow moisture to enter, when corrosion of the reinforcement will at once begin.

2. It is one thing to secure impermeability in a laboratory sample, and quite another thing to secure it in actual practice. How are we to get great masses of concrete so perfectly constituted as to be perfectly watertight? Will there not always exist zones weak in quality and density?

3. In fighting moisture it is a tactical blunder to place our "first line of defence" within the material, instead of without. Why let the moisture reach the concrete at all? The only sound principle of waterproofing is insulation, and this insulation must on no account be of a rigid character, but must consist of a flexible, permanent, watertight membrane, effectually preventing moisture from ever coming in contact with the object to be waterproofed.

I should like to pursue the subject, but fear to trespass further on your space. Let me only say in conclusion that provided a satisfactory means can be found to render concrete impermeable, I see no reason why it should not be employed as an adjunct to waterproofing, if any one so desires, though I deny its necessity even then. I sincerely hope, however, that no one will be misled into accepting it as sufficient in itself.—Yours faithfully,

WM. P. GIBSON.

### GENERAL.

The Council of the Royal Sanitary Institute have nominated Mr. Edwin T. Hall, V.P.R.I.B.A., to represent them on the sub-committee of the Engineering Standards Committee dealing with cast-iron pipes for heating, ventilating and house drainage.

Messrs. Joseph Morris & Son, architects and surveyors, Reading, have taken into partnership Mr. T. Talfourd Cumming, of Reading. Mr. Cumming served articles with Messrs. Charles Smith & Son.

Mr. Alexander Colin Anderson, of Oaken, near Wolverhampton, late a pupil at Tettenhall College, has been awarded by the Council of the Institution of Civil Engineers a Miller Scholarship of 40*l.* per annum, tenable for two years, and the "James Forrest" medal for his paper entitled "Electricity in Factories," read before the Association of Birmingham Students at the Midland Institute, Birmingham, in March last. The latter Association have awarded him a medal for the same paper.

Mr. Frank Cadogan Cowper, painter, was on Tuesday elected an Associate of the Royal Academy.

A Vase was found lately at Gela on which is painted the Battle of the Amazons. From the signature it is assumed to be the work of Polygnotus, by whom only three vases had been hitherto known. The figures are inset on a ground.

A Lecture on the architecture of Central Italy was delivered on Monday evening at the University of South Kensington, by Mr. Banister Fletcher.

The Surveyors' Institution will have an ordinary meeting on Monday at 8 P.M.

The Public Works Committee of the Dudley Council recommend that Mr. G. H. Wenyon (Tipton, Dudley) be appointed architect and quantity surveyor, the Carnegie library, and that he be instructed to prepare the working drawings, details and specifications for the building.

Sir William Mather, having presented a replica of a tall sundial at Corpus Christi College, Oxford, to Princeton University, U.S.A., it was unveiled by the British Ambassador last week. The original was constructed in 1584.

A Committee has been appointed by the Scottish Teachers' Association to organise a national exhibition of drawing and art work, representative of the various schools and colleges, for the third International Congress for the development of drawing and art teaching which is to be held in London in August 1908. A preliminary public exhibition will be held in the R.S.A. Gallery, Edinburgh, from December 23 to January 3, and from this exhibition a selection will be made for the congress.

Mr. Hugh Stannus has been sworn in as Under-Secretary of the Worshipful Company of Founders.

Lord Barnard, the president of the Shropshire Archaeological Society, has signed an appeal for 1,700*l.*, being the sum required to complete the repair of the upper part of the west tower of Shrewsbury Abbey Church. In the last two or three years 2,085*l.* has been collected, principally locally, and about three-quarters of the tower has been practically recased. The work has been done under the direction of Mr. Harold Brakspear, F.S.A., the well-known architect, with the approval of the Salop Archaeological Society.

The Littlehampton Urban District Council have invited certain firms of consulting engineers to state a charge for preparing a report on the proposed drainage scheme. The following were the replies:—Mr. B. Latham offered to report for forty guineas; Messrs. T. Sons & Santo Crimp's fee was fifty guineas; Messrs. Beesley, Son & Nicholls would charge thirty guineas; J. C. Melliush forty guineas; and Messrs. Willcox & Lister thirty guineas. It was agreed last week to appoint Messrs. Beesley, Son & Nicholls as engineers.

At the Opening Meeting of the Glasgow Archaeological Society Professor Sir William M. Ramsay, of Aberdeen University, is to deliver an address, on the invitation of the Council, on "The Problem of a Byzantine City."

A Curious Dispute has arisen between the vicar and parishioners of St. Mary's, Dorchester, and the bishop of the diocese. The parishioners have succeeded in purchasing a site for a new church and in raising a considerable portion of the cost of the erection. The Bishop of Salisbury, however, refuses to give his sanction to the plan, which is in the main street, where there are already churches, stating that it would increase parochial rivalry and not provide for the new districts that are springing up. The parishioners refuse to have the money used for another site, and the bishop declines to receive a deputation of them.

The Annual Meeting of the Synod of the United Diocese of St. Andrews, Dunblane and Dunkeld was held at the chapter-house of St. Ninian's Cathedral, Perth, last week. The Primus said that during the year they had a number of gifts for their cathedral. There was a very beautiful new window in the north wall of the cathedral, and were promised a chapel at the south end, where foundations had long been prepared. Two persons had anonymously promised 11,000*l.* for the completion of the cathedral. They knew, there had always been great trouble about the foundations at the west end, and there was every prospect that now they should be able, by carefully devised plans to put up a good tower and alter the whole appearance of the west end, besides doing away for ever, he hoped, the anxiety about the foundations of the cathedral.













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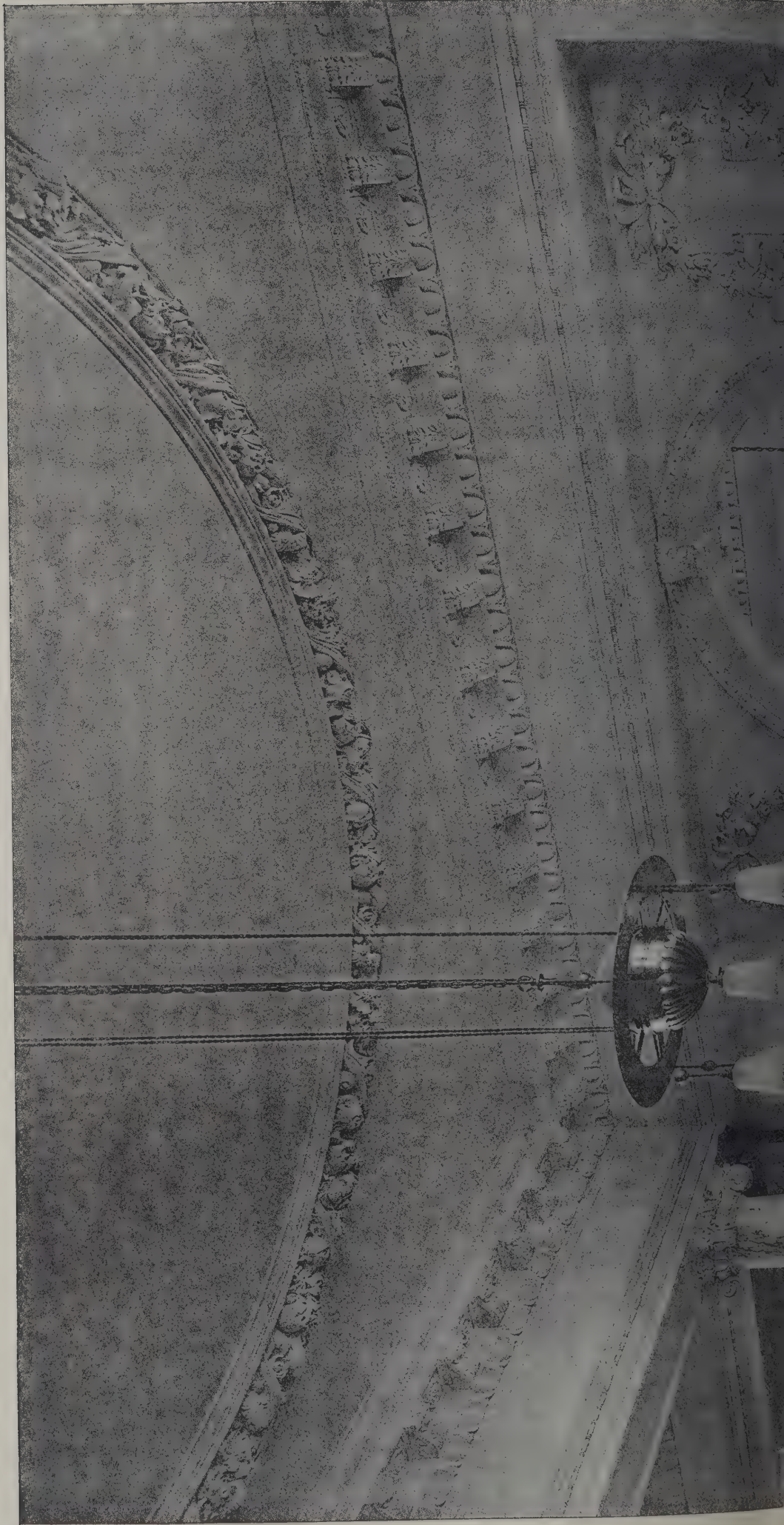




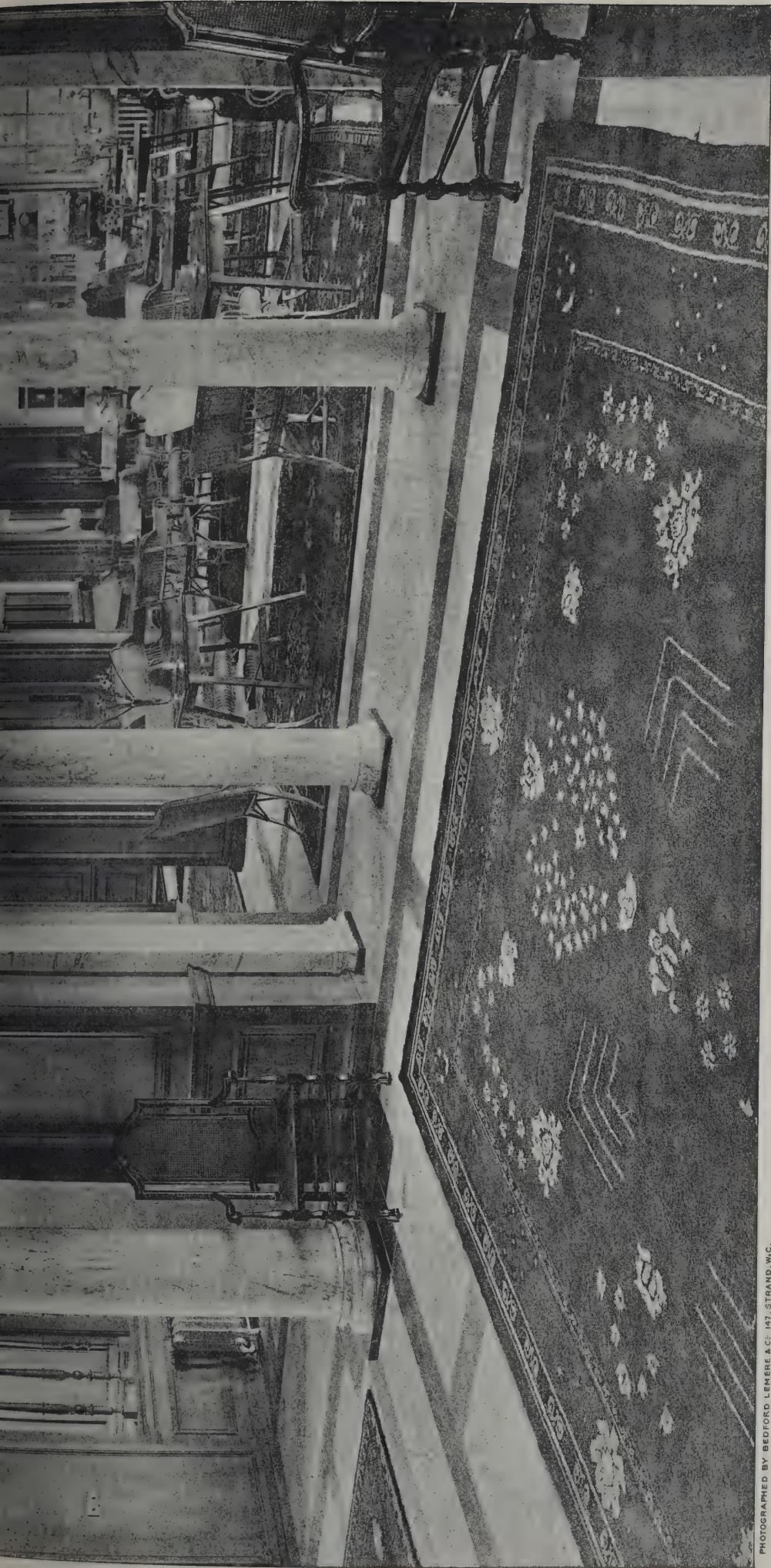
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The Architect, Nov<sup>r</sup> 8<sup>th</sup> 1907.







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**TURNBERRY HOTEL, AYRSHIRE, N.B.**

JAMES MILLER, A.R.S.A., Architect.











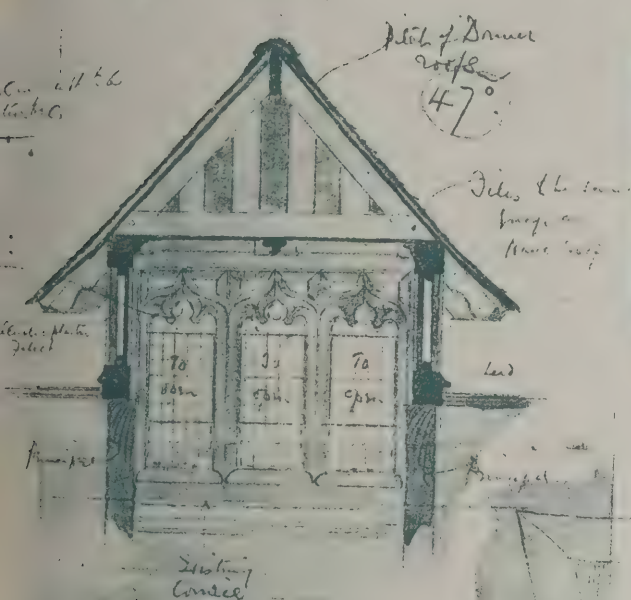




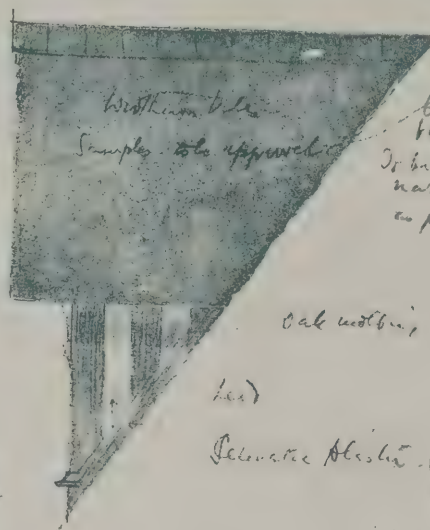


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J.A., Architect



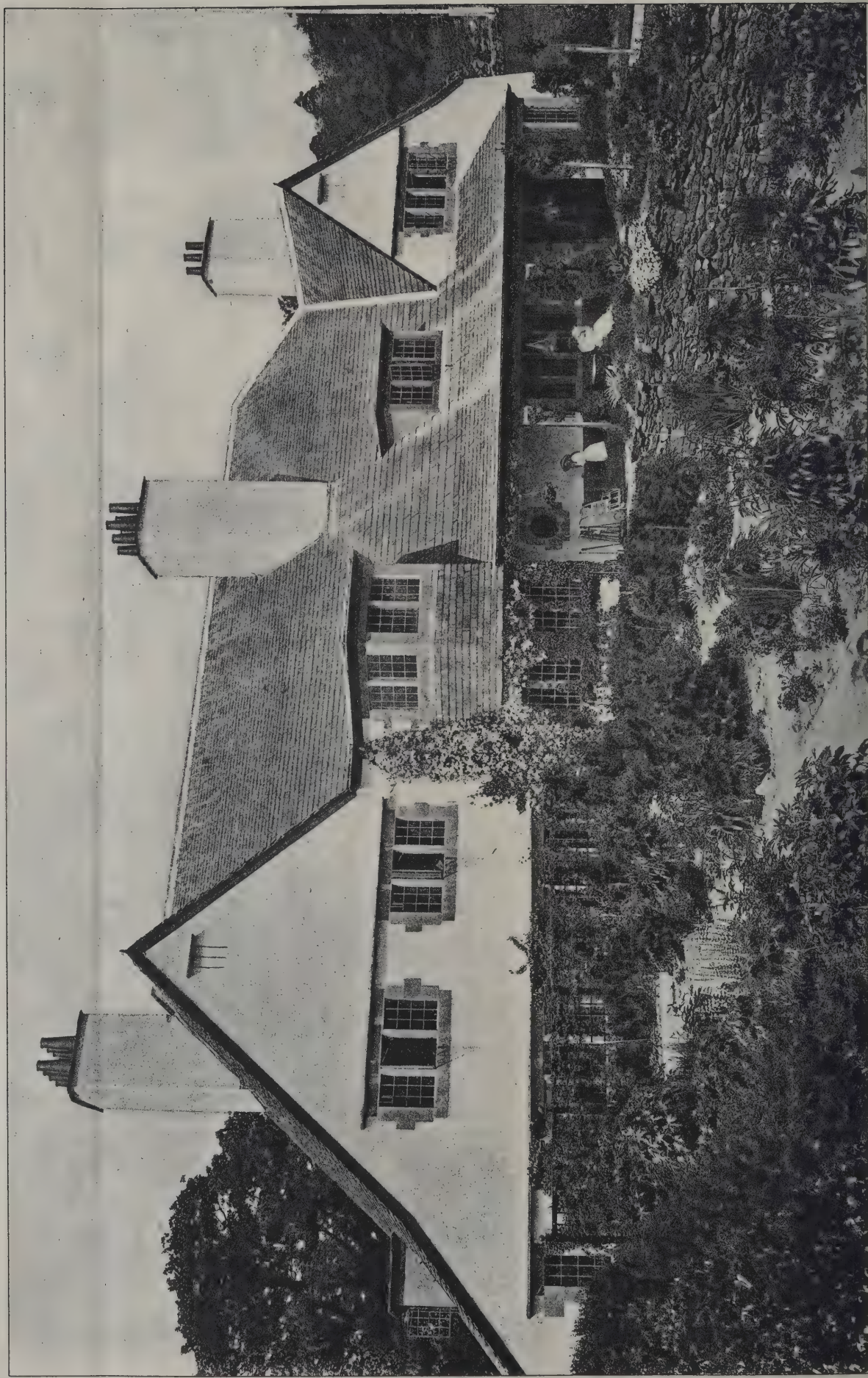




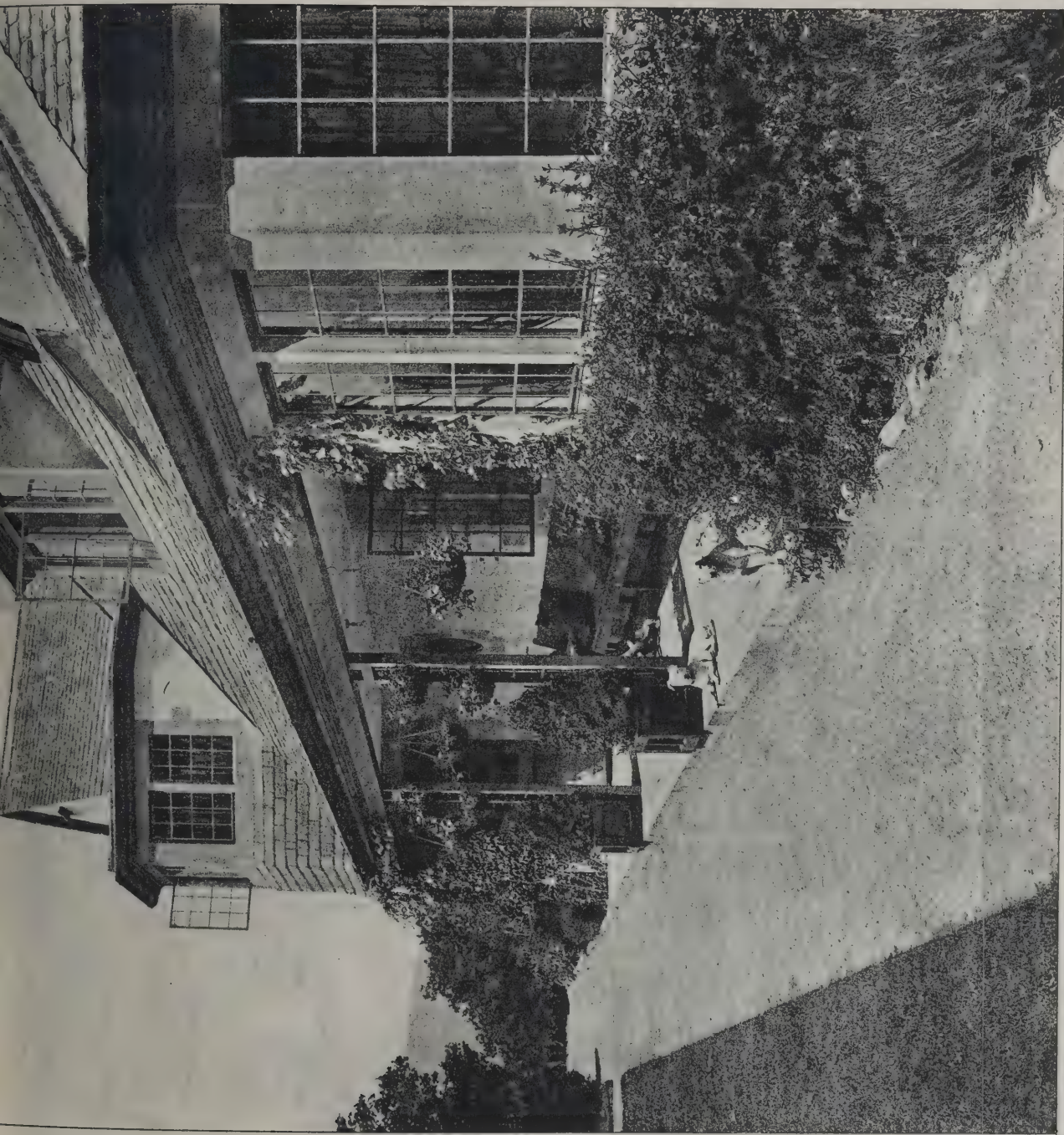




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"MOOR CRAG," WINDERMERE

C. F. A. VOYSEY, Architect

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# The Architect.

## THE WEEK.

As mentioned last week that Mr. CURTIS BENNETT ordered the payment of 300 guineas as costs by Chelsea Borough Council to the Underground Electric Railways of London, Ltd., in respect of the relating to the issue of smoke from a generating chimney. The early history of the action has been given in a report by Dr. PARKES, the medical officer of health. Last year the Borough Council took in a similar action, and they were not anxious to repeat the experiment. Complaints from people living in the neighbourhood of the station continued, and the London County Council was invoked. The High Council were informed that if they did not order to act they would be declared to be "a nuisance authority" under the Public Health Act, and the London County Council would undertake prosecution. Dr. PARKES considers that under the circumstances, and as, moreover, "the area affected by the operations of the Lots Road generating station is one that extends beyond the boundaries of the borough of Chelsea, and the question of abating the pollution of the atmosphere by smoke affecting the whole metropolitan area, the London County Council be asked to furnish a substantial contribution to the costs incurred by the Chelsea Council in recent proceedings." He also offers a suggestion that it may be of use when other authorities enter no proceedings. "As one of the reasons for the dismissal of summonses was that there was a failure to prove that the smoke was 'black,' it is evident that in any future proceedings it will be necessary to take detailed observations of the smoke emitted, and to bring to the court photographs, charts and tinted glasses which will enable the magistrate to see the exact conditions prevailing at the time of the observations."

TESTIMONY to the disinterestedness of Dr. NAVILLE was rendered at the meeting of the Egypt Exploration Fund on Tuesday. Mr. GRUEBER, the honorary treasurer, said that during the seasons that Dr. NAVILLE had been excavating the site of the eleventh dynasty at Deir-el-Bahari he had given his services entirely gratis. Knowing that the Fund was making an effort to carry out a work which was dear to him, he did not even ask for his travelling expenses. He had also continued to furnish the Fund with a series of memoirs. Dr. NAVILLE had completed a great work at Deir-el-Bahari, which, with a break in 1902 and 1904, had occupied him for fourteen years. It was a work which would hand down the name of the explorer to posterity. A vote of congratulation to Dr. NAVILLE on the completion of his great undertaking and the Fund's hearty and grateful thanks to him for the great services he had rendered was proposed. In the address included the name of Mdme. NAVILLE, who had been associated throughout in the work and who had been aided by her own hands so many beautiful and highly artistic plates to the memoirs. It is needless to say the vote was carried by acclamation. Such a demonstration as Dr. NAVILLE and Mdme. NAVILLE cheerfully given is the best kind of evidence of the sincerity of the *entente cordiale*.

The obligation to set up fencing in order to enclose dangerous machinery is generally approved. But the question often arises, "Who are to be protected?" There are some people who would say that those who are most exposed to harm are workmen and others who, having no actual business with the machine, are to be ignorant of its danger or to underestimate the risks of interference. A case was heard at the Man-

chester Assizes on Monday in which a young workman claimed damages for the loss of three of the fingers of his right hand, which occurred, it was alleged, through neglect to fence a revolving wheel. The defence was that he had no duties to perform in connection with the machinery, and that the injury was brought about by a breach of duty on his part. Mr. Justice PICKFORD, who heard the case, said his reading of the statute was that there was no obligation to fence as against a person who was a wrongdoer—who had no right to go to the dangerous place at all—but it did impose an obligation to fence as against anyone who in the ordinary course of business, even negligently, might get injured. The danger—if it was dangerous—must mean danger to persons using the machine in the ordinary course. If it is dangerous only to someone who has no right to go there—who makes it dangerous by opening a door which he ought not to open and by putting his hand where he has no right to put it—his Lordship questioned if it is "dangerous" within the meaning of the statute. The jury must be satisfied that it was dangerous to an ordinary workman who had to work at or near it, and who would exercise only ordinary care—or ordinary carelessness, as the case might be—of an ordinary workman. If dangerous in that sense the machinery must be fenced, but it had not necessarily to be fenced against one who thrusts his hand into danger, first opening a door which it was no part of his duty to open. He asked the jury to say whether this accident happened through dangerous machinery being insecurely fenced without substantial contribution by the plaintiff's own negligence. As a matter of course, the jury found a verdict for the defendants. It appeared the plaintiff would still be entitled to compensation under the Workmen's Compensation Act.

JUDGES have sometimes inspected premises which were affected in light and air cases. If they also deem it their duty to interfere in cases of vibration through dynamos, they will have disagreeable duties to perform. His Honour Judge GYE, of the Portsmouth County Court, a few days ago gave an account of his own experience. In the new Hippodrome is an engine for generating electricity, which the occupier of a neighbouring house said was a nuisance. The Judge visited the premises and found that there could be no question about the vibration, the effect of which on him was a heavy depression which lasted the whole time he was there. Counsel for the proprietors of the Hippodrome stated he proposed to call witnesses to prove there was no vibration. To which the Judge replied:—"If all the engineers in Portsmouth were to come and say there was no vibration it would not make any difference to me. I was there, and I was vibrated." His Honour afterwards remarked that in any case of the estimation of damages by experts there could always be found half a dozen gentlemen on the one side to say that the injury was something enormous, and there were always to be found the same number on the other side who would minimise it to any extent. The most satisfactory thing was to go and view it oneself, and that he did with the assent of both sides. Under such circumstances it is needless to say an injunction was granted to restrain the Hippodrome Company from working the engine, and a sum of 30*l.* was allowed in damages. On account of the great strength of the foundations, it appeared that the vibration was not so susceptible in the immediate proximity of the engine, but was more marked in the adjoining house, where there was constant clattering of the doors and windows, and where if continued it must have an effect upon the nerves of the occupiers little short of maddening. Electrical engineers have therefore an opportunity to render a service to the public if they can devise some means by which engines will not become nuisances to people who derive no benefit from the power.



## THE WATER-COLOUR SOCIETY.

WE cannot recall any exhibition of the Royal Society of Painters in Water-Colours containing so many representations of architecture as are now to be seen in the Pall Mall Gallery. They are produced not only by artists who are accustomed to that class of work, but by other members whose subjects are usually of a different class. The architectural draughtsman will find it advantageous, as well as interesting, to study the varieties of treatment, and in that way the coloured drawings in the architectural room of the Academy may be improved.

One of the first drawings to attract attention is "The North Atrium of St. Mark's, Venice," by Mr. T. M. ROOKE. It is to be presented by subscription to the Birmingham Municipal Art Gallery, and is solidly painted as if for endurance. It also suggests the style adopted by the early builders. They were no doubt earnest men, but their hands were heavy, in the decoration as in the construction, and this fact is revealed by the manner of drawing. The subject was well adapted for Mr. ROOKE's peculiar style. A "Door, Church of the Carmine," is another of his examples. He also gives a view "At the Back of the Scuola di San Rocco" and one of "San Nicola dei Tolentini," which is a curious specimen of architecture. The subjects selected by Mr. REGINALD BARRATT are generally more familiar. He has chosen a point of view for representing "Sta Maria della Salute" which allows only the dome to be seen, instead of the well-known façade. There is an "Entrance of St. Mark's," but it serves as a background to one of the bronze standard holders. The view from the public gardens suggests Venice on a sunny day and is, in some respects, the most successful of Mr. BARRATT's eight drawings. The "Colleone Statue" appears better when there are no houses to dwarf it. In the small drawing, "Tomb of Hosea on the Tigris," Mr. BARRATT has entered a country which is less known than Italy. The veteran Mr. CALLOW has a view of the Contarini Palace, the Rialto, the "Traghetto, St. Gregorio," besides others from Italy, France, England and Scotland, all of them being characteristic examples of old-fashioned scenic work. There are several views of Venice by Mr. H. S. HOPWOOD. St. Mark's asserts itself in spite of his blottesque manner, which is not favourable to suggesting detail. "The Cloisters of San Francesco" is preferable, and the perspective is well managed. Two views are given of "Sta Maria della Salute;" there is also an excellent drawing of "San Giorgio Maggiore." Mrs. ALLINGHAM has a drawing of a Venetian archway with a graceful figure of a girl in the opening, which, although a new experiment, suggests the character of well-dressed ashlar, which differs much from her customary cottage walls. Mr. W. M. HALE has likewise been tempted to represent "San Giorgio Maggiore." Mr. GOODALL has two views, one of the "Piazzetta of St. Mark" and the other of a "Street in Cairo." It is needless to say that Miss CLARA MONTALBA continues to be loyal to the city of the old Doges, and this year contributes three scenes. No city in the world has been so fruitful in subjects for members of the Society, but modern amateurs continue to find as great delight in the Renaissance buildings as their predecessors. Venice has lost much by modern improvements, but it still seems to be almost inexhaustible for the artist.

Mr. S. J. HODSON, who is always most careful in his representation of Italian architecture, contributes a fine view of the "Campanile, Sienna," and of the "Piazza Mercato Vecchio," in which the top of the tower is visible. But this year London also has afforded him subjects; he has an excellent view of "Westminster Bridge and the Houses of Parliament," as well as Dieppe, Blois and Winchester. Painters as a rule do not care to adopt too modern subjects. Mr. HERBERT MARSHALL has had the courage to show the "New War Office

Buildings," but they are made to appear too cramped in perspective. Waterloo Bridge, Billingsgate and minster are among the subjects shown. Evidence has been attracted by the river, for there is a view "The Pool from the Tower Bridge;" some Dutch also introduce running water. It is difficult to see Mr. R. W. ALLAN from views of small Scottish houses, and his style of drawing seems to be suited to primitive construction in wood and stone which is found in the North. Among the surprises of the exhibition are his scenes of Japan. As regards colour, it must be allowed that the browns, blacks and blues are familiar, and when we recall other Japanese drawings, native and foreign, it is difficult to avoid doubt whether the artist's eyes have recognised all that is before him. Effective as is his method, it seems better fitted for breakwaters of rough stone than for the slight wooden structures found in Japanese tea gardens or the fanciful pagodas and temples. But Mr. ALLAN's power in rendering impressions is well adapted to suggest the crowds going up and down the streets, shrines, and groups of Japanese holiday makers does more justice to himself in "Roseheart," which is very dull in colour, recalls the North.

It would be interesting to discover whether the majority of visitors to the gallery will accord attention to the architectural drawings. They are likely to prefer such a treatment of buildings as is seen in Mr. ALBERT GOODWIN's "Abbey Garden," a noble tower with delicate details appears more as an object in the background, or his "Sienna," "Windsor." Landscape this year has attained a high standard. The President's "Misty Morning," "Weald of Sussex," "Suffolk Heath," "Garden" and "View near Pulborough," although on a small scale, possess his usual qualities and if country air had blown over them. Mr. C. WHAITE remains loyal to Wales, and his "Pool, Bettws-y-Coed," is among the successes of the year. Mr. JOHN PARKER has not only followed other members in showing an interest in buildings, but has a remarkably pleasant drawing, "Sunset, Brighthelmston," and a view of Chanctonbury Ring. We hope Mr. CLAUSEN does not intend to devote himself to the painting of hayricks. There are two in the gallery, seen at twilight having a side in absolute darkness, the other under a fierce glare of sunshine. He also contributes "A House at Pompeii," but his sombre "Night" is his most successful work.

It is satisfactory to find that mural decoration still affords an occasional commission to an artist. Mr. LOUIS DAVIS shows two studies for panels in a Castle, one for a chapel in Wynyard Park and one for Paisley Abbey. They are not to be judged by neighbouring drawings. But the figures are well arranged and expressive. Near one of them is Mr. SULLIVAN's only drawing, "Once upon a Time," in which we see a number of girls dressed in white, seated on grass and with a magnolia in full bloom as a background. The figures are well modelled and, although the colours are restricted, the drawing asserts the contrasts between the white flowers and the foliage of green and white. Another successful work of the new Associates is Mr. S. C. VOSPER's "A woman kneeling at the side of a bed in a garden," a pick and shovel which lie against the wall may be a lost companion or the toil which has to be undertaken. But although the face is concealed, the suffering is manifest, and the light and shade is treated with a master's hand. "A Mill Interior" indicates Mr. VOSPER knows where his skill lies. Mr. BELL's "Go, lovely Rose!" recalls Gibson's cards by the introduction of a Cupid at the feet, while the grave lover is partly concealed by trees in the background. The "Fighting for Life," by Mr. A. E. EMSLIE, showing a rescue by a lifeboat, is marked by unusual power, and is dramatic, though being exaggerated. Mr. ARTHUR HOPKINS's



stabelle" is a lady with a stiff Mediæval head and wearing a robe ornamented with an Eastern ol. It would be well adapted for an engraving in ink of beauty, if such a publication appeared in our Mr. F. C. COWPER's election as an Associate impart additional interest to his "Margaret and Spinning Wheel." As in his Academy picture, importance is given to the window near which the seated. She wears a very long pearl necklace, portrays a good type of a German girl, whose is heavy is not her heart, "Mein armer Kopf ist errückt." Mr. H. E. CROCKET's "Like Butterflies free on the Moor," a girl with a dog, somehow "Diana of the Uplands." Mr. GLINDONI's "Screen from the 'School for Scandal'" contains a large amount of work which is carefully executed throughout. It appears to have missed the point of the comedy the characters do not correspond with SHERIDAN's options. Mr. J. C. DOLLMAN's "Pied Piper of Hamelin" is novel. He is a venerable old man, without suggestion of the mountebank. He has just led children inside the wondrous portal of the cavern. Instead of advancing he is seated, and the children gathered round him. They are all ably drawn, such expression on their faces as might be expected of those who are about to enter the joyous land where parrots were brighter than peacocks and the bees were without stings. Who can say whether they were disappointed? There is now at least no disappointment awaiting the visitor to the old room in Pall Mall East.

## HERALDRY AS ART.\*

LORD MAYOR'S procession such as was witnessed on Saturday would lose much of its interest as an annual pageant if the heraldic banners, companies, aldermen and various worthies were omitted. To students of heraldry, artists and archaeologists a great many of them are absurdities. But with all their defects they recall a time when the right to bear arms was considered honourable by citizens. It dares anyone who cares to pay the revenue duties to have not only as many representations of arms as he likes, but he can have them invented for him by heralds and so-called heraldry painters at a very small cost. To the multitude one coat-of-arms is as good as another. Heraldry has come to resemble a dead language, and comparatively few people are competent to understand the meaning of its signs. One of the reasons for the discredit into which it has fallen was no doubt the extravagant use of it made by those who were over-vain of the privileges they had inherited from their ancestors. It is only necessary to look at one of the interiors represented by HOGARTH in the eighteenth century to see how a noble lord in the eighteenth century made even his crutches expressive of his rank. The tradition was continued, and when the Houses of Parliament were erected heraldry was allowed to run riot on the windows. NEMESIS would seem to have awakened, for it is quite evident that the select committee of the House of Lords, who have been considering the state of BARRY's building, would, if they used the power, clear away the elaborate pictures in the windows and substitute glass of a more simple kind which would not obscure the light. The herald, like BURKE, may exclaim, "Alas! the chivalry has gone," for it was closely connected with armorial bearings. In our time greater interest is attached to trade-marks than to crests, and it cannot be denied that there is some relationship between the two. A trade-mark, however, generally indicates a product which has its use in a peaceful age, while the knights require crests with their followers for whom the crest

was a symbol usually preferred war to peace. But heraldry was for a long period so intimately bound up with human needs as then manifested, it is never likely to vanish altogether, for to those who take a pleasure in thinking of the past it has much signification. So long as men bear surnames they can without difficulty imagine that they are of the same family with those who having a like name became distinguished. A few years ago the public were amused when a gentleman with a ridiculous patronymic announced that he would henceforth assume the illustrious name of HOWARD. In the course of a few generations the circumstances of the change are likely to be forgotten. Should Mr. BUGG's descendants employ some of the heraldic charges belonging to the noble family we suppose few people would care to resent their daring.

If the charges are appropriated it would be better on the whole that no liberties should be taken with them. Copyists are sometimes said to treat their spoils as gipsies did stolen children, and to deface them in order that they might not be recognised. That is possible with armorial bearings. But as heraldry is remarkable for its consistency, modern imitators cannot be too accurate, for partial reproductions are one cause of absurdities. If we understand it rightly, one of the purposes of Mr. EVE's "Heraldry as Art" is to explain how errors can be avoided. He does not enter into the imaginative and delightful speculations to which heraldry lends itself, and he passes over the controversial issues which have given rise to heavier strokes and threats than were allowed in tournaments. He simply concerns himself with forms, and his book is therefore of very great utility to everyone who may be engaged in any kind of blazonry. With that object he presents a large number of illustrations. Some of them, in the eyes of a herald (although they may bear illustrious names as designers), are not of more value than the banners which once a year are borne through London streets. But they show attempts to render the science popular by a profusion of decorative elements which in an age when heraldry was in daily use would have nullified the intention and purpose of the science.

It would save many errors if those who employ heraldry were to realise its Mediæval purpose. When we know that the shield of ATHENE was adorned with a gorgon, and that the figures of warriors on Greek vases sometimes bear shields painted with fabulous or dreaded animals, we may conclude that the Greeks, like the Chinese in modern times, considered that a shield, besides defending its owner, could strike terror into the heart of his opponent. Subsequently a representative symbol of the warrior was preferred. In Mediæval days the object sought was to give personal significance. It was not easy to impart variety to armour, and generally the plain colour of the metal alone was apparent. Hence it is that even in romances we hear of black knights or knights in silver or golden armour. If the steel armour were ornamented with gilding it was not of much significance in a crowd or a combat. The shield was therefore emblazoned; but still more useful as leading to recognition was the surcoat on which arms were displayed and the crest on the helmet, which was often made very high. By that means the name of a knight or warrior was proclaimed in the midst of a battle. FROISSART relates an anecdote of a scene he witnessed in the time of EDWARD III. The English army had been vainly attacking Paris. One knight made a vow that he would strike the barriers with his lance. The next day as the English were retreating he did so, and the French knights admiring his bravery cried out to him to get away. "As for the name of this knight," says FROISSART, "I am ignorant of it, nor do I know from what country he came; but he bore for his arms gules à deux fesses noir, with une bordure noir non endentée." It was supposed to be a crime if one knight imitated the armorial bearings of another, and frequent disputes and deaths arose in consequence.

*Heraldry as Art: an Account of its Development and its chief use in England.* By G. W. Eve. With 300 illustrations. (London: B. T. Batsford.)



The peaceful NATHANIEL WINKLE on the first day of the Pickwick excursion found himself involved in a duel, because JINGLE put on the club uniform of a light blue dress coat with gilt buttons marked "P.C." DICKENS might have found the incident in one of the Mediæval chronicles.

We think the connection of heraldry with textiles should never be overlooked. The coats-of-arms which we see represented in churches, on tombs and within and without secular buildings were derived from a part of the dress of warriors and which is still suggested by the official tabards of our heralds. In that way we believe that certain limitations should be observed. Mr. EVE gives an illustration of a diapered shield from the Percy shrine in Beverley Minster. A knight who wished to be unknown might adopt something of the kind. But it is contrary to the whole spirit of heraldry. One result of the author's admiration for it is that in some of his decorative shields in gesso he introduces a sort of graining in order to impart variety to the grounds. A mason might employ ashlarling that would be similarly tooled over. But we are too conservative to accept it as a desirable novelty.

Another point bearing on this subject is that heraldry is as much an affair of colour as of form. In modern reproductions colour is expensive, especially where gold and silver have to be used. In old engravings or diagrams a series of lines was introduced to serve instead of colours. But in the case of sculptured arms reproduced by photography there is no such clue and we have only a partial representation. Colour is, however, so much a necessity in heraldic representations, it is to be regretted that there is not at least one plate of arms in their true colours, if it were only as a tribute to the art. People have of late grown so accustomed to mere black and white representations of arms they do not realise how indispensable is colour to their meaning.

The numerous references to heraldry which we find in SHAKESPEARE suggest that in the Elizabethan age the art or science was appreciated. LAERTES grounded his quarrel with HAMLET partly upon his father's obscure burial:—

No trophy, sword, nor hatchment o'er his bones,  
No noble rite nor formal ostentation,  
Cry to be heard, as 'twere from heaven to earth.

Among the embellishments of the houses at that age armorial bearings were recognised. They would seem to be at first sight no less well adapted for buildings in our time. There is, however, one great obstacle. We have no longer the old conviction that a mansion will always belong to the same family. Everything appears to be changing, and at the present time many people seem to consider that a large part of their existence should be spent on public roads. Arms are not adaptable, and a sculptured representation of those belonging to a family or the builder of a mansion would be almost a satire on a different family if they became the purchasers of it. Otherwise there seems to be evidence enough to show that arms would be eligible as ornament.

A study of Mr. EVE's pages will help a sculptor or painter to avoid errors which have become too common owing to the reliance placed on the fine lines of engravings. We think it would have been an advantage if he enabled his readers to see more of the scheme of heraldic decoration which he carried out at Alloa House and which suggests the history of a family in the thirteenth century. Separate devices are given, but the whole plan would be an additional recommendation for that class of ornament. In the panels a happy mean has been found between the severities of which the herald approves and the freedom which is expected in decoration. Mr. EVE believes in heraldry, which is not always the case with practitioners, and his book is therefore inspired by enthusiasm which is always, however, kept under restraint. If it does not overcome all the prejudices against heraldry—and they must be

strong when we find wealthy towns hesitating a few guineas for a sketch of a coat of arms—at least reveal that in its artistic forms heraldry is entitled to respect as a survival of a time prior to the invention of firearms, when individual bravery saved an empire and soldiers were the rulers of society.

### CROSBY HALL IN 1832.

THE provisional committee for the preservation of the ancient edifice have issued the following description of it which appeared in 1832, when the building was threatened with destruction:—

This building is the only considerable monument of Domestic architecture of the fifteenth century now remaining in London. Attention has recently been called to this interesting relic of past times, by the announcement of a committee of noblemen and gentlemen effecting its restoration, or at least its preservation from further decay and injury, by means of a public subscription. We are glad that this step has been taken; and that the liberal contributions of the lovers of our antiquities will speedily enable the committee, in the execution of which we observe the names of several persons distinguished in art and literature, to commence the restoration of their laudable intention. The present is hardly distinguished from the last age by its regard for relics of this description, which appeal with more force to all minds of cultivation and refinement, in character, at once as memorials of the past and as works of art, admirable on account of their intrinsic beauty. In both these respects they form not the least valuable part of what we may call the public inheritance of the country. Of that diversified wealth with which we find the country live in covered by the labours of the successive generations who have tenanted it before us. It is the fashion of many to speak of our ancestors as if we owe them nothing; we owe to them, in fact, whatever distinguishes the present appearance of this island from the appearance of New Zealand.

In London especially the preservation from demolition of such a structure as Crosby Hall would be an object well worth a little exertion and cost, as we have said, one of the few ancient edifices the country possesses; indeed, the only one, we believe, which might be pointed to as a sample of the domestic mansion of more wealthy citizens at the era to which it belongs. The Great Fire in the middle of the seventeenth century swept away all the chief remains of the past that were left of its existence. Most of what this devastation spared has since been gradually removed by the hand of innovation and improvement, nowhere so active as in this busy metropolis. It is however singular, and may be considered fortunate, that notwithstanding all this change and destruction, London still possesses in Crosby Hall perhaps the finest and most magnificent specimen of her domestic palaces.

What now remains of this ancient residence is the western and northern fronts of the irregular range called Crosby Square, on the east side of Great St. Helen's Street, and immediately to the south of the known opening of Great St. Helen's. On the western front the principal apartment, the great banqueting hall, measures 55 feet in length by 27½ in breadth, while the height of the original floor to the crown of the ceiling is 40 feet. The principal ornament of this room is its noble chestnut roof, of an elliptical form, and divided into four ancient style into quadrangular compartments by pendant beams. It is regarded as a work of great beauty, and, fortunately, it still remains nearly perfect. Between this roof and the original pavement two floors have been erected at different times, and the space is at present divided into an upper and lower room. The hall is lighted by twelve lofty windows, six on the east and six in the west front, commencing at a height of 17 feet from the floor, and divided each part by beautifully carved mullions. In the north wall is an immense chimney, a rare, perhaps singular instance of such an accommodation in these old banqueting halls, where the fire was usually placed in the centre of the hall and the smoke allowed to escape through a hole in the roof. At the north-west corner of the hall is a semi-circular recess, measuring about 9 feet in diameter, of which the commonly called an oriel, of the same height with



having also a window in each of its four sides. The and skill of the architect have been exerted with the best effect in finishing both the outside and the interior in ornamental projection. Crosby Place, as it was originally called, seems to have originally extended round square; but the only other part of the building which remains is the wing forming the north front, which consists of two apartments, one over the other, the upper of which has been commonly called the council chamber. For a description of these rooms, which are in a dilapidated state, as well as for accounts of some of the vaults, which are still to be found under the hall and in the vicinity, we must refer to the "Antiquarian and Historical Notices" lately published by Mr. Carlos, one of the trustees for restoring the building.

Crosby Place was erected soon after the year 1466 on a site for 99 years then obtained from the prioress and convent of St. Helen, by Sir John Crosby, of whom little is known than that he was a grocer and woolman, who attained the dignities of alderman, sheriff and member of the company, represented the City in Parliament, after accumulating a large fortune in trade died in 1500. But Crosby House derives its chief celebrity from the fact that after his death became the residence of the Duke of Gloucester, afterwards Richard III. It is introduced as the residence of the Duke and Lady Anne, and again in the third act, where, in dismissing Catesby, Shakespeare mentions it as the place where both himself and Buckingham would be found in the evening. It is strange that Mr. Carlos, in a publication designed to excite an interest in this old mansion, should have fallen into the error of denying that the great dramatist had any better claim for making Crosby Hall "the scene of any of the actions in which this usurping and unscrupulous prince was engaged," than "some association existing in his own mind," derived, this writer is pleased to imagine, merely from his having "seen and admired its beauties," when he had been admitted on some occasion in the humble capacity of a player to entertain the guests assembled in the "council hall." No historical fact can be better established than that of Richard's connection with this house. The old chroniclers mention it as his residence; and Sir John More expressly informs us that it was here he held the great council of his partisans the object of which was to determine the measures of the other council which he kept at Leicester elsewhere, under a show of making preparation for the coronation of the young king. This is the double meaning to which in Shakespeare's play Buckingham alludes when he refers to the scene already referred to, where he says to Catesby—  
"We to-morrow hold divided councils,"

having desired him to summon Lord Hastings to the

"To sit about the coronation."  
Probably the room called the council chamber has derived its name from having been the scene of these dark transactions.

After the dissolution of the religious houses, Crosby Place was confiscated to the Crown. It was afterwards tenanted successively by several wealthy merchants. Sir John Crosby, who was Lord Mayor in the time of the Protector, was the last person by whom it was used as a dwelling-house. It appears also to have formed occasionally the residence of foreign ambassadors. It had thus, in the honour of being occupied for a short time by the Duke of Sully, then bearing the name of the Duke of Rosny. In the latter part of the seventeenth century a greater portion of the building was destroyed by an accidental fire; and in 1677 other houses, those now occupying the site, were built on the ruins which the fire occasioned. In 1672 the hall was converted into a Presbyterian meeting-house. After the dissolution of this another congregation of dissenters met in it till 1778. Afterwards let as a warehouse, and the lease having expired last year, it is at present untenanted.

## THE HAMMERSMITH BATHS.

ON the 7th inst. the new baths and washhouses erected in Lime Grove, Shepherd's Bush, from the designs of Mr. J. Ernest Franck, 11 Pancras Lane, E.C., were opened by the Mayor. The site was purchased from the Latymer Governors at a cost of 3,000*l*.

The following is a summary of the accommodation afforded by these baths and washhouses:—First-class swimming pond, 105 feet by 34 feet; second-class swimming pond, 100 feet by 30 feet; 63 slipper and lassar baths divided into classes as follows:—Men's first class, 6 slipper and 8 lassar baths; men's second class, 12 slipper and 16 lassar baths; women's first class, 3 slipper and 4 lassar baths; women's second class, 6 slipper and 8 lassar baths; public washhouse fitted with 30 washing stalls, 30 drying horses, 3 hydro extractors; ironing-room; establishment laundry; boiler-house with coal bunkers adjoining; engine-room, engineer's workshop and store; three ticket or pay offices; male and female staff mess-rooms; club and waiting-rooms; superintendent's residence; engineer's residence. The whole of the accommodation has been provided on the ground floor, with the exception of the residences for the superintendent and engineer and the committee-room. As these rooms on the upper floors are placed along the frontages to Lime Grove and Scotts Road, windows can be used for lighting them and the rooms under, while for all the other rooms and corridors direct top lighting can be adopted. The administrative portion of the building occupies the frontage towards Lime Grove and has the ticket office in the middle of the front, with the women's entrance on the left and the men's on the right.

The large hall or first-class swimming bath is so planned as to be used either by men or women. It is provided with a gallery on three sides, that on the east end having three tiers. A separate staircase for the use of swimmers or any spectators is provided at the east end, under direct supervision of the attendant.

The bath pond, which is constructed in reinforced concrete, having walls of an average thickness of 7 inches, is of a unique character, in that 34 feet from the deep end it has been sunk to a depth of 8 feet, so as to allow of exhibitions of high diving; this deepening has been carried out in hopper formation, that there may be no extra working cost entailed in the heating of the water. This bath will be provided with a diving board divided into four tiers, and is also fitted with folding teak dressing-boxes, so arranged that when the bath is used for entertainments these can be shut against the walls.

The lighting of the bath is by a skylight in the roof and large semicircular windows placed in the end walls. The roof, which is semicircular, is supported by roof principals carried out in reinforced concrete, and is one of the first to be so constructed in this country; the bays in between the principals are in moulded plaster attached to concrete purlins. This type of construction has been necessitated by structural reasons and has many advantages, such as being more fireproof than any other type, greater durability and no maintenance.

The side cantilever galleries and that at the end of the bath are also carried out in the same material and form an interesting example of this construction. When the bath is converted into a public hall by the temporary floor, the continuity of the segmental character of the roof across the skylight is carried out by means of glazed iron sashes made to slide; this will add to the acoustic properties of the building, as well as enhancing the architectural effect. The walls are built in glazed bricks, the cornice and architrave being in Carrara ware.

Ample exits are provided, not only by the ten-foot corridor giving access to Lime Grove, but also by four exit doors into Scotts Road.

The second-class swimming bath is slightly smaller than the first-class bath, the water being 6 feet 6 inches deep at the deep end and 3 feet 6 inches at the shallow end. This is fully equipped with small foot baths having hot and cold supplies and spray, as well as a separate hot and cold shower bath. It is fitted with dressing cubicles formed of slate with fixed seats and racks for clothes. The roof is carried by means of steel principals, and the bath is lighted by a large skylight for its full length. Separate club-rooms, lavatory and attendants' compartment are also provided, the club-room having a secondary entrance from the corridor giving access to the bath.

The private baths have been fitted with spray or lassar baths as well as the ordinary slipper baths. The divisions of the cubicles are formed with enamelled slate, the doors

Meeting of Wick harbour trustees was held recently, offers for the construction of the proposed harbour at Wick were considered. The offers ranged from 10*l*. to 176,000*l*. The offer of Mr. Nott, London, being the lowest, was accepted, for 106,819*l*. The trustees have promised a loan of 70,000*l*. and a free grant of 10,000*l*. They agreed, subject to the approval of the Loan Committee and the Board of Trade, to modify the proposed new harbour to bring the cost within the sum at their disposal.



being in enamelled oak and the floor in granolithic. The baths themselves are of white glazed fireclay of the parallel type, finished with teak rim and fitted with an anti-concussive type of bath valve which has been adopted after being tested in competition with others, and altered to the special requirements of the architect.

It is enclosed in a vitreous enamelled iron casing, and the bib projecting over the bath is also vitreous enamelled, so that there is no polishing necessary. The fittings are actuated by an attendant from outside the compartment by means of a loose key. These are so arranged that only a slight turn is necessary; first cold water is obtained, next tepid and then the hot at any temperature desired. There is an arrangement in the valve which prevents the hot being turned on fully, so as to prevent scalding, and by which the highest temperature that is required can be obtained. These fittings have been supplied by Messrs. Doulton & Co. The waste is worked by a key from outside the compartment; it is large, to allow of quick emptying, and the plug is under a fixed grating. The lassar shower

The public laundry, 38 feet by 32 feet, has a separate entrance from Scotts Road, which gives access to a waiting hall where perambulators, &c., may be left. The washhouse itself is entered from this inner waiting hall. It is well lighted by a skylight and a window in the wall, and contains accommodation for thirty washers. Each stall is fitted with one closed steam boiler with steam and exhaust pipes taken into ducts built in the wall, and washing and rinsing troughs, each being supplied with hot and cold water. One hydro extractor is provided for ten washers. The drying horses, of which there are four, are of the usual type, and are divided into bays containing five horses, so that it is not necessary when the premises are not fully used for the whole of these horses to be used. The means taken to dry the clothes is by hot air forced through into the exhaust ducts by means of electrically driven fans. A powerful exhaust ventilator has been fixed in the gable wall to extract foul air. The ironing-room, also entered from the inner waiting hall, is fitted with one box mangle, three roller mangles, and



THE HAMMERSMITH BATHS.

baths are fitted in separate cubicles divided into dressing and bathing-rooms, and have a glazed ware foot bath placed beneath the shower. The valves used are designed to supply a perfectly blended stream of water to any required temperature at one movement of the lever handle. There are two to each fitting, one for the shower and a larger one for supply to the foot bath. The shower is 8 inches in diameter, with a removable face plate for cleansing, and the shower has a swivel joint so that it can be turned in any direction required. There is a dial on the face of the valve marked cold, tepid and hot, and a pointer to the lever handle, so that the user knows exactly the temperature he is getting. Cold water must be turned on first, then tepid and lastly hot, but, as before described, if necessary, the valve can be made so as to limit the amount of hot water and thus prevent scalding; these are also supplied by Messrs. Doulton & Co.

stove and the usual ironing tables. The box and roller mangles are electrically driven.

The establishment laundry is conveniently placed in a central position as possible for the collection of the clothes from the various baths. It is situated next to the waiting hall and close to the boiler-house, and is fitted with rinsing and boiling troughs, two washing machines, a hydro extractor, a four-roller ironer and drying horses.

The whole of the machinery is driven by an electric motor, and the current for this motor, and also for the motors driving the machinery in other parts of the building, is supplied from the Council's mains.

The engineering scheme has been kept as simple as possible consistent with supplying the various services in an adequate manner. All the mains for steam and cold-water supplies, and also the low-pressure hot water and steam mains for supplying the various radiators



the building, are carried in the subways beneath ground floors. The cold-water supply mains are in te; both hot and cold supplies to baths, &c., are into sections, so that in case of repairs being d one section only has to be shut down, also by means no more baths than are necessary need be put e at one time, so saving steam and fuel consumption. electric wiring has been carried out in the most and-simple manner. The whole of the wires are in galvanised steel conduits, the whole system screw jointed, mechanically and electrically con- and earthed from each fuse board and intake Those portions of the building for which a music ncing license has been applied for are wired in nce with the standing orders of the London County and are also provided with an alternate system of by means of gas under the same regulations. frontages have been carried out in red brick with stone dressings, the roof being covered with slating. The whole wall surface of the swimming public washhouse and establishment laundry are

supplies, heating calorifiers, &c., and also the plenum system of heating the large hall or first-class bath. The whole of the fittings in the public wash-house and the establishment laundry have also been supplied and erected by Messrs. D. & J. Tullis. The three Lancashire boilers, 22 feet by 6 feet 6 inches, have been supplied by Messrs. Bowes, Scott & Western, of Westminster. Messrs. Spagnoletti have carried out the electric lighting and power installation.

The fire hydrants were supplied by Messrs. Merryweather & Sons, the calorifiers by Messrs. Royle & Co., Ltd., the radiators by Messrs. C. P. Kinnell & Co., the electric fittings by Messrs. F. & C. Osler, the gas installation by Messrs. Edgars, the artificial stone to chimney-shaft by the Hard York Non-slip Stone Co., the boiler seatings and brickwork to same by Messrs. Poulton of Reading, the arc lamps and motors by the Westminster Engineering Co., the outside arc lamp brackets by Messrs. E. Keeling Teale & Co., the electric clocks by the Standard Time Co., Ltd., the constructional ironwork (including roofs) by G. Aston & Son, the cement by the Associated Portland Cement Manufacturers, Ltd., the glazed bricks and linings to swimming ponds by the Farnley Iron Co., the facing bricks to front by



THE HAMMERSMITH BATHS (INTERIOR).

out in glazed brickwork, the cornice, architrave ssings to the windows of the first-class bath being ara ware.

private baths, corridors and other rooms are finished does in glazed bricks to various heights, the upper of the walls being finished in sirapite.

front portion of the entrance corridors in Lime the entertainment entrance hall and corridor and om No. 1 have dadoes carried out in plain coloured om special designs of the architect. The greater of the floors of the building is carried out in , the exceptions being the floors of public wash- and also those of the private bath cubicles. The ys of the swimming baths are covered with non- g ribbed tiles, supplied by Messrs. Pilkington & Co.

clerk of works, Mr. Archibald Brown, has supervised ction of the building since the commencement. The of the reinforced concrete work, which comprises f of the first-class swimming bath, all the suspended both swimming ponds, the storage tank for cold has been carried out by the New Expanded Metal ny, who tendered for this work in competition with rms. Messrs. D. & J. Tullis have carried out the engineering, including all steam, hot and cold-water

Thomas Lawrence's T. L. B. bricks, the stonework to fronts and lettering on stone by C. W. Courtenay of Fulham, the carving by F. E. E. Schenck, the faience ware to first-class swimming bath by Doulton & Co., Ltd., the tiling to walls of entrance corridors by Craven, Dunnill & Co., the fibrous plaster by F. De Jong & Co., the fire-grates and mantels by Bratt, Colbran & Co., the iron casements to front by W. T. Allen & Co., the iron casements to skylights by Gardiner & Sons, the iron sliding lights to first-class bath by the Crittall Manufacturing Co., the glazing to roof by the British Challenge Glazing Co., Ltd., the fanlight openers and special bolts to dressing-boxes, by W. & R. Leggott, Ltd., the locks, finger plate and indicating bolts by James Hill & Co., the panic bolts and door springs by Smith & Turner, the water-closets and lavatories by J. Tylor & Sons, Ltd., the wrought-iron railings to first-class gallery and grilles by Lockerbie & Wilkinson (Tipton), Ltd., the porcelain baths (both slipper and lassar) by the Farnley Iron Co., Ltd., the iron manhole covers and gullies by Messrs. John Jones & Co., and the Sheradised iron railing to first-class swimming bath by Messrs. C. P. Kinnell & Co.

The general contractors were Messrs. Charles Dearing & Sons, Ltd., Clarence Works, Halliford Street, Islington. Their tender amounted to 45,000/.



## NOTES AND COMMENTS.

IN commenting on Mr. Justice KEKEWICH's decision respecting a block of flats in Salem Road and Moscow Road, Paddington, one of which is 40 feet and the other 52 feet wide, we said that the case suggested a more liberal interpretation of the Act, especially in cases of old streets which originally were narrow and which had been widened subsequently. The buildings, which were erected without the approval of the London County Council, were 40 feet high to the gable. But the gable consisted of two storeys and was 20 feet higher. The question to be decided was whether such a building exceeded by its height the distance to the opposite side of the street. Mr. Justice KEKEWICH held that the Act said nothing against starting a building with a low height in front and then working backwards by steps increasing in height. Architects were entitled to adopt that arrangement when they could do so without offending against the Act. That was a judgment in favour of the defendants. The plaintiff appealed. Their Lordships said they differed from the definition and construction of Section 49 of the Building Act of 1894 by Mr. Justice KEKEWICH. But they considered that the defendants should be allowed to apply to the London County Council for consent to the erection of such a building, and that the other points should be permitted to stand over until the result of the application became known. The inference to be drawn is that without special consent a building could not be erected which exceeded in height the distance from the external wall to the opposite side of the street.

THE restoration of churches is so difficult, if architects could have their way such works would be confined to a limited class of builders. A practice which is equivalent to training is required of each workman. It is, therefore, a hazardous undertaking for the Corporation of Dundee to carry out the restoration of the city churches which they are required to do by law but which has been too long neglected. Dundee may have succeeded in collecting a band of workmen for everyday duties under the surveyor. But, speaking generally, no one who is careful to preserve the character of a church would seek for the bricklayers, masons, carpenters and plasterers among Corporation officials. The master builders of Dundee sent a deputation to the Corporation to protest against the enterprise. They considered it would have been cheaper if the work was done by contract. That is probable. But in works of restoration the "nicely calculated less or more" should be ignored. What is needed is that the work should be done by picked operatives. Unfortunately, that side of the subject received no attention. Some of the councillors were sure that they could buy the materials at from 10 to 15 per cent. below the price charged to contractors, while others said that because the master builders rightly declined to name a price for such work, it was better that the Corporation men should take up the restoration. It must be devoutly wished that when the work is completed it will be of a character to sustain ordinary criticism.

AFTER the action taken by Messrs. PEARSON & Co. against the Corporation of Dublin had gone through the Irish Courts, where the decisions seemed to resemble a game of see-saw, and was carried to the House of Lords, it was sent back to Dublin for retrial. No doubt lawyers and the public anticipated another series of varying decisions; but the Corporation at the last moment resolved on doing what should have been done at first, and have offered to pay Messrs. PEARSON 5,000*l.* within one month and taxed costs. It was stated by one of the counsel for the plaintiffs that fraudulent mis-

representation on the part of the engineers Corporation had not been alleged, and there was evidence forthcoming to sustain such a charge. Plans can become defective without deliberate intent and whoever issues them as correct is responsible for the consequences. It might be merely a junior draughtsman temporarily engaged who by dotted lines suggested the existence of substantial foundations and in the meantime misled Messrs. PEARSON, and caused them to build. Nevertheless, the plans were the official plans of the Corporation, and there could be no evasion of the result. As our readers are aware, we pointed out from the first time since the beginning of the action that the Corporation of Dublin were without any grounds of defence. We protested against the waste of ratepayers' money in demonstrating that some of the Irish judges were not acquainted with the drawing up of plans and that the lines on them were to their Lordships as obscure as hieroglyphics. A more foolish defence was never put up. We hope, however, the result will be taken as a warning by public and municipal authorities, as well as by individuals, that plans can become dangerous if a contractor does not necessarily become responsible in all cases if he accepts absurdities in good faith. The leading case, THORNE *v.* Corporation of Dublin, shows how great are the existing risks, and it is necessary to increase them.

## ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWARK: NORTH AISLE.

L.C.C. FIRE BRIGADE STATION, QUEEN VICTORIA STREET.

THE ALDWYCH THEATRE, THE FOYER.

THE ALDWYCH THEATRE, THE AUDITORIUM.

HOUSES, PURLEY, SURREY.

NO. 1.—HOUSE AT ST. PETER'S ROAD, CROYDON, SURREY.

THE external elevations are in red brickwork with cement rough-cast with Bath stone dressings and tiled roofs. The ground floor contains a sitting-hall, dining and reception rooms, kitchen, scullery, &c., and open well staircase leading to bedrooms and bath-room, &c., on first floor, and a bedroom in attic. The site falls considerably from the side and so gives light cellars, stores, &c. The roof in front gives ample working for bath-room, large bay to bedroom. Mr. D. WALLER, Church Architect, Croydon, was the builder.

NO. 2.—HOUSE, WOODCOTE VALLEY ROAD, PURLEY, SURREY.

THE external elevations are in red brickwork with plinth and rough-cast above, with half-timbered gables, tiled roof. The contents are practically the same as the previous house, but with the addition of morning room on ground floor and one bedroom in attic. PEACOCK BROS., Water Lane, Brixton, were the builders.

NO. 3.—HOUSE, PURLEY KNOLL, PURLEY, SURREY.

THE external elevations are red brickwork with stone dressings, and rough-cast above the first floor ceiling line. It contains spacious hall, reception and morning rooms, and kitchen, pantry, &c., on ground floor; six bedrooms and a bathroom, and spacious cupboards, &c., on first floor. The House situated on crest of hill commanding extensive views across the Surrey Downs, &c. Messrs. ROBERT & BARRIE, of Tooting, Surrey, are the builders. The architect is Mr. FRANK WINDSOR.



## THE SOCIETY OF ARCHITECTS.

opening meeting of the session of the Society of Architects was held yesterday (Thursday) evening at 8 p.m., when the following address was delivered by the President, Mr. R. F. Vallance:—

"The first place allow me to thank you for the honour you have conferred upon me in electing me your President for the ensuing year. I am fully convinced that I shall receive that support and assistance from the past and future, vice-presidents and members of Council which will enable me to discharge the duties attaching to the office to which I have been elected. Thus assured, I shall sit in the chair with the confidence that the good work done in the interests of architects and architecture will be continued, and I can only say that it will be my duty to uphold the dignity attaching to the presidential office."

### *Growth of the Society.*

"On a perusal of the twenty-third annual report issued one cannot help noticing the satisfactory increase in the membership, which now stands at 844, and it is still possible to gain the privileges of membership without having passed a qualifying examination. Council uses every means possible to insure that it has thoroughly competent men of sound integrity enrolled as members. There are, however, many qualified architects who at present belong to no institution, and whom we should be glad to welcome as members of the Society of Architects, and I would invoke the assistance of members to make known to such architects our Society stands for, to point out what we have done in the past, especially towards the attainment of the great object registration, and explain the great advantages they give to that movement by enrolling themselves as members of our Society."

"I shall however be my endeavour to see that the high standard of proficiency now required from candidates is not reduced, and I look forward to the time when the means of accession to our ranks will be by examination."

"A gratifying feature is the interest which members have gone to reside abroad are taking in our doings. We already have a branch in Johannesburg, and negotiations are taking place for the formation of a branch in London."

### *Education.*

"The necessity for better means for the special education of architects is necessary for an architect, especially in our provincial towns, is very urgent. In this direction forward has been made in the formation of the section in connection with our Society, and we are indebted to Mr. C. H. Mead, the chairman of that section, for the interest he takes in the work. I must trust that the students will duly appreciate the advantages which are being made on their behalf, and show it by the advantage of the classes formed for their instruction. Students will find the information to be gained in these classes will be of great assistance to them in preparing for their qualifying examination and for their future work."

"I should like to suggest that one or two half-day sketching classes should if possible be arranged during the session. It should be found not only a very pleasant way to spend the afternoon, but should prove beneficial in many ways, as our knowledge should be based upon experience of those who have gone before, as much time as should be devoted to making carefully measured drawings of buildings of recognised beauty, and of the study of their construction, for we should remember the proportions which resulted in such noble and effective effects in the past ages still hold good to-day, and without good construction we cannot have good architecture."

### *Library.*

"It is gratifying to see the increasing use made of the library, and I should like to emphasise the note in the last report, asking for the co-operation of every member in making this very desirable adjunct to the Society's success."

### *Social.*

"The social functions which were so successful last year, in my opinion, be the means of much good to the Society and to its members individually, by cementing the ties and affording the means for an interchange of views on matters which crop up in our practice. I therefore

hope to see these continued in my year of office, and shall look for the cordial support of the Council and members generally in this direction."

### *Registration.*

"It is now twenty-one years since the idea of obtaining an Act of Parliament to make it compulsory that all persons entering the profession should be duly qualified by examination took root, and while we have not, I regret to say, yet attained the desired end, I wish it to be most distinctly understood that progress has been made and that your Council does not intend to relax its efforts in the slightest degree."

"The suggestion of the R.I.B.A. to alter its charter and by-laws does not go far enough. What we want is that it shall be illegal in the future for a person to enter the profession and practise as an architect unless he has been duly trained and passed a qualifying examination. We have got beyond the argumentative stage, and it is now generally admitted that registration or federation is right in principle and the only point at issue is how best to carry that principle into effect."

"So long as any section of the profession stand aloof or is antagonistic on points of detail to a measure which it approves in principle, progress is retarded, whereas could we go to Parliament with a non-contentious measure and a united front it is only reasonable to suppose that facilities would readily be made for the passing of an Act."

"It is at least gratifying to find that individual members of Parliament and the public generally now view the Bill with more favour, and since the best asset a nation has is a healthy population, it is inevitable that our legislators must sooner or later come to the conclusion that it is absolutely necessary for the public good that none but thoroughly trained men should design and supervise the erection of the dwellings in which our population live and the places in which they are employed, and to this end place the Architects' Registration Bill on the Statute Book."

"When this is accomplished and architects are all trained men, we shall receive the confidence of the public and of the medical profession, and take our proper place in being called upon to assist that profession to raise the general health of the people and so help in arresting the deterioration of the race about which so much has been heard in recent years."

### *Planning of Suburbs or Town Planning.*

"The manner in which new suburbs are formed on the borders of our towns, without the slightest regard to any general scheme of development, has attracted a good deal of attention during the last year or two. It is quite a common occurrence for a valuable residential district to be spoilt, say, by the advent of a colliery and the accompanying tenements which inevitably follow. So long as these tenements are erected to comply with the by-laws as to thickness of walls, strength of timbers and minimum air-space in the rear, there is no law to prevent the crowding of, say, forty houses to the acre, without forecourts or any sign by which one house can be distinguished from another in, say, a row of 100 houses, except by the number on the door. This, I contend, ought not to be possible in the twentieth century, and I am glad to see that Mr. Burns proposes to bring in a measure or measures dealing with town planning and housing reforms during the coming session."

"Let us give every credit to the promoters of the first garden city at Letchworth; we may hold different opinions as to the various buildings which have been erected there, but limiting the number of houses to be erected to the acre to twelve, the general planning of streets and open spaces, and the disposition of various classes of buildings on the area, I think we shall all admit are in the right lines."

"There can be no doubt that environment plays a very important part in the development of all forms of life, and the mere fact that such a large proportion of the population in our towns lives in such squalid houses in narrow streets has some bearing on the drunkenness and depravity often found amongst the unfortunate people enforced to spend their lives in such horrid places."

"I think this matter of town planning well worthy of the earnest attention of our Council."

### *Strand Improvement.*

"I am sorry to see that the L.C.C. still refuse to alter their decision as to the line of building frontage between the two churches of St. Mary-le-Strand and St. Clement Danes. Your Council carefully considered this question in



1906, and were of opinion that the plan suggested by the Further Strand Improvement Committee was far preferable to the L.C.C. proposal, and consequently joined in the memorial asking for the matter to be reconsidered.

As a provincial architect there has been no question of public improvement in the Metropolis which has appealed to me so strongly as this. The opportunity for giving London one of the finest avenues to be seen in any city of Europe and of opening up from the west the view of the Law Courts and from the east that of the church of St. Mary-le-Strand, appears likely to be lost for ever. No matter what the extra cost would be, now that the site is cleared I consider it nothing short of a national calamity that this opportunity for effecting such a noble and dignified improvement as that suggested by the Further Strand Improvement Committee should be lost.

#### *Competitions.*

The result of the preliminary competition for the new London County Hall has been made known, and the authors of fifteen designs selected to compete together with eight architects appointed by the County Council in the final competition. I am sorry not to find the name of a member of our Society amongst the fifteen successful competitors, but it is at least gratifying to see the names of several young and comparatively speaking unknown men amongst the fortunate; and further to know that the London County Hall will be erected from the designs of an Englishman, as no foreigner has been successful in the preliminary competition.

#### *Crosby Hall.*

I sincerely trust means may be found to preserve this historic building to the nation. If our ancient City Guilds seriously take the matter in hand, there is little doubt the necessary funds will be forthcoming, and this fine building which connects us as it were with the time before the Great Fire will not be demolished. I take the liberty of quoting from a speech of Mr. W. D. Caröe, F.R.I.B.A., delivered at a meeting held at the Mansion House when this matter was under consideration, when Mr. Caröe is reported to have said that:—

"We have before us a piece of design and workmanship executed at a period when architecture was the first of the arts, and when the individual craftsmen were artists in the highest sense of the term—artists literally to their fingers' ends. It has a value of its own second to no other building in the City. As a piece of design, it may be held up for all time as a classic example of architectural skill and conception. To the architectural scholar it is a Gainsborough or a Reynolds in architecture."

#### *Architects' Benevolent Society.*

I should like to take the opportunity of reminding our members that there is in existence an Architects' Benevolent Society, which has for its object the relief and assistance of our confrères who have fallen on evil times. Is it too much to ask that all members of our Society whose circumstances in life will fairly warrant it (and I sincerely hope there are many such) will make a small annual subscription to this very deserving fund? Those members who do not care to send individual subscriptions to the Benevolent Society might, I venture to suggest, subscribe to a general fund to be transmitted through our secretary, who, I am sure, would only be too pleased to forward collectively any amount he might receive as coming from members of our Society. Gentlemen, I commend this worthy object to your serious consideration.

### VANDALISM AND INCONGRUITY IN EDINBURGH.

THE opening address of the session of the Edinburgh Architectural Association was delivered by the Right Hon. Lord Kingsburgh, K.C.B., LL.D., Lord Justice-Clerk, in the Royal Scottish Society of Arts Hall, Edinburgh.

His Lordship said he assumed they would all agree that the architect, if he was to be worthy of his profession, must be a lover of the beautiful both in nature and in art, and, further, that it would be conceded that every failure to consider congruity was in greater or less degree failure to conserve or cultivate the beautiful, and was a step in the direction of disfigurement. They would perhaps be amused with his first illustration of a building put where it ought not to be, as there was no real question of architectural skill involved. There might have been, for the place he spoke of was Dunsappie Loch, at the back of Arthur's Seat. He remembered well that the late Prince Consort—who had many virtues, but of which æsthetic taste was not one—

had every preparation made for the erection of a vera refreshment restaurant at the east end of Dunsappie. The stones for the building were actually cut and laid on the ground. Let them be thankful that there was sufficient revival of taste in, by that time, much disfigured Edinburgh to cause an irresistible outcry against the proposal. The Prince Consort was, like most Germans, wonted to hold a lager beer-house as a necessary architectural improvement to a scene of natural beauty. Lord Kingsburgh once took a German professor for a walk to Arthur's Seat, and when he expected him to say something complimentary, the professor turned to him and delivered himself in German—he translated literally:—sir, it is to me a thing altogether outside understanding how that in so near neighbourhood of a so great city should be in such a state of waste and desolation left.

But although Albert the Good could not see the erecting what he desired, yet some years later a building was put up at Dunsappie, and there it still stood to the disgrace of king, lords and commons, and every inch of Edinburgh. He referred to an erection for the storage of tools for a few weeks' work per annum. Going further afield from Dunsappie, they came to another specimen of incongruity, a specimen of a too common blunder about a century ago when pretentiousness was mistaken for style. An ancestor of the Duke of Abercorn decided to have a dwelling at Duddingston. His architect planned his building with its face to the east wind, and selling his idea for a Scottish mansion a design suitable to the sunny south. That was not all. The same architect, at the entrance of the avenue from the road, put up a three-arched gateway. This grand Renaissance gateway with its imposing arches, which, if it were the gateway of a French château, would have 10-feet walls going out to surround the park, stood alone with not a square of stonework. The whole arrangement was a mixture of obtrusive pomp and mean shabbiness, an error of display, producing a ludicrous incongruity. The more such cases within driving distance of Edinburgh, the more city architecture one found also too many specimens of incongruity leading to disfigurement. What was more glorious street, probably unequalled in the world as a situation, but a flat-faced mile of unrelieved masonry, many tenement buildings of to-day would put to shame. It never seemed to have occurred to those who built Princes Street and the adjoining streets that so fine a situation as the south side of the valley called for consideration when the north slope had of necessity to be appropriated for building.

To people to-day the earlier buildings on the north side were almost as inconceivable as it was to them to know that the Corporation of an earlier day deliberately made a decision on their minds to build a south side to Princes Street, a project which it was not too much to say would have irritated and disfigured Edinburgh æsthetically, and probably rendered it also as a place of resort for thousands from elsewhere. The occasion was one in regard to which—not a political point of view—every citizen then and since now could say from his heart, "Thank God, we have the House of Lords;" for it was only by a judgment of the House that Edinburgh was saved from such a catastrophe. Even as it was, Edinburgh did not escape scatheless from the proposed vandalism. The buildings on the site of the present North British Railway hotel were erected in defiance of the House of Lords' decision, and presented their backs to three or four generations. Had these new buildings been built it was not improbable that neither the new police station nor the railway hotel would have been placed where they are, blocking out the view of Arthur's Seat and beyond. On the other side of the valley much might have been done. An unpardonable mistake was made when the west end of Edinburgh was built in neglecting to build on the high bank of the Water of Leith as the front for a new city, instead of placing the rubble backs of Moray Place and Ainslie Place as a setting to a beautiful natural scene.

But perhaps the most fatal concession to the incongruity in Edinburgh was to be found in another terrible and mediable outrage upon the beauty of the city. What taste, where was forethought, where was good sense, in committing the valley between the Old and the New Towns to be invaded by the railroad? It was vain to pour over spilt milk, but surely one might indulge in a dream of what might have been. Looking over the acres of dirty glass roofing one might have been led to see instead a lovely stretch of garden reaching from Cuthbert's to the east of Calton Hill, the North Loch.



e sheet of water, a beautiful drive between the castle, passing the Mound by a tunnel and westward by a boulevard road out to the front of round the King's Drive, and by another boulevard then practically open ground from St. Leonard's Drive, and then, cutting a line through West of the west of the Castle Rock. It was recorded by citizen, the late Adam Black, whose statue was to add to the beauty of the terrace of Princes Street, as Lord Provost, he solemnly delivered himself to the Town Council, "Nature has formed this place a station." A more cruel libel on poor nature the lips of man. His statue should be turned to his work, and there should be inscribed on its base was a worthy man who unconsciously took the statue in vain, and in her name did what the statue below. He is gone. Don't revenge yourselves on an effigy." The Nelson Monument on Calton an instance of the evil that men do living after them trust that the designer of it did some interred with his bones. One could not even melancholy satisfaction of being able to say, "It has been worse."

placing on end of a great round rolling pin, with elements at the top, on the summit of a hill, was with another too common absurdity which disfigures a scene—the square-pointed obelisk. Lord Kingsburgh afterwards spoke of incongruities by something buildings had been erected. Dealing in this with the alteration of churches and other buildings that terrible things had been done to the great and churches by funeral marbles and brasses noble or the wealthy Christian being commanded by representations of the front of a sham sarcophagus and veil copied from some heathen tomb, good but poor, humble disciple had any tablet to his memory. Speaking of the general amenity of the town, he said the Town Council were offenders in this. It seemed not to be thought an outrage to put a black post, with a black square on the top of it, in Princes Street Gardens, to tell people that 2d. was the charge for Walter Scott's monument and 3d. the charge for the monument. He never saw anyone read what was there it was, a mean vandalism for a mean ugly splash thrown in upon the view beyond, for twopences and threepences. But worst of all lately been put up on the top of the Waverley an indescribably ugly erection, flanked by flagstaffs, shows to advertise themselves by an offensive policy. No one, if he had thought for a moment of buildings, would have put up such an abomination. It came down. And what about the placards which the Scottish Academy stuck up with battens on the Gallery railing? The Architectural Association not many months ago put up two placards the Greek pillars of the Royal Institution. In the of his address Lord Kingsburgh dealt with what the dreadful practice of caging up buildings with often ugly railings. He spoke of what had been the removal of railings, and said he hoped to live Andrew's, St. George's, St. John's, the south side High School and the front of the Royal Museum the same way. If the contemptible fences on all were removed, people would be surprised at the effect it would give as the top of the slope was ascending the hill.

The motion of Sir R. Rowand Anderson, seconded by T. Oldrieve, Lord Kingsburgh was accorded a vote. The chairman, speaking of a reference which Sir R. Anderson made to the acquisition of an old house at Holyrood by private owners, explained that the Government did their best to secure the ground, but that the competition of a syndicate the price was raised more than twice the sum originally offered. The proceedings closed with a vote of thanks to Mr. Anderson presiding.

**Dundee Morris Trust Fund** has intimated the gift of a picture to Dundee Permanent Art Gallery, one of them a Voltaire picture by Sir William Q. Orchardson, the Morris fund was established by the late Mr. J. Morris, parish schoolmaster of Mains, who bequeathed a portion of his estate as a capital fund to be applied to the purchase of pictures for Dundee Art Gallery.

## THE "NATIONAL MONUMENT," EDINBURGH.

At a meeting of the Architectural Craftsman's Society in the Technical College, Glasgow—Mr. A. L. Currie, president, in the chair—Professor Charles Gourlay delivered a lecture on "The Parthenon and its Reproductions." After referring to the beauty of Athens, its acropolis and surroundings, the lecturer dealt in detail with the architectural features of the Parthenon and its construction. Architectural design being an expression of the thought of man, no finer example of this, he said, existed than the Parthenon. The construction of such a masterpiece with all its refinements could only have been accomplished by one having technical skill of the highest order. It was remarkable that these two qualities—the ability to design and to execute—were never found in a fully developed state in one man. The architect, Ictinus, and his craftsmen produced in the Parthenon the one edifice undoubtedly the nearest to perfection of any building ever erected. Just as these architectural craftsmen worked as one individual on this building, so the architect and craftsmen of the present day ought to work in order to design perfectly and execute the very complex buildings now required. The Greek revival in architecture took place early in the nineteenth century, and as the mind of the public had just then been awakened to the beauty of the Parthenon this naturally led to its being considered worthy of reproduction in whole or in part. The two most celebrated attempts to entirely reproduce the Parthenon were both the desire to give national expression to the deeds of great men. The incomplete Scottish National Monument on the Calton Hill of Edinburgh was the first attempt, and while the reproduction of a building of a former age was deprecated, yet it was to be hoped that, as the monument had been begun, it would be completed externally according to the original plans, the interior being arranged to suit the purpose to which the building might be put. The other reproduction was the well-known Walhalla, near Regensburg, in Germany, which externally was an almost exact replica of the Parthenon, but internally was one large hall. The floor and walls were lined with polished marble, and colour was employed freely, with the result that a gorgeous effect was produced. The lecture was illustrated by a series of lantern slides as well as by drawings and photographs. A vote of thanks brought the meeting to a close.

## NEW ZEALAND EXHIBITION.

An interesting report has been prepared by Sir Isidore Spielmann, F.S.A., on the British Art Section of the exhibition at Christchurch, 1906-7. The section included oil and water-colour paintings, miniatures, sculpture in marble and bronze, black and white drawings, engravings and etchings, architectural drawings, and a representative arts and crafts exhibit, which was shown side by side with fine art. Contributors to this section included a large number of members and associates of the Royal Academy, Royal Scottish Academy, Royal Hibernian Academy, Royal Society of Painters in Water-Colours, Royal Institute of Painters in Water-Colours, Royal Society of British Artists, Royal Society of Painter-Etchers and Engravers, New English Art Club, Royal Scottish Society of Painters in Water-Colours, Royal Institute of British Architects, Society of British Sculptors, Royal Society of Miniature Painters, the Society of Miniaturists, &c. In addition to these a number of eminent artists were also represented who are not identified with any society or institution. The number of artists contributing was 531. Thirty-six private owners also lent works. The total cost of the section was 7,126*l.* 19*s.* 6*d.*, of which collecting and carriage amounted to 4,192*l.* 6*s.* and insurance to 1,387*l.* 4*s.* 2*d.*

The director is of opinion that the British artists as a rule fix the prices of their works at international exhibitions at figures which do not encourage purchasers. Foreign artists of the first rank fix the value of their works at these exhibitions more moderately, and consequently they command a more ready sale. At the Brussels Exhibition but few pictures were sold; at Paris hardly any; at St. Louis we sold for over 7,000*l.*, while at New Zealand, where prices were less high, we have sold for 17,107*l.* 7*s.* 8*d.* This he believes to be by far the largest amount ever taken for modern works of art at any international exhibition. The private purchases amounted to 7,420*l.* 14*s.* 2*d.*, the remainder was expended for public galleries in New Zealand and Australia.

Of the fifty-two oil-paintings sold twenty-four were landscapes, twenty-three subject pictures, three sea pieces



and two were portraits. Of the ninety water-colours sold thirty-one were landscapes, forty-four were subject pictures, eight were sea pieces and seven were architectural subjects. Of the fifteen miniatures four were portraits and eleven were fancy subjects. Of the 116 drawings, etchings and engravings eight were portraits, fifty-eight subjects and fifty landscapes and buildings. Of the eleven pieces of sculpture sold four were busts and seven were ideal figures. If the public showed a preference at all it was for the water-colour section, where several of the subject pictures could have been sold many times over, but architectural subjects were also much appreciated. In the arts and crafts section, pottery and glass, lace and needlework, jewellery and enamels, furniture and metalwork sold easily; but wood-carving, stained glass, bookbinding, printing and calligraphy were less understood and appreciated.

According to the director the full measure of success can only be determined later on. It cannot be gauged merely by the value of sales effected. The new reputations made, the new seed that has been sown, and the lessons that have been taught and learnt, have also to be taken into account apart from the question of direct financial gain or reward. During the continuance of the exhibition the attendances in the local art schools increased considerably, and local artists closely studied such subjects, for example, as hill formation and the like, and other characteristic features from pictures on the walls. As a result of international exhibitions works by British artists have been added to the national or municipal collections at Paris, at Berlin, Düsseldorf, Munich, &c. This propagation of British art has now been more widely extended to the galleries of New Zealand and Australia.

Among the works acquired by the Adelaide Art Gallery is Lord Leighton's "Study of a Fig Tree," which was reproduced several years ago in *The Architect*.

#### FRENCH ACADEMICAL PLANNING.

IN the *Architectural Record* (of New York) for November is the first of a series of articles which will deal with the methods of modern French architecture as applied to architectural practice in the United States, and particularly the training obtained by American students (and their imitators) in the Ecole des Beaux-Arts. The first of the papers is by Mr. J. Stewart Barney, who is, we are told, "an architect of experience, whose achievements in this country give to all his judgments a presumptive value. His opinions are those of a mature, professional man, and therefore differ essentially from the impressions or recollections of a young student." The subjoined extract will suggest the author's opinion on the system of instruction on planning:—

The following, it should be understood, is the result of careful notes taken during two years' study in Paris in and out of the ateliers, under the direction of those who were considered their strongest men, and for whose opinion I have the greatest respect, and to whom I am indebted for many of the points which I make in criticism of the methods of the school as applied to the American student. These I will not offend, as they have often agreed with me, and have always willingly given consideration to the points which I raise.

When for the first time, under the direction of one of these men, I undertook to work out one of their large problems, I was appalled by its magnitude, considering the small amount of time that was allowed me to solve the same. Although I had practised architecture in America for nearly fourteen years, this problem required information that I, with my experience, did not have. I was confident that it would require all the time allowed for the complete solution to read up on the subject and put myself in a position where I could consider intelligently the conditions governing the same. Therefore, with a very limited knowledge of the subject, and not having, at that time, entirely grasped their idea of proportion in plan, one of the most striking features of the school training, I naturally produced a plan absolutely without merit from any standpoint, and especially from theirs. I was wandering in the dark. I could not understand how it was possible to grasp so quickly the solution of so large a problem in an entirely new field, and requiring special technical information. I was very much impressed when for the first time I saw the readiness with which the advocates of this proportion system arrived at a solution.

I think I am right in saying that the student of the

Ecole des Beaux-Arts is taught to plan with. He uses a very soft pencil, or preferably a charcoal. With this on a small piece of paper and spins and spins in concentric circles until covered the entire paper with a soft grey tone, lacing lines. These he smears occasionally with his hand and in this shadowy uncertainty his quick imagination sees or devises a form which his eye has shown will be considered good. He then considers the conditions which govern the problem to fit the form. By the process of proportioning the difference of his plan he claims to arrive at a solution, and of his power of indication he renders the whole plain to the eye. The first is false, the second deceiving.

By their theories and their methods of indication not only arrive quickly at the solution, but are skilful in seeing at a glance the faults in a plan composed of others. One often hears of the wonderful skill of professors in this particular feat of telling at a glance without even reading the programme or demands of scale, what is the trouble with a plan. Considering an architectural plan as a musician would of music, their trained eye readily detects harmonic harmony or discord. They detect a false note which can as quickly give their reasons for the discord; reasons are generally the statement that this form, or combination of forms, had or had not been used in previous "concours," or having been used, adjudged good or bad. They refer to the previous "Prix" as a lawyer, pleading before the Bar, would the rulings of the highest Court.

This great facility in criticism, I think, is due to the fact that they have studied for years the expositions at the Ecole; they know by heart every decision of the jury, they know what has been considered bad and what has been considered good, they know what is now considered good or bad, they know what has been pronounced the most fashionable form, and, like a tailor, they are quick to see the possibilities in a plan. They are quick to tell whether a new form will place in the traditions of this paper-architecture handed down as something which has been tried and found good. They are perfectly sincere when they say they feel discord; but my question is always, Why do they feel this? Would they feel the same in a plan through the building constructed after the plan is considered, and as there is no possible way to obtain, after the building is constructed, a view of the plan, or a zonal section through the same, which is the same, they think they may be accused of wrongly applying their theories to artistic combinations of forms, lights and shades. Their theories are therefore just as applicable to the drawings for an automobile.

As I have said, they will criticise a plan without thinking of asking the scale at which it is drawn. They do not hesitate to criticise before asking for the conditions which govern. This was well illustrated when I criticised a set of competition drawings which I made for a New York church without asking for the conditions of competition.

When asked why they do not consider the conditions which the drawing is made, they reply, "The scale makes no difference; it is a matter of proportion." They apply this theory to the plan for a State hospital, for example. The space allotted to one patient might be that which was required by law, and they would give to the patient more cubic space than was required, more than was convenient for the administration of the building, and more than the appropriation, which would require upon scientific calculation, could pay for.

Naturally men who have been passing on principles of theoretical requirements based upon theoretical principles which have been the outgrowth of their experience, "projects" which were never intended to be executed, apt to form standards of excellence which are erroneous. From their standpoint, judging from the models which they have turned out according to their methods, which they have turned out according to their methods, they are correct, but when these methods are applied to American competitions for a building really to be built, great injustice may be done to the student who is not educated in these theories, or, understanding them, consider them worthless and refuse to be influenced by them.

By the French teaching the plan is an assembly of symbolic indications, and when rendered in accordance with their rules of shades, tones, values, &c., is as



od by their judges as would be a musical score to er of an orchestra, and establishes between them student a perfect medium of communication. The if he is a master of the art, can at will suggest to es' gayness, sadness, light and air, or absence of beautiful view or a dense forest. All of these forms of indication (chi chi) have been invented by ver schoolboys with the sole idea of pleasing and the eye of the judges, having noted in previous ns that the drawings having the most extraordinary f this kind of art were generally recognised.

meaningless, aimless, childish performance has ied on to an absurd limit, and as long as this is to the school it is a matter of no interest to us ; full-grown men, serious in their work, allow es to be forced either to study these tricks, or, if e not the time themselves, employ in their offices, itant salaries, pastmasters in this form of "plan g," in order to compete on equal terms with those e forced this sort of rendering on us in the guise of I think it is time to stop and consider.

ave said, I was very much impressed when I first of these masters of what I, for the lack of a better ll the spinning "process," dash off in this way the large problem. It was a joy to look at. His skill st magical, his arguments most convincing. I was at he at some time in the past had given a great me and study to this particular problem, but now at he did not know as much about the conditions g it as I did. When it was laid before him it was time that a problem of that particular nature had mitted to him, but with absolute certainty, the of his confidence in his theories, one of which is, at good proportion in plan produces a good plan, ly arrived at a solution which satisfied his eye, ve satisfied the eye of the committee of award, and efore pronounced by him the proper "partie" (lay- en the uncompromising facts governing this problem ight to bear upon his "partie" his beautiful pro- were lost and the plan was pronounced bad, not t did not fulfil the necessary requirements, but had proportions and was no longer, as he expressed it, y to an "indescribable feeling." To understand e scribable feeling" one must train oneself by the proportions and combinations that have in school "conours" been adjudged good by the e of award.

g now studied conscientiously this process, not an advocate of the same, I can in a few ash off a "partie" for the largest or the smallest I use the same process of "spinning" until g appears on the paper which suggests a pleasing ion of forms. This I can apply, as they do, to the a book, the lay-out of a park, the plan of an old me, or to some really great work.

st be because of their absolute confidence in the of proportions, as applied to plan, that the men in these theories undertake, without hesitation, complicated problems with conditions of which e not the slightest information. They certainly problem to their entire satisfaction by this skilful ion of large and small forms, arranged with the oducing the most pleasing plan-picture. And by ions of greys, tones, washes and values—all o more bearing upon the practical result than the effects of lights and shades which they produce on des with shadows at 45 degs.—they undoubtedly e requirements of the school. It must be said, that though they may be accused of misleading to the belief that they have solved the problem y, they have first misled themselves. It is almost le to argue separately the theory of proportion in the process of indication or rendering, as they are ly associated; the rendering being the method by oportions, which are considered good, are em- and those which might be criticised rendered g, or, if necessary, entirely hidden.

I was at work on a plan for a block-house, an st or trading station in Alaska, concerning the ents of which neither the professor who drew up tions (judging from the conditions), the professor om I was then working, nor I myself pretended he slightest information, I was told that I could by y of proportion decide the best method of fighting and that the necessary size of the block-house was e matter of proportion between it and the sur-

rounding courts, I was then tempted to pronounce their theories unworthy of serious consideration. In answer to my objections, I was told that they were not in reality attempting to design a block-house or trading station that would suit the place for which it was intended, and perhaps theirs would not be a practical solution. Then why attempt to solve a problem that required no solution? Why impose any conditions, and why call the solution an army post in Alaska? I could not understand how it was possible to consider intelligently this trading station or block-house without first having a talk with the Indian fighter. I could not see how any theories referring to the monuments of Europe could apply to this absolutely new set of conditions. I claim that if it was necessary to have theories at all in order to come to a satisfactory solution, these should be established on what the trapper would say rather than upon what Louis XIV. had already done or would do if he were called upon to build this army post. Seeing in this particular problem a golden opportunity of testing their theories of proportion, I wilfully made a block-house too small for the purposes for which it was to be used. I placed it in a position so dangerous from a strategic standpoint that I think the trapper would have refused to live in it. I entirely disregarded the safety of the inmates of the post, but having grasped the theory of proportion I studied with great care to obtain what I thought would be considered a fine combination of forms, composing with great care the different values, lights, darks and greys. These combinations, and the method of rendering them attractive to the eye, I learned by painstaking study of the "Grand Prix" of previous years. The consequence was, I was highly commended. I was told that it was pleasing to see that I had grasped the idea, and that it had always been predicted that I would "arrive." I then demonstrated that it was impossible with this "partie" to obtain the required amount of space for the different parts, having carefully worked out beforehand the amount of space which, in my judgment, they would require. It was therefore necessary for the professor to devise another combination of forms. This he readily did, and without an apparent effort obtained another more pleasing combination; but when the facts were brought to bear upon this new "partie," it was also found that it did not fulfil the requirements, and we parted without having solved the problem of how to fight Indians in Alaska. We knew nothing whatever about the requirements, and without the assistance of the trapper it was just as ridiculous for us to make a combination of forms to suit his conditions as it would have been for us to have selected for our "partie" for this army post a Turkish rug, simply because it, by its combinations of forms, shades and colours, produced a pleasing effect upon the eye.

The advocate of this system, when he has, as they say in French, "arrived," claims to be able to design by the theory of proportion the correct solution of any problem, a block-house in Alaska, the palace of a king, the house of an American millionaire, or an undertaker's shop twenty or thirty storeys high to be built in New York, to fulfil the Frenchman's idea of our requirement (Prix de Reconnaissance des Architectes Americains—school year 1905-6), without any other preparation than a good eye for proportion and a wonderful skill in indication.

#### ROYAL IRISH INSTITUTE.

A GENERAL meeting of the Royal Institute of Architects of Ireland was held in Dublin on the 7th inst. Mr. W. M. Mitchell, president, occupied the chair, and there were also present:—E. Bradbury, R. J. Stirling, J. Holloway, S. M. Ashlin, G. C. Ashlin, R. P. B. Smyth, L. H. Deane, G. L. O'Connor, R. C. Orpen, G. F. Beckett, C. H. Mitchell, F. G. Hicks, E. H. Morris and J. H. Webb, hon. secretary. The President announced that Mr. Frederick Batchelor had been elected President for the ensuing three years. The President also announced that Mr. L. du P. Millar and Mr. A. O'M. Lovell were elected members. The usual monthly meeting of the Council was held, Mr. W. M. Mitchell in the chair. The hon. secretary reported that there were at present five candidates for membership of the Institute, and that several others had been supplied with the necessary application forms. Preparations were made for the approaching election of a new Council for 1908. Four resolutions passed at a recent general meeting with regard to the best means of balloting, the advisability of holding a conversazione, revision of schedule of charges and election of President, were discussed and considered. The hon. treasurer presented a financial statement, which was approved.



## TOWN PLANNING.

THE following suggestions upon town planning have been communicated to the *Sheffield Daily Telegraph* by Mr. Edward M. Gibbs, architect:—

The practice of land speculators is to lay out an estate so as to produce the greatest possible ground rents; making the width between the fronts of the houses the minimum width of road permitted by the by-laws, and the plots of land as small as will allow of houses having the open space at the back required by the by-laws. The result is about thirty-six houses to the acre. The practice of some of the large landowners is an improvement upon this, the plots being made of greater depth, with the result of about twenty-four houses to the acre. The experiment at the Model Cottage Exhibition of only twelve houses to the acre is a success which it is desirable to repeat; but local authorities have no power to enforce it except by becoming owners of the land, a very serious responsibility, as will hereafter be shown.

The by-laws of Sheffield prescribe the minimum width of roads to be 40 feet. The method of completion of roads before being dedicated is so very costly that the minimum width of road is generally adopted, even for the most important new thoroughfares, resulting in the present absurd practice of making front roads with much traffic no wider than back roads with little or no traffic, and the whole of them of a uniform monotonous width and appearance, except for the occasional front gardens and bay windows in the better roads.

The Sheffield Society of Architects and Surveyors have suggested to the highway committee the alteration of their by-laws so as to permit of broader roads for main thoroughfares and narrower ones for less important traffic, and also an increase in width between the fronts of houses, giving the additional width to front gardens. The town clerk has replied that the Corporation have no powers to make such by-laws.

The general practice in laying out estates is not to consider the interests of the owners of adjoining estates, or of the town generally; with the result that there is frequent want of proper communication from one estate to another. The highway committee have for many years used their influence, and secured roads through adjacent estates, and have prevented the construction of many cul-de-sac roads. But I believe they have not the power they should have to require an estate to be laid out with proper regard to the development of the town generally.

Town planning, as I understand it, is a proposal to give the local authorities full powers to deal with the matters I have above referred to, viz. the laying down of a plan for the development of the town and its suburbs on a comprehensive scale, the provision of roads of width proportionate and suitable to their uses, the limitation of the number of houses to the acre and the power to purchase necessary land.

If such powers be granted, then a plan of the city of Sheffield and suburbs should be prepared providing for the future extension in all directions, with main thoroughfares from the centre of the city to each suburb and beyond, and main thoroughfares from suburb to suburb, and with secondary roads and less important roads for the development of each suburb. The main thoroughfares should be wide enough not only for tramway and other traffic, but sufficiently spacious to be laid out as boulevards with trees and grass, a pleasant promenade and a breathing space through the whole district. The secondary roads should have sufficient width between front and front of house to allow of large front gardens, so that if any widening of the road should be hereafter required for tramway or other purposes it can be effected without destruction of buildings and the payment of heavy compensation, the Corporation having then only to pay for taking part of the gardens. The less important roads should have a greater width between house and house than is now required; the carriage road need not be so wide, but sufficient only for two vehicles, the spare width being grass margin with trees or front gardens; this would be less costly than the present 40-foot road, equally useful and much more pleasant. The extra cost of a boulevard through a large estate would be compensated for by the increased value of the estate, especially of the frontages to the boulevard, and would also be compensated for by the less costly, less important roads. The plan of roads should be laid down to the best advantage of the town and suburb, and might not be the best for any particular estate, in which event compensation for injury should be paid or the local authority should have power to purchase by arbitration.

The number of houses to an acre should be limited to some parts of the town more than in others; any action whatever might, however, have the effect of the ground rent, but the experience in Germany is to the contrary; it is said that the amount of ground rent for any house can be charged with has already reached the utmost limit, and that the ground rent for the larger plot would remain the same as for the smaller. This, however, not being so serious a loss of profit to the owners as might be supposed, the cost of road-making is necessarily being more for the larger plot than for the smaller; and, being let in larger plots, the estate is developed more rapidly and the owner would sooner realise his profit. To let an estate in plots three times the size of those on another estate, the first would be developed in a third of the time. The letting value for building would also in all cases be above agricultural value, and the loss of profit really represents some of the unearned increment. How far local authorities should have power to limit the number of houses becomes, therefore, a question as to whether provision for the more rapid housing of the people will justify Parliament in giving powers which will limit the realisation of some of the unearned increment—that is, of some of the difference between agricultural and building value—always remembering that the unearned increment is due to the efforts of the town and not to the efforts of the landowner.

The local authority should have power to purchase land necessary for the development of any proposed scheme of town planning, but it is a very serious question as to whether or not the authority should have power to purchase merely with a view to securing the unearned increment. Land is so very slow in developing, and, if purchased at a value above agricultural or accommodation value, then the owner will not pay the interest on capital, and will not provide the sinking fund required by the Local Government. The difference would have to come out of the rate year, and it is possible that the natural yearly increase in value of the land might not be sufficient to cover the interest on the rates, in which case there would be a permanent annual loss. Besides which, experience teaches that local authorities seldom or never acquire property at a value; there is always 10 per cent. added for commission on purchase, and the tendency of arbitration is nearly always to favour the party who is compelled to sell.

Power to purchase, however, should be granted on limited conditions, and power to deal with the question of "town planning" should be granted with the least possible delay, as every month we see our towns becoming more and more overcrowded, and laid out in a way which will some day cost the town very many thousands to rectify.

## VENTILATED FIRE LOBBIES.

THE Building Act committee of the London County Council report that since the coming into operation of the London Building Acts (Amendment) Act, 1900, there have been made to the Tribunal of Appeal against the Council's requirements for the provision of ventilated fire lobbies to staircases in the undermentioned cases:—15 Leather Lane, 1 and 2 Gracechurch Street, 42 Beech Street. In the Gracechurch Street case the erection of the building was commenced before the Council had been approved by the Council. The owner appealed against the Council's requirement for the provision of lobbies on the remaining floor. The Tribunal only allowed the appeal, but gave the appellant power to provide the staircase without the lobbies he appealed against to provide.

The decisions of the Tribunal of Appeal in the above cases have made it necessary for the committee to reconsider the practice of the Council in similar cases arising under sections 7 and 9 of the Act. Hitherto it has been the practice to require, as an alternative to secondary escape, ventilated lobbies to staircases in order to prevent smoke logging. The Tribunal of Appeal has declined to lay down a general rule, but in the three mentioned cases it has decided that an enclosure resisting or incombustible staircase with means of escape to and from the roof is sufficient for the purpose of the Act. The committee have, therefore, determined that in similar cases such means of escape only shall be required.



## MANCHESTER ART GALLERIES.

Annual report of the Manchester Art Gallery committee states that the public show increasing interest in collection of pictures and other works of art, 848,878 having passed the turnstiles in the central gallery in the twelve months of 1906-7. At the exhibition in 1906, that which lasted from September 18, 1906, to January 10, 1907, the number of free admissions was 116,816. From December 3, 1906, up to January 27, 1907, exhibition of the works of William Holman Hunt and of free admissions was 36,226. From March 25 to May 17, 1907, at the Frederic Shields exhibition, the number of free admissions was 47,788.

On May 4, 1906, the Council approved of the transfer of the Queen's Park Museum and certain portions of the Heaton Hall for art gallery purposes. This was an important departure in the work of the committee, who through branch art galleries much can be done to increase the scope and public usefulness of their operations, particularly to bring within easy reach of citizens in the localities good examples of art. At the Queen's Park Museum an exhibition of oil-paintings, early English water-colour drawings, and of a collection of "old" pictures has been held in the gallery. The number of free admissions from September 17, 1906, up to September 16, 1907, was 143,239. At the Heaton Park Museum an exhibition of oil-paintings and water-colour drawings by members and associates of the Manchester Art Gallery of Fine Arts, a collection of Early English furniture, a collection of works illustrative of "Old Manchester and Salford," is being held in the gallery. The number of free admissions from May 20 to September 29 of 1907 was 102,896.

In addition to the collections include "Napoleon at Waterloo (or a lesson in humanity), oil-painting, by J. Barker, bequeathed by Mr. Robert Leake; "The Peepfold," oil-painting, by William Charles Estall, bequeathed by Mr. John Arthur Bland; and "Portrait of the Mother," oil-painting, by Henry Measham, presented by Mr. Richard Redfern.

## AN EDINBURGH SUBURB.

It is hard to imagine a native of Edinburgh, who had been absent little more than twenty-five years from the city, on revisiting the suburb of Morningside, he would not be surprised to find the *Scotsman*, but few of the older landmarks in the neighbourhood. The low cottages which lined the right and left of the Burn, with a few exceptions, are swept away and have given place to high tenements, with a wide road of busy tramway between, and a much too wide roadway and pavements for such an important thoroughfare. A jumble of houses meets the eye of the visitor to the right and left, filling up the sides and bottom of the ascending and rising ground, sweeping up to the top of the Braid Burn, and even wandering out beyond the old and new Biggar roads. The old school and the main in Morningside Road, but the gate-posts of the old gate adorn another gateway in the Corstorphine Road. The hammer of the destroyer is now busy with the old itself, the grounds around which might have been a admirable public park for the district. The brand new property, with St. Peter's Roman Catholic church on one side of Falcon Avenue. There are many churches southward in the Morningside Road, one public and two private schools, a branch of the free library, hotel, cemetery and railway station. The high wall and prison-like gateway to the Morningside Asylum, has given way to high tenements; Canaan Lane is also graced with some tenement property which has edged its way amongst the cosy, comfortable urban residences, to come to which from Edinburgh to mean a most delightful rural walk and change of scene. One of these cottages came Sydney Dobell, the architect of health and quiet; while the funeral of the artist, Michael Kemp, architect of the Scott Monument, was held in the Cottage, Jordan Lane, which is still standing, surrounded by tenements. Stories of that Bohemian life in the Bough, still linger around his cottage in Jordan Lane. It is an old story how the tollhouse (in line with the wall of Braid U.F. church) was removed and rebuilt in stone, as it had stood, at the entrance gate to the

Hermitage of Braid, of which it now forms the lodge. A new asylum for the insane has been built at old Craighouse, once occupied by Dr. Lizars, and later by John Hill Burton, who did much of his literary work there. There is Craiglockhart poorhouse and the new fever hospital to the south-west. Villas, semi-detached villas and tenement property jostle one another on the east side of Craighouse Hill to the right. To the left the care and surveillance exercised by the trustees of the Braid estate have kept the speculative builder in his place, and preserved the amenity of this really fine district built on the fields around what was Egypt farm, which stood just where Nile Grove intersects Woodburn Terrace. So rapidly has the ground been covered with villas and semi-detached villa property within twenty-five years that little more than twenty acres remain to be seen on the Edinburgh side of Braid Burn.

The literary and artistic associations of Morningside have included the residence of John Hill Burton at Old Craighouse, as we have said. Sir John Skelton lived and wrote and died at Hermitage of Braid. R. L. Stevenson wandered to and from Swanston by the footpath past Comiston farm, and with the downdroop of his head and careless attire was thought by native or passer-by "to be no a' there." James Wilson, brother of "Christopher North," lived at Woodville, Canaan Lane. Sir John Skelton has left memorials of some of the noted people, such as J. A. Froude, Blackie, Jowett, Huxley, Professor Sellar, Sir Noel Paton and others who visited the Hermitage.

Dr. Chalmers built his substantial square villa at Churchill the year before the Disruption, and after that event the faithful members of the Free Church here gathered in a tent before the first Free Church was erected. This tent was pitched near what is the south end of Abbotsford Park, and one Sunday between services was overturned in a gale. Dr. Chalmers invited the congregation to his house at Churchill, and the officiating minister preached the sermon to those assembled from the top of the staircase.

Here we must end. A multitude of other remembrances will arise in the minds of those who can go back in memory some thirty or forty years ago. Volunteers practised shooting at the targets from the slope of the Braid estate towards Blackford Hill. The green fields of South Morningside, owing to what Stevenson calls the "infuriated zeal of builders," are a thing of the past. He wrote:—"Day by day, one new villa, one new object of offence, is added to another; all around Newington and Morningside the dismallest structures keep springing up like mushrooms; the pleasant hills are loaded with them." Stevenson became an exile at the beginning of this building boom and did not see the end. Some philanthropist might have it in his power for 30,000*l.* or 40,000*l.* to add the Hermitage of Braid, with its banks clothed with valuable timber, to the Braids and Blackford as an extension of our public parks. This would add to the amenity of what, in spite of the sins of omission and commission of builders and others, is one of our pleasantest and healthiest of Edinburgh suburbs.



## Eagle Eyes and How to get Work.

SIR,—On reading an effusion in *The Architect* for October 25, 1907, the office boy perpetrated the enclosed.

—Yours faithfully,

ROBERT WILLIAMS.

Alexandria: November 5, 1907.

Enclosure.

THE PANTALOO.

The lean and eagle-eyed one,  
Did write and blushed to find it fame—  
Did write, and rushed to hide his name,  
But lost his slippers in the run.

But worse.—His Fate her wand did wave,  
And, papilio-like, he changed—  
Was changed—into a pantaloon,  
A 'loon of aspect lean and grave.

THE OFFICE BOY.

Three Churches are about to be erected in Bolton in the districts of St. Barnabas, St. Philip, and St. Margaret. Information can be given by the Rev. J. F. Heyes, M.A.



## GENERAL.

The Royal Academy give notice that the President and Council will elect, on December 17, a Turner annuitant. Applicants for the annuity, which is of the value of 50*l.* must be artists of repute in need of aid through the unavoidable failure of professional employment or other causes. Forms of application can be obtained from the secretary, Royal Academy of Arts, Piccadilly, W. They must be filled in and returned on or before December 10.

Mr. Arthur Bernard Cook, M.A., Fellow and Lecturer of Queens' College, was on Tuesday appointed University Reader, Cambridge, in Classical Archaeology. Mr. Cook graduated at Trinity College. The stipend is 300*l.* a year.

Mr. Robert Young, architect, of Belfast, is one of the gentlemen selected for knighthood on the occasion of the King's birthday. He erected several buildings in Belfast, and has rendered many services to the city in which he was born in 1822.

The Rawtenstall Town Council have decided to deal during the present municipal year with the construction of an electricity generating station, the electrification of the tramways and the running of motor buses. The cost is estimated at—Parliamentary Bill, 4,000*l.*; electricity station and cables, 34,000*l.*; purchase of tramways and conversion, 100,000*l.*; motor-omnibuses, 2,000*l.*; total, 140,000*l.*

Mr. Lewis F. Day is to deliver a lecture on "How to make the most of a Museum" before the applied art section of the Society of Arts on December 17. Sir Aston Webb, R.A., will preside.

The Northern Architectural Association held their first ordinary meeting of the session on Wednesday, when Mr. A. B. Plummer, J.P., president, delivered his opening address.

Alderman Lieut.-Col. Lacey W. Ridge, V.D., has been elected mayor of Holborn. He was elected a councillor on the formation of the Metropolitan Borough Councils in 1900, and an alderman last year.

The Alterations and additions at the North Berwick parish church have been completed, these comprising the erection of a tower 90 feet high and a central entrance door. The cost of the alterations has been about 3,000*l.* The architects were Messrs. Henry & M'Lennan, Edinburgh. Above the new door of the church is a figure of St. Andrew by Mr. W. Birnie Rhind, A.R.S.A. The bell from the old church has been repaired and hung in the new tower. An inscription on the bell reads as follows:—"Jacobus Monteith me fecit Edinb(rough) pro templot de North Berick. Anno domini 1642. Spero meliora." The Town Council are providing a clock for the tower from the common good fund at a cost not exceeding 150*l.*

During the course of excavations at the east end of Selby Market Place and in proximity to the gate of Selby Abbey, workmen have come across the remains of the foundations of the abbey gateway and have unearthed them. In addition portions of a brick floor have been disturbed only a few inches from the surface.

Mr. M. R. Cotes, who was mayor of Bournemouth in 1894, has decided to give his residence and the large collection of pictures and works of art which it contains to the town of Bournemouth, for the enjoyment of the townspeople and visitors, the only condition being that he and Mrs. Cotes should be allowed to occupy it during their life. The house is known as East Cliff Hall, and with the contents, it is valued at about 40,000*l.*

M. Jean Deville, the Belgian painter, who was for some years professor in the life classes of the Glasgow School of Art, has been commissioned by the Minister of the Fine Arts of Belgium to decorate the Assize Court of the Palace of Justice, Brussels. M. Deville is to execute five panels, the largest of which, to be placed above the principal entrance of the Court, measures 36 feet by 15 feet. The subjects chosen are symbolic of the acts of justice and the law, and the execution of the work is expected to occupy the artist about seven years.

A Memorial is to be erected over the grave of Dr. Barnardo in his model village of Buckingside, Essex. The work has been entrusted to Mr. George Frampton, R.A. The memorial is to be 15 feet in height. On the summit of the stone pedestal will be a bronze group of three figures—a mother and children. A portrait medallion of Dr. Barnardo will be at the side; and at the base three children will be seated, one of whom is to be represented as telling to his comrades the story of Dr. Barnardo's life-work.

Sir William Richmond, R.A., will give an account of his method of mural painting to the members of the Incorporated Institute of British Decorators at Pain Little Trinity Lane, on the 25th inst.

A Branch has been formed in Edinburgh of the School of Archaeology in Egypt, whose headquarters are in London. Professor Flinders Petrie is the president.

Messrs. Clinton & Russell, architects, New York, are completing plans for doubling the capacity of the City of Astor, on Times Square, New York. The addition will be 3,000,000 dollars. It will extend back 100 feet from Fourth and Forty-fifth Streets. The enlarged street will be 200 by 260 feet.

At a Special Meeting of the Wolverhampton Council, in answer to a letter with reference to unemployed people upon the new reservoir, Alderman Marston said it was hoped to bring the new reservoir before the next meeting of the committee early in December. The committee propose to do the work themselves, as it was undesirable, but it was intended to put a clause in the contract that all available and suitable labour in the district should be employed. A motion that the standing committee be suspended in order that the matter be discussed was carried.

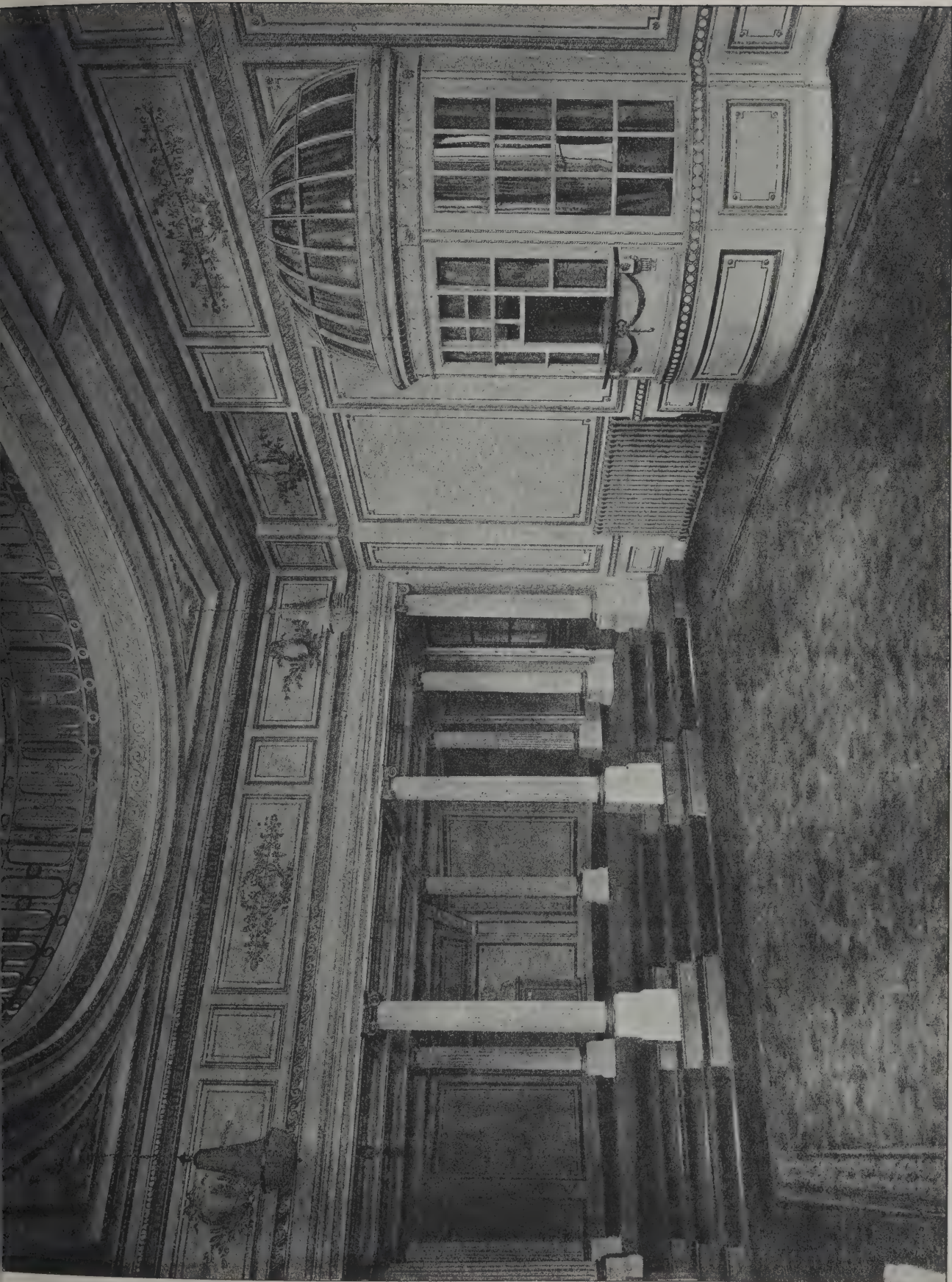
A Meeting of the health committee of the Bournemouth City Council was informed on Tuesday that the Government Board had given their official sanction to the application of the Corporation for permission to raise 17,000*l.* for the purchase of the Salterley Grange, near Cheltenham. The money is to be repaid in 10 years. The object of the Corporation in acquiring the estate is to erect a sanatorium for the treatment of consumptives.

Mr. H. W. Taylor, civil engineer, of Birmingham, Newcastle, on the 12th inst., in the court of Mr. Justice Pollock, official referee, sued the Dolgelly Rural Sanitary Board to recover 110*l.* fees in connection with waterworks he had carried out for them. The Board admitted this claim, but counterclaimed against Mr. Taylor for 113*l.*, the price of certain work which had been done by him at the villages in their district, and which he claimed beyond his authority to order. Mr. Taylor contended that this work had been ordered by the parish council, and that the Dolgelly Sanitary Board had no place concerned, and that the Dolgelly Council had no authority to order their action. Mr. Pollock, having reviewed all the evidence, said he came to the conclusion that there was no ratification of the work done by the Dolgelly Council, and that therefore their claim against Mr. Taylor entitled him to his fees.

The Sites Syndicate, Cambridge University, are under consideration the most suitable position for a proposed building for the School of Agriculture, and have recommended the Downing site to the south of the Botanical Garden. The building would be near the departments of geology, and would have access from three different directions and would be well lighted. They have already consulted Sir Aston Webb, R.A., on the subject of laying out the whole of the Downing grounds, and they are of opinion that it is important that the buildings on this site should be entrusted to one architect. They suggest that the distances of the proposed agricultural buildings already erected should be determined by the committee in conference with the architect who may be entrusted with the design of the building.

A Conference of representatives of sanitary authorities will be held in the Council Chamber, Caxton Hall, London, at 11 A.M. to-day, the 15th inst., for the purpose of considering the question of the establishment of a national health authority. A resolution will be passed approving of the establishment of a union which shall have for its objects:—(a) To secure, as far as possible, a harmonious, harmony of interest and uniformity of action of sanitary authorities in general on matters relating to public health; (b) to stimulate and concentrate the efforts of sanitary authorities for the purpose of effecting necessary sanitary reform for the public weal or the benefit of individual districts; (c) to encourage and promote the study of hygiene, and to educate opinion with respect to the importance of public health in general; and (d) to consider the different circumstances, general or local, whereby disease may be caused to man and, as far as may be, to remove it.





PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND, W.C.

THE ALDWYCH THEATRE: THE FOYER.

W. G. R. SPRAGUE, Architect.

"INK" PHOTO. SPRAGUE & CO LTD, 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.







The Architect, Nov<sup>r</sup> 15<sup>th</sup> 1907.



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THE ALDWYCH THEATRE: THE AUDITORIUM.

W. G. R. SPRAGUE, Architect.



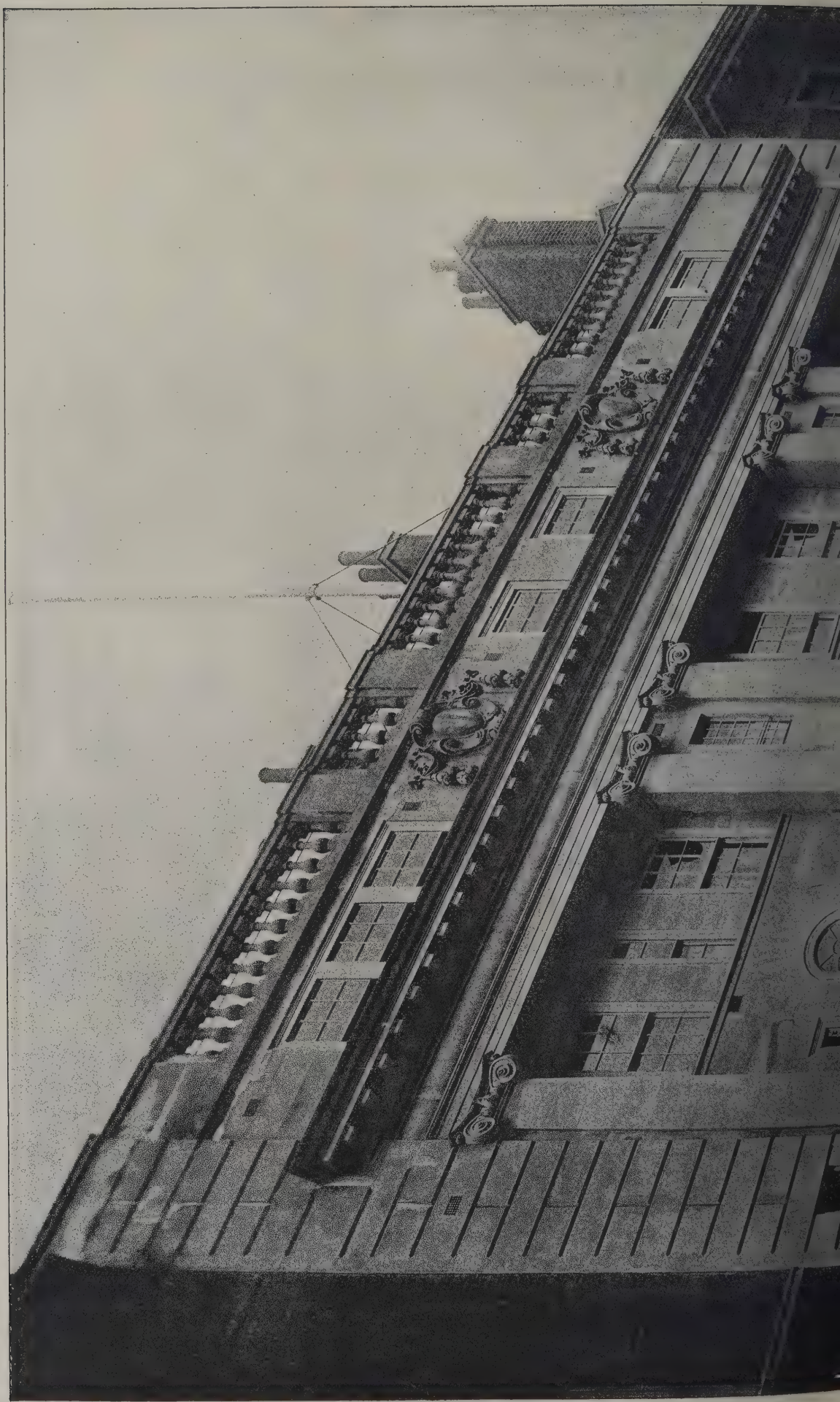




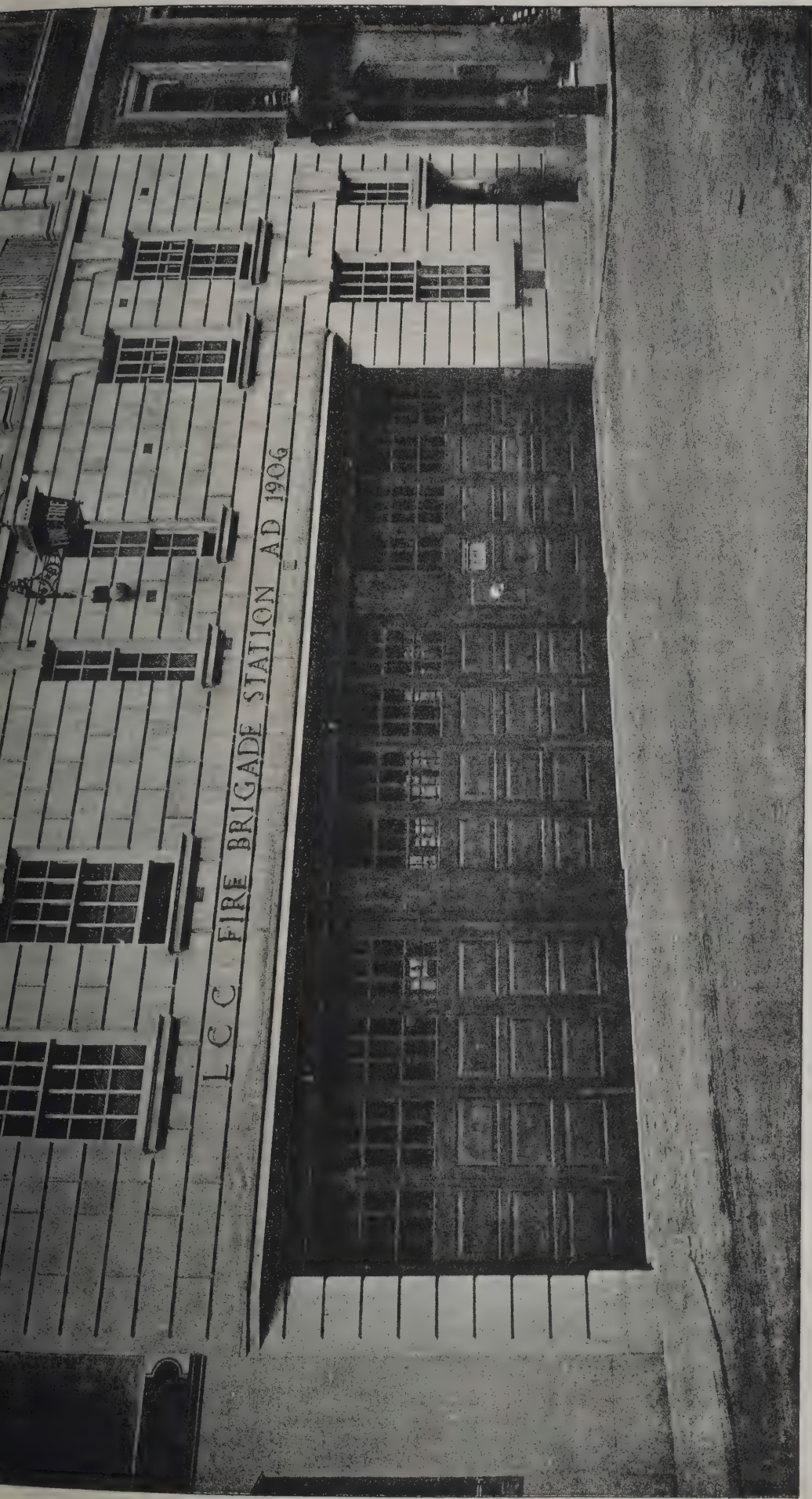




The Architect, Nov'r 15<sup>th</sup> 1907.







"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

L. C. C. FIRE BRIGADE STATION: QUEEN VICTORIA STREET FRONT.

W. E. RILEY, F.R.I.B.A., Architect.

















HOUSES, PURLEY, SURREY.  
FRANK WINDSOR, Architect.

"INK PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



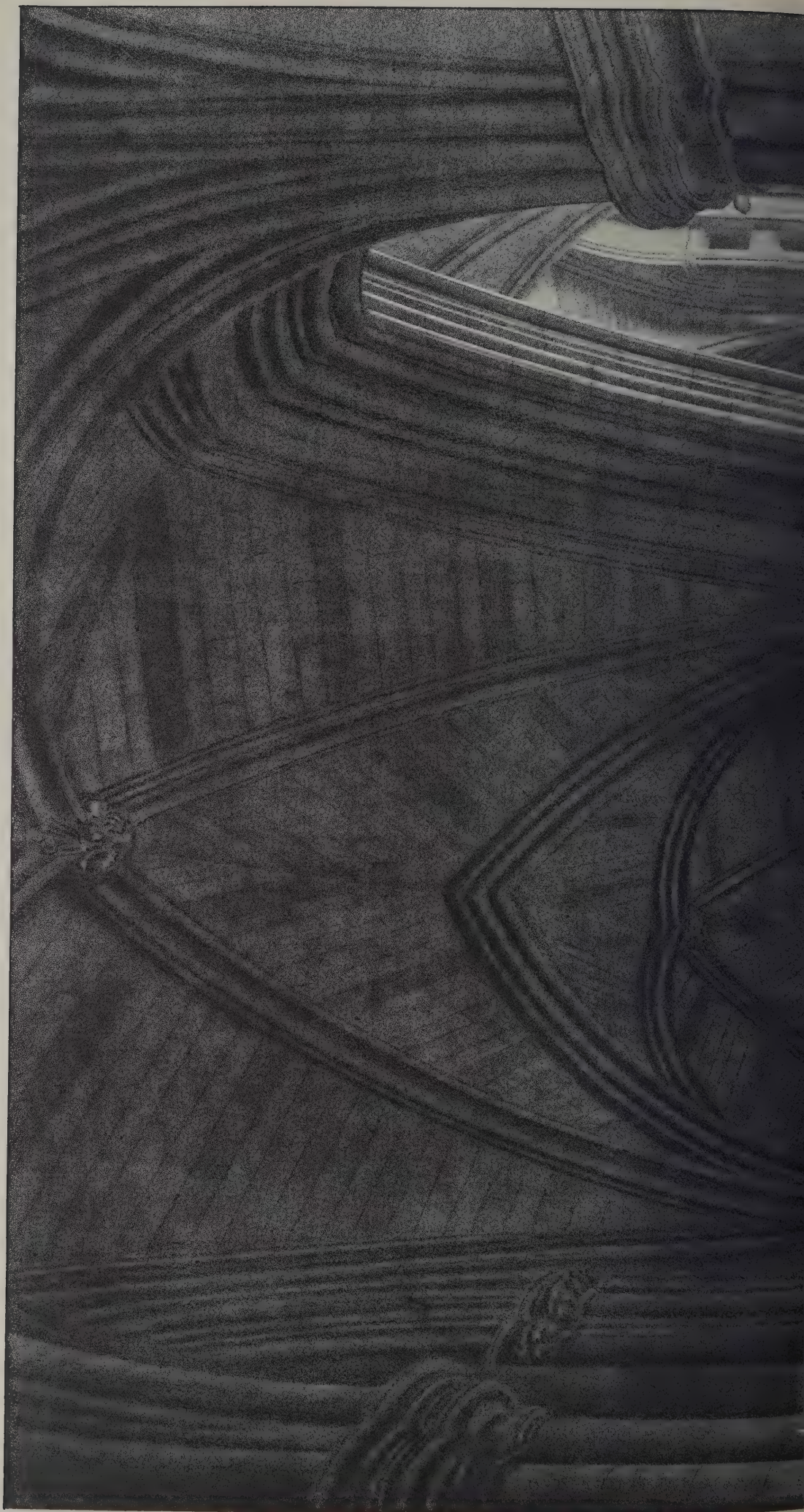








The Architect, Nov'r 15<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

INK-Photo SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 615.—SOUTHWARK: NORTH AISLE.







# The Architect.

## THE WEEK.

Annual festival dinner of the Builders' Benevolent Institution will be held in the Whitehall Rooms, Whitehall, on the 28th inst. Mr. FREDERICK HIGGS is the chairman for the year 1907-8, and he has earnestly appealed for financial support in order to carry on the work of the charity without further encroachment upon the reserve fund. To achieve this £50,000 is required, of which but £49,000 is assured by subscriptions, leaving £1,485 to be gathered by donations and new or increased subscriptions. Mr. HIGGS accordingly solicits an increase in the number of subscribers or donors. The Institution is open to all necessitous members of the London Building Trade and its various branches who have been widowed or disabled, and to their widows. Last year the expenditure was £2,714 18s. 4d. To meet that sum it was necessary to withdraw from capital £506 12s. 1d. It is therefore evident that increased support is needed. Mr. HIGGS suggests that the subscribers will, if, to meet the emergency, they doubled their gifts.

Action in favour of centralisation was taken at the meeting of sanitary committees of the country which was held in Caxton Hall, Westminster, on Friday last. There are, as is well known, efforts in progress, and each is in a manner which is most suitable under local conditions.

But according to some of the men who are in the force is dissipated through the absence of unity in the operations. The objects of the movement were stated by us last week. In the course of the discussion upon the resolution it became evident that such as the proposed organisation could not do more than to confer power and must confine itself to offering suggestions. The usefulness of the union could not fail to be apparent.

An amendment was proposed suggesting the establishment "of a special department of the Local Government Board to deal with all questions of public health, upon which representatives of the various local authorities shall be appointed; and by this resolution be sent to the various committees, with a request that they will unite in a Local Government Board to constitute a committee for this purpose." But a majority of those present were in favour of the original proposals. A resolution was therefore appointed inviting authorities to join the National Union of Public Health Authorities.

Experiment of the London County Council in making bricks has not been financially successful. When they acquired the brickfield at Norbury in 1901 one of the conditions of purchase was that which had been used by the vendor for the bricks should be purchased. The Council then made the bricks to be used in the cottages on the estate, and the work has been carried almost to the present time. Including the cost of the bricks there was a deficiency of £2,983 15s. 11d. up to the 1st of March of the present year. It is claimed that the conversion of the surplus clay into bricks and the saving effected by a considerable saving in the cost of digging clay and carting it from the site at Norbury would not have been less than £35 6d. a year.

About 20,505 cubic yards of clay have been used in the manufacture of bricks and burnt bricks. The value of the stock of bricks, &c., on the 1st of March, 1907, was £16,701 11s. 9d. Operations on a

large scale were suspended in last January. Up to the 1st of October this year 254,000 red bricks have been made at a cost of 497½d., and 567½d. was expended on burning ballast. The committee do not ask for authority to resume brickmaking, but they wish to be allowed to expend 150d. on the manufacture of concrete blocks and slabs, which will be required for use in the construction of retaining walls and the internal walls of the cottages.

EXAMPLES have been found in Egypt of tombs resembling the so-called Treasury at Mycenæ which were not constructed of regular masonry, but hewn out of the rock. Dr. ARTHUR EVANS has discovered a similar chamber beneath the southern porch of the Palace of MINOS at Knossos. A shaft was sunk by him to a depth of 25 feet without reaching the floor. He was compelled to suspend operations owing to the want of money. The find, however, is of importance as suggesting that beehive construction was in favour at an earlier period than the Mycenaean in Greece. Dr. EVANS appeals for funds to continue his explorations in Crete. His success warrants the conclusion that he has hit upon fertile ground in an archaeological sense. The Palace of MINOS has enabled students to distinguish between romance and reality, and to value the extent of the bases for several of the classic legends and myths. If a Frenchman or a German had been equally successful public funds would be drawn upon to carry out the exploration. But England has left Dr. EVANS to endure sacrifices which, although they may be evidence of his enthusiasm and skill, are not creditable to the public spirit of Great Britain.

THE Commercial Attaché at Peking, like officials of the same class in other parts of the world, points out the necessity for expert agents in China. There is no doubt that numerous factories are about to be set up, but the Chinese have only vague ideas of their cost and what is necessary for their equipment. If British manufacturers were to combine and send out a staff who would be competent to give technical information, prepare plans, estimates, &c., there seems to be little doubt about the result. The Germans have established a few houses of the kind in Shanghai. There are also a number of firms holding the agencies of British manufacturers, but far more than this is required. Firms in China have many diverse interests to attend to, and they are unable to push the manufacturers' business as it might be done by means of special expert representatives. It is also remarked by the Commercial Attaché that Chinese merchants are becoming more eager to pass over middlemen and to trade directly with the manufacturers, and in that way to save commission.

WHEN the underground railway in Paris was projected, failure was anticipated on the ground that the inhabitants of the city were so accustomed to travelling in the open air it had become essential, and no substitute would be accepted. A recent discussion in the Municipal Council suggests the change in disposition. Several of the owners of large general shops had presented petitions to be allowed to make subways to the nearest railway stations. The proposal was not considered on its merits as a means to relieve the traffic in the principal thoroughfares. The objection to it was based on the supposition that an unfair advantage would be derived by certain traders and that others must suffer. The petitions were therefore rejected. It is evident that a large number of people would patronise the subways, for otherwise the outlay on construction would not be repaid.



## THE PALAZZO STROZZI, FLORENCE.

THE visitor to Florence, although he may not be a student of architecture, is sure to have pointed out to him the gloomy Palazzo Strozzi, for it stands apart in the Via Turnabuoni. Architecturally it is probably the most characteristic of the Florentine palaces, and recalls a time when it was essential for the residence of a noble to be capable of withstanding a sudden attack or a siege. It bears some resemblance to the earlier palace of the MEDICI, but would be more difficult to break into. The MEDICI had many enemies in Florence, but they held the highest authority in the city. The STROZZI could never be assured of the friendship of the MEDICI, or that they might not encourage an insurrection against them.

It could not be denied that the rivalry between the two families either directly or indirectly led to many disturbances. Sometimes they were allied, while at other times they were bitter opponents. In 1435 PALLA STROZZI was exiled; he retired to Padua and devoted himself to the new learning. He had before brought CHRYSOLORAS from Greece to Florence as professor of Greek. Afterwards, in order to obtain manuscripts, he undertook a voyage to Greece. He had arranged to form a public library at Santa Trinita, which is at one end of the Via Turnabuoni, and had engaged copyists, when he was prevented by the defeat of his party. In his exile at Padua he engaged another Greek to be his tutor; he died in that city in his ninetieth year.

His son FILIPPO in 1466 obtained permission to return to Florence. He found on his arrival that his uncle had commenced an immense palace of which the plans had been submitted to LORENZO DE' MEDICI. It was intended to serve as a memorial of the family. The model of the building was prepared by BENEDETTO, a brother of GIULIANO DA MAJANO, who was originally a joiner and wood-carver, but, like so many craftsmen of the time, studied architecture. BENEDETTO was a worker in tarsia, but he likewise was acquainted with architecture. Under him the foundations and lower storey of the new palace were constructed. But as he had to help his brother in contracts undertaken in other parts of Italy, the completion of the palace was entrusted to SIMONE, better known as IL CRONACA, or the chronicler, on account of the knowledge he possessed of antiquity and of surviving remains. The upper part of the building and the famous cornice are credited to him. The cornice, it is said, was intended to be carried all round the palace, but the building does not confirm that tradition. It is complete only on the principal façade and partly on the returns. VASARI says that it was copied by CRONACA from an antique example at Spogliacristo, or, in other words, from one of the ruins of Rome. The original was apparently of smaller size. At the time reproductions of the kind must have been common, for VASARI did not hesitate to praise CRONACA as if he were an example for all architects to follow. "Thus did the genius of CRONACA," he says, "enable him to avail himself of the works of others, and even to make them become almost as his own, a thing which few succeed in accomplishing; for the difficulty does not consist in merely becoming possessed of drawings and copies from fine works, but in knowing how to use them in such sort that they shall be in harmony with that to which they are applied, and shall conduce to the beauty, grace and convenience of the whole, in due measure and proportion." When, however, another architect introduced a cornice from a Roman building, we learn that the experiment was censured and vituperated by the Florentines, because the crowning ornament was supposed to be too large for the façade.

The cornice of the Strozzi Palace was executed with great care, and the remainder of the masonry was, according to VASARI, so closely set as to appear one piece. But this is more true of the vertical joints than of the horizontal, for the rustication, of which BENEDETTO

determined the character, is remarkable for as well as the length of the lines between. CRONACA designed all the details and ornamenting the torch-holders which have been in some modern books on metalwork, and whose delicacy, are a strange contrast to the massiveness of the smith employed was NICCOLO GROSSO, who was an oddity. He was known as CAPARRA, for he took part payment before he commenced his work. The first it was observed that the interior exactly correspond with the exterior. But it was given was that CRONACA had to accommodate himself to MAJANO's planning. VASARI in that way accounts for the steepness and suddenness of the staircase and the plainness of the chambers.

IL CRONACA was one of the numerous architects who were fascinated by the discourses of S. VASARI says that his head was so filled with the discourses of the Dominican, he could think of nothing else. But to acquire that knowledge it was necessary to go to BURLAMACCHI, who was a votary of midnight and wait in the cold outside the cathedral until it was opened. Within the cathedral there were no seats, and the people had to stand on the marble pavement for hours. CRONACA was observed among the crowd SANDRO BOTTAI, DELLA ROBBIA family, BACCIO DE LA PORTA, MONTE LUPO and LORENZO DI CREDI, better known as painters and sculptors. He must also have been present at the scene in the Piazza di Signori when, under the direction of many works of art and monuments were destroyed, with gaming-tables and things which helped to amuse the Florentines. At the same spot a few months afterwards SAVOIR-VIVRE was the victim. IL CRONACA died about 1500, and was buried in the church of San Ambrogio. His work was written by one of the STROZZI.

That family had a gloomy time before the palace was suggested by DE MUSSET's "Lorenzaccio," scenes of which are supposed to be enacted in the palace. FILIPPO, who was the heir of the family, erected the building, had, like his predecessor, to play a somewhat ambiguous part. His influence was immense, and he had taken the precaution to place a large part of it in foreign banks. He was married to a daughter of PIERRO DE' MEDICI, and yet he was supposed to be one of the enemies of the rule. In 1527 he was enabled to have the Republic rarely restored, when the MEDICI became citizens. But two years afterwards, the influence of the Pope and CHARLES V., against Florence and the MEDICI were directed. FILIPPO again appeared to support his rivals, but at the same time he endeavoured to have ALESSANDRO removed. After the battle of Ravenna in 1537 FILIPPO was taken prisoner; he was tortured and finally committed suicide to escape execution. History forms what is the strangest chapter in the career of Florence. His son PIERRO fled to France, became a marshal in the army and was renowned as a warrior. He endeavoured to take revenge on the Florentines, but was defeated. He afterwards fought against the Spaniards. Other members of the family held prominent positions in Italy and a love of power continued to be a characteristic of the major branch.

It might be said there is a fatality about the great Florentine families. The Medici sold in 1659, and since then bears the name of the chasers, the RICCARDI. The great Pitti Palace was supposed to be large enough to contain the building in one of its courts, was sold to the Grand Duke and subsequently became the palace of the Grand Duke and finally a public gallery. The Strozzi continued to belong to representatives of the family, although not in a direct line. According to the will of the last owner it is to become with the contents one of the possessions of the city of Florence. Unfortunately it is not rich in works of art.



all that was valuable among them was sold Russian Government. But the palace, which ELYN described as "a princely piece of architecture in a rustic manner," is a treasure in itself. For, considered, it is the most characteristic of the palaces. It was intended to endure and passed many revolutions without any damage. No one can look at it without becoming convinced that only extraordinary force can overcome such masonry, which might have been wrought and finished by Etruscan hands.

### SHOP FRONTS.\*

picturesqueness of the old London shops was the result of necessity rather than of any love of art. The width of a frontage was determined by the business of the shopkeeper, and it was the business of the shopkeeper to get the most of it. The area of his windows depended on the glass which could be obtained, and it was necessary in order to support the upper parts of the building above the openings to have substantial masonry for the same reason a wall of brick or masonry was employed under the windows. The vacant space between the windows was therefore limited. The introduction of iron girders, and subsequently of girders of iron or steel, and the immense plates of glass which could be procured caused a revolution.

It should be remembered that for a long time shopkeepers had been desiring to display their goods to the public. That could only be done to a limited extent in the ancient shops of London; and what was true of the Metropolis was still more true of provincial towns. Although after the Great Fire efforts were made to perpetuate prior arrangements, yet, owing to the influence of French customs, a fashion arose to have the magasins of Paris rather than the old London shops. This is evident from the remonstrances of DEFOE. According to him there was no proof of the degeneracy of the age in which he lived. The novel shops which were being constructed, for he considered they were only appeals to vanity. Handsome shops were, he said, a mimicry of the French, who were eminent for thinking too much of the things. The new type of shop he compared to the dress of puppets and rope-dancers; it was the work of an Englishman and dangerous to tradesmen. DEFOE declared it was a scandal to find a man engaged in business expending a third of his income on painting, gilding, wainscoting and glazing. He insisted on prompt payment, and complained of the merchants who supplied the goods to the shop who were compelled to wait. It would be far better, he said, to furnish the shop with goods which were ready to lay out the capital on painting, gilding and glazing. "Never," he exclaimed, "was such painting and gilding, such sashings and looking-glasses seen in shops of shopkeepers as there is now, and yet trade was more in former times by a great deal than it is now. If we may believe the report of very honest and standing men." DEFOE considered it was a waste of money to use panes of glass measuring 16 inches square, and a scientific arrangement of windows that by side-lights, sky-lights and trunk-lights might be seen advantageously, he regarded as wasteful and almost as bad as "washing over a shop to make it pass for sterling."

Of all that could be said by censors who lived in good old times, the traders of London complained that they had to make their windows become auxiliaries to the business. The conditions under which property was held helped to perpetuate a system which was not

advantageous to shopkeepers. But whenever new streets were formed there was an endeavour to impart an importance to the window which, if judged by architectural rules, it did not merit. Thus when the new approach to London Bridge was opened out, critics of the old school objected to the introduction of immense windows, which extended from the stall-board to the cornice under the first-floor windows, the sash-bars being so painted as not to be obtrusive. The endeavour of the builders was to anticipate a time when plates of glass would be so vast that one of them would be sufficient to fill the area assigned to a window.

In criticising windows it is not always asked whether they are intended to aid in attracting spectators or mainly to light an interior. Some picturesque examples which are introduced in Messrs. DAN and WILLMOTT'S volume were never intended for the display of goods. One in Long Acre is an undertaker's. Another and better-known example is a dignified grocer's in Oxford Street. But a crowd is never seen outside the windows between the Corinthian pilasters. When a house has gained a reputation like LAW'S or BELL'S, the front windows are not of much account. But adventurers believe they dare not appear as if they were indifferent to the patronage of the public. In the plates of the new volume there are a great many examples which will suggest the variety of efforts made to meet the desire for display without too much of a sacrifice of architectural principle. In an artist's warehouse in Holborn the passer-by can see examples of all the kinds of goods to be sold without entering the shop. Even when the shop is closed the variety is suggested. A similar plan is adopted in the dépôt of the Tract Society. An old-fashioned shopkeeper would object to such a sacrifice of valuable space. But we suppose more customers are attracted than if every inch of the recess was thrown into the shop. Very ingenious arrangements are also to be seen in utilising the narrow fronts of dwelling-houses in the West-End of London for business purposes. In such places old-world types somehow seem suitable.

The examples are not confined to London. Shops in Edinburgh, Glasgow, Manchester, Liverpool, York, Bournemouth and one or two from Paris and Brussels are also utilised. An example of a co-operative store in Edinburgh suggests the question why in provincial towns such societies have to keep pace with the times and to erect showy buildings, while in London similar attempts are avoided? In London we suppose there is a sufficiently large class connection to support stores, even if they were found in corrugated iron buildings, while in the provinces the societies are compelled to depend on outside support. Formerly shopkeepers occupied the rooms over new shops, and there was a chance of the building having more or less unity. In our time it is common to let the cavernous space as a separate tenement, and leave the tenant to make his own arrangements about the adaptation of it as a shop. In other cases the tenant is allowed to transform the existing shop to suit his purposes. In consequence numerous examples are now to be found in the streets of London, where the lower part of the building is out of keeping with the upper, and the shop asserts its supremacy. But under the new conditions of business and the "conversion" of houses it is doubtful whether any other course is possible. The architect who designs a shop must in such a case become indifferent to the contrast which arises when he eclipses the older work.

There is another point which has to be considered. In modern work an effort is often made to express purpose. This can frequently be done in designing shops. Unfortunately traders who hold them are not always successful, and a shop may in consequence be used for a variety of trades in succession. If the history were recorded in any way it would not be serviceable to the new occupants. It is therefore noteworthy how few of the latest examples shown in Messrs. DAN and WILLMOTT'S book suggest a connection

\* *Shop Fronts, Old and New.* A Series of Examples of Shop Fronts. Architects. Selected and specially Photographed, with Descriptive Notes and Illustrations. By Horace Dan, and E. C. Morgan Willmott, A.R.I.B.A. (London: E. C. Morgan Willmott, A.R.I.B.A.)



with any class of business. The admired example of a carpet merchant's in Holborn could be used for another business if the camels with their bales and the eastern workmen were taken away. A poulterer's and fishmonger's premises in York could be turned into a shop or shops of a different kind by removal of the panels which represent poultry and fish. A café in Manchester and another in Liverpool are only partially suggestive of the East. But in most of the examples, as we have said, the business for which they are designed is not manifest. When we see a series of such fine windows as those of Messrs. DEBENHAM in Wigmore Street, it is of course at once recognised that specialists in window-dressing are employed, and that a large stage must be provided for their dispositions. Only in businesses where goods are displayed as if they were puppets in a show is such skill needed, and the inference can be drawn at the first glance.

The selection of subjects has been left to Mr. DAN; the descriptions which form a treatise have been written by Mr. WILLMOTT. He treats the subjects under the following heads:—The recessed shop front, the type shop front or type adopted for their various establishments by a particular firm or company, the projecting shop front, the corner shop, the double-storeyed shop front and the shop front in series. The subsequent part deals with the practical requirements of the modern shop front as follows:—Materials, glazing, lettering, lighting, construction, stall-boards and pavement lights, sun-blinds and roller-shutters, entrances, &c. In nearly every case the shop illustrated is the work of an architect. That suggests the difference between past and present. English architects like those on the Continent are not unwilling now to accept a commission for shops alone. For those who have not given much attention to the subject the information offered by Messrs. DAN and WILLMOTT may enable them to overcome difficulties, for the arrangements of a perfect shop are more complicated than is commonly supposed.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last at Conduit Street, W., Mr. Leonard Stokes, vice-president, in the chair.

Mr. ALEXANDER GRAHAM (hon. sec.) announced the decease of George Rackstrow Crickmay, elected Fellow 1884, and Emile Trélat, director of the Ecole Spéciale d'Architecture, Paris, and an hon. corresponding member of the Institute since 1884.

Mr. MERVYN MACARTNEY read a paper, illustrated by lantern views and diagrams, on

##### The Present Condition of St. Paul's Cathedral.

In opening his subject Mr. Macartney said that the occasions on which he might becomingly break the silence which, as Surveyor to the fabric of St. Paul's, he had to maintain were few; a gathering of architects, meeting under the auspices of the Institute, was indeed the only exception he could make. Dealing at some length with the report recently published of the committee of architects appointed by the Dean and Chapter, Mr. Macartney referred to the circumstances under which the committee came to be appointed, and read passages from the committee's interim report, pointing out the danger which would threaten the cathedral if the London County Council sewer were constructed in such near proximity to it, and urging the adoption of another route in order to guard the building from all possible risk. The author then gave a brief survey of the conditions under which the cathedral was built, and referred to various repairs carried out during the eighteenth century. From the date of the completion of the shell of the building there was no evidence of any anxiety for the building's safety for over a century. The first note of alarm was sounded in 1831, when a sewer was schemed to go round the south side of the church from Ludgate Hill to Cannon Street. Mr. Cockerell, the cathedral surveyor, drew the attention of the authorities to the danger, and, together with Messrs. Robert Smirke and George Rennie, drafted a report giving their opinion that the fabric would be endangered if the

sewer were constructed in the churchyard, a mending a new line for the sewage. The author sent some interesting letters on the subject which were written at that time between Messrs. Cockerell, Rennie and The result was that the Commissioners of Sewers consented to divert the sewer along Carter Lane. The next note of alarm was heard in 1890, when the London Railway Bill was before Parliament. It was proposed to run a tunnel the length of Newgate Street of more than 70 feet below the floor of the cathedral. Penrose, in November 1890, reported that a tunnel placed would drain off the water from the low level of the gravel and sand which underlie the foundations of the cathedral, and so cause them, to some extent, to settle, and there and risk serious injury to the structure. This proposal passed a committee of the House of Commons, but was thrown out by a committee of the Lords on the ground that it was the Dean and Chapter.

Coming to the present condition of the cathedral, the main points of weakness in the cathedral—the dome, the piers, and the portico—is to say, which have shown, and on the slightest movement will show again, signs of settlement and movement. The dome, the south transept, and the western portico.

The settlement of the dome, which had large dimensions during the progress of the building, shows that the care with which Wren spread the weight, that the great mass has sunk and is now severed from the surrounding masses. The dome is carried on eight piers about thirty feet long; those at the crypt are with the bastion-like masses at the angles of the transept, nave and choir by long barred vaults: these arches have cracked through. The weight of the superstructure rests much more on the inner ends of these eight piers on the outer ends, and the sinking of these piers causes movements overhead. Moreover these great piers have sunk equally, those on the south side connecting the south transept being lower than the others; and the westernmost has descended bodily over six inches. This may be seen in a striking degree in the columns supporting the drum of the dome. These columns are in the outer ends of a series of arches set at right angles to the base of the cone. The arches and the columns above them are all more or less cracked, and the dome is practically severed from that part of the arch on the dome. The dislocation is sometimes visible. This downward tendency of the central mass of the dome may be illustrated further from the clerestory which adjoin it and from the triforium arches and transepts. Between the south or end wall of the transept and the pier which carries the dome at the great arch into the aisle and the clerestory are broken through. In a less degree, according to the subsidence of the mass of the dome, this occurs in with each dome pier.

The south transept has suffered in addition to the dislocation of the parts abutting on the dome by the movement of the south front of it to move outwards.

The walls of the southern façade have moved and have sunk slightly to the east and west: this is especially the case in the south window arch and in the upper part of the transept.

Coming to the west front two tendencies are to be seen, the one arising from the other: the two towers are out of the perpendicular, the one to the north and the other to the south; and the portico, which has been the only flimsy piece of construction in the cathedral, has followed the direction of the towers, and, in accordance with the movement, moved westwards.

In August 1901 the south-west tower was plumb height of some 113 feet, and a deviation was noticed when worked out proves that the top hangs 10 inches south-west, while the other tower inclines to a less degree, to the north-west.

The movement of the south tower has affected the building east of it, and in the library, over the west chapel, the indications of the movement are clearly seen. A further proof of the movement of the towers is the curved line of the granite steps, which were found necessary in order to avoid partly burying the columns of the portico.

These inclinations are sufficient in themselves to jeopardise the safety of the two wide arches of the portico between the towers. The towers actually form the support of these arched ceilings, which have a span of 10 feet while they do not rise to 10 feet.



the portico consists of two storeys, and the front is composed of two series of coupled columns and is not in itself a stable piece of construction; instead of the spaces between them being bridged by single pieces of stone, cornices are made use of: at the north and south these arches are without any solid abutment and yet they rest the heavy mass of the pediment. Then the ranges of columns each support a cornice which projects outwards with no similar projection to the east to balance it. Above the upper cornice the cornice of the pediment and the sculpture of the tympanum also overhang. Thus there is a height of about 112 feet, and the height of the columns supporting it 4 feet at their thickest, with considerable voids between them.

There is a very considerable repair and much renewal the dome has been restored to its original state—allowing, of course, for the increase in its span—and, assuming that the existing conditions can be maintained, may be said to be in good condition. But the secret of its weakness has been learned, and it is seen how it is on the western towers, and how they in turn support the dome by the maintenance unimpaired of the ground on which they were built.

The average depth of the foundations is 4 feet 6 inches below the crypt floor, which is 6 feet below the ground level north and south, and the footings of the walls consist of 12-inch courses of stone with a projection of about 12 inches.

In no case have these shown signs of insufficiency, nor has any organic weakness been discovered in the dome itself. Where the walls have been opened for inspection or another they have been found to be perfectly constructed. In conclusion Mr. Macartney showed the results of the borings recently made, and said that all the data tend to prove that the danger to the cathedral from subterranean or atmospheric influences. Interference with the subsoil was clearly not contemplated by Wren, and without it we might even now reduce to a minimum the cathedral's danger.

WM. DUNN, in some interesting notes on the construction of the dome of St. Paul's, said Mr. Macartney had helped him with various drawings, and with the help of Mr. Halley, he made sketches and measurements in parts which had been undisturbed for years. An aerial view displayed the relation of the whole dome. Mr. Dunn described the lantern as a massive stone structure, exterior rectangular in plan, about 70 feet over all and 50 feet high. The interior was an octagon. At the top of the great outer dome and at the base of the lantern is a belt or girdle of stone forming the apparent support for the top of the ribs of the outer dome, and acting as a base for the lantern. This girdle of stone is 10 inches in thickness and 11 feet in height. It is held by metal ties to the main body of the lantern; these are placed just below the stone floor of the golden gallery radiating from the centre. They are about 2 inches by 2 inches in section. All this heavy load of an irregular shape is supported by the apex of a hollow cone. A hollow cone is fairly stable if supporting vertical loads round its circumference, such as arise from the weight of a circular drum. It is not at all a stable form under loads such as Wren had with, unless these loads are converted into vertical loads uniformly distributed round its circumference, and that is what he has done.

The method adopted was to place on the cone a domed lantern, as we put over a well, and to use this as a foundation for the lantern. Over this domed top he distributed the weight of the lantern by buttresses, the lower parts radial and sloping, the upper parts being vertical and at angles to the square of the lantern and to each other. Like well tops, this domed top had also an eye or opening in the centre, so that in section the lantern seems to be on an arch without a keystone. Of course the reason for this stands is that, unlike arch stones, the stones of which the lantern is constructed are subjected to pressure on all four faces, so that they do not collapse inwards. But if the top of the cone of the domed top spread outwards, we should see the appearance of radial cracks extending from the base towards the top, and this would lead if sufficiently extended to the failure of the structure. This spreading of the base is usually resisted in the resistance of the earth. Wren supplied it by iron ties. The positions of these three circumferential bands were well chosen. They are close together, and as the appearance of radial cracks in the dome-top has shown that they are sufficient for the work, their effect is to convert the load immediately below each point at which it occurs into purely vertical loading. In an arch

the thrust is constant from key to spring; in a dome the thrust is constantly increasing downwards until the inclination of the surface of the dome to the horizon exceeds a certain angle. Below that angle one of two things happens—either the material of which the dome is formed gradually takes up bit by bit this thrust, until, the dome being hemispherical, the whole thrust has been gradually overcome; or else it splits into a series of arches and the thrust remains constant at the value it has at the crown-ring of the arches. But if we mistrust the material, if we are using concrete, or stone, or brick materials which have but small resistance to tension, and which may have even that small resistance destroyed, as in the case of concrete by shrinkage stresses, or in the case of stone or brick by unequal settlement, we may, as Wren has done, put in a series of bands of a material which will resist tension, and so have either reinforced concrete or reinforced masonry. The effect of each tie, providing it does not yield, is to convert the load on the point below it into a vertical load. Wren put a series of seven circumferential ties round the cone above at various points from top to bottom, with the object of making each upper section independent of the spreading of the part below from settlement or yielding of the ties. A great deal has been written about the danger of iron embedded in stone. It is a danger undoubtedly if the air is not excluded from the iron. But given unpainted iron and an impervious covering of mortar or concrete, iron does not rust, but remains bright, nay, even loses such rust as it had and becomes bright.

In concluding his remarks, Mr. Dunn said we hear a great deal of rather unconsidered talk about domes without iron ties. Domes of any size require very large abutments to be stable without such ties, and though we may put sufficient abutment when the cupola rises from the ground, as in the Pantheon, we can rarely do so when it is raised on a drum, as in the Duomo at Florence or in St. Peter's at Rome.

MR. JOHN SLATER in proposing a vote of thanks to Mr. Macartney and Mr. Dunn, said the question of the stability of St. Paul's was one that appealed not only to Londoners, but to all Englishmen. St. Paul's was a national building, and had been compared to St. Peter's on the points of good and rapid construction. Mr. Macartney's paper had dealt exhaustively with the early settlements in the fabric, and what he had said must be fairly clear, viz. that the main settlements had been on the side where the slope towards Fleet Street occurred. He would have been very glad if Mr. Macartney had told them a little more as to the results of his investigations with regard to the construction of the "tube" railway. The paper mentioned that Mr. Penrose had thought fearfully of the results of the railway if it came to be constructed, but the speaker said he had not gathered from the paper whether any of the effects which Mr. Penrose feared had really occurred. The subject was of great interest to all architects. Mr. Slater said he had himself been consulted as to the condition of Bow Church. It appeared to him that the construction of a "tube" railway was of such a nature that it was almost impossible to avoid displacement of the strata through which the "tube" was driven. His own theory was that during the time which elapsed between the first driving in of the shield and the embedding of the tunnel it was extremely likely that settlements would take place. The tower of Bow Church had tilted over to the extent of about six inches, and just after the "tube" railway was constructed there was an opinion expressed that the settlement might increase and thus seriously endanger the safety of the fabric. Mr. Slater said he took an opposite view, because, in his opinion, after the construction of the "tube" and the filling up of the space around it all danger would cease. The construction of the sewer was not the same as the construction of a "tube" railway, and Mr. Slater thought the experts were perfectly right in urging that the County Council sewer should not be constructed in the position it was originally intended to take. With regard to Mr. Dunn's paper the speaker said he was sure everyone present must have been charmed with the unique isometrical view of the dome and cupola which was shown to them. None of the members present, he thought, had seen before such an enlightened view of the construction of the dome of St. Paul's.

MR. R. PHENÈ SPIERS seconded the vote of thanks.

MR. FRANCIS FOX, M.I.C.E., believed that a great deal of the settlement in St. Paul's was due to the construction of



the sewer in 1835, in which year he believed the massive tie-rods were inserted in the building. With reference to the construction of "tube" railways the speaker said there need be no danger to buildings above the route of such works in London, provided the construction was done properly and with the aid of compressed air.

Messrs. W. WOODWARD, J. DOUGLASS MATHEWS and Mr. J. J. BURNET also spoke.

Mr. MACARTNEY, in his reply, said they had discovered nothing in the state of St. Paul's which could be said to be due to the construction of the "tube" railway. Mr. Penrose, he believed, objected to the proposed position of the station near to St. Paul's, and it was eventually carried out to Newgate Street.

## NORTHERN ARCHITECTURAL ASSOCIATION.

THE first ordinary meeting of the session of the Northern Architectural Association was held on the 13th inst., at the Society's rooms, Higham Place, Newcastle.

Mr. A. B. Plummer, president, delivered the opening address. He said he stood before them as president, after having been their hon. secretary for fourteen years, and he thanked the Association for the honour it had done him in electing him to that new position. At the end of 1892 the total membership of the Association was 94; and at the commencement of this year it was 250, and they were about the largest Society allied to the Royal Institute of British Architects. Their total expenditure for 1892 was 41*l.*, and in 1906 it was 160*l.* 11*s.* 9*d.* The total income for 1892 was 58*l.* 6*s.*, and for 1906 it was 194*l.* 1*s.* 11*d.* They were now, principally by the generosity of Mr. Glover, in possession of their own premises, instead of being in hired offices.

It is hardly possible for any provincial president of an important architectural association to avoid considering and referring to the question of the registration of architects. Till such time as registration is obtained (I hope under the auspices of the Royal Institute of British Architects), I shall in all humility continue to say that I am of opinion that the Institute should take the provincial architectural societies into closer alliance, and thus also, I believe, increase the numbers of provincial Fellows and Associates of the R.I.B.A. I believe we have not yet made the advance we should have done in the matter of the registration and qualification of all architects, because the public at large have not yet realised the importance of the question, and they do not know how nearly it concerns them. Hitherto, as a general rule, the subject has been discussed only by members of the profession. The public now realise, as they did not at one time, how important it is that members of the medical and legal and other professions should be legally qualified men. I hope I shall be forgiven if I say I do not think that the great majority of people are yet capable of judging whether buildings they see are the work of able or inferior men. It is nevertheless important that architects should be qualified and determined to carry out good work, without entirely disobeying their clients' demands as regards matters of detail.

If the profession were to be unified by registration, and in future by compulsory qualification, we could take united action to have it made illegal for a district council, &c., to give a surveyor, sanitary inspector, clerk of works, or such-like official, too small a salary and then to make it more than possible for him to live by allowing him to practise and call himself an architect (whether at all qualified or not) in the district, where he should only be acting in an administrative and advisory capacity. The public are led to believe that it is necessary, or perhaps I should say policy, for such an official to act for them in preparing their plans, as they believe he cannot advise work to be rejected that he has himself prepared. This course is really not to the advantage of the public, though they may at first sight think a smaller salary is by this means being paid by the ratepayers. If there is not enough work in one district to pay the proper salary of such an official, let him act for two or more adjoining districts or make up his extra salary in some other way. At least we may say such a man's professional or unprofessional work should be submitted, in the interests of the ratepayers, to some official other than himself for preliminary criticism, selection or rejection, as is the case with plans prepared by others. I have been asked, "How is it that you, as a diocesan architect and surveyor, can talk in that way?" it being thought that I am placed in an exactly similar position. May I therefore clearly state that this is

not the case. Diocesan architects and surveyors no way to pass or reject their own or the work of architects, and all our architectural work has to be submitted for approval in exactly the same way as the work of practising architects. In any case we are not local surveyors, sanitary inspectors or clerks of works, and are in no way maintained by the rates.

It is now several years since it was decided that London district surveyors were in future to be selected with the understanding that they are not to practise as architects in their own districts, and in their case it has proved by examination to be qualified men. I think it is more this regulation is even more necessary in the case of unqualified and qualified men. It is not architecture that even capable architects should be taken into the hands of corporations, and the more and more of the important architectural work being taken into the hands of corporations, and the more therefore, many of them with regret, become of corporate bodies. Is it to the advantage of a nation that their work should be undertaken in many cases by one man, who cannot be an expert in all branches, who in some cases produces a more or less similar design for all the buildings of a city? When there is much work to be done he has to get through it as fast as possible by an increase of staff and by delegating his work to others. When there is too little work a large staff has to be dismissed, or, as is more generally the case, I fear, the ratepayers have unknowingly to keep them on, doing no work, or else work has to be created before it is necessary and has to be paid for at the ratepayers' expense. In the case of corporate bodies selecting in the interests of ratepayers the best architect for each class of work, not expecting or causing any one man to undertake more than is possible. When the work is finished the ratepayers have no longer to pay for the upkeep of an office and the work is, I think, better done and at less cost. I am prepared to say that if these assertions are examined and put to the test they will be found to be the truth. It will also be found upon inquiry that in most cases the work of corporate bodies make use of a larger staff of architects than practising architects find to be necessary to carry out similar work.

I wish to mention that there are a few other men who are am thankful they are few, who I think require the attention and criticism of the profession. I refer to those called honorary architects, though personally I am of opinion that as a rule there is more dishonour than honour in connection with such a position when permanently held by one who has not retired from the profession. An architect who is a labourer is worthy of his hire, and if a man is not paid for his work, even if he be only a tinker or a carpenter, I doubt if he will give the necessary time and attention to it, and I question if any reasonable men can expect to do so.

Excuse my using personal incidents to illustrate the sort of thing I refer to. On two occasions in the past year, my clients in connection with church work sent me my plans, &c., and proposed charges and estimates to London, to societies who make grants towards such work and require that this information should be sent to them before they will assist. On one of the occasions I refer to, the society's secretary wrote direct to me (as is their custom) and reported that they would not grant, but their honorary advising architect had recommended a proposed charge (for a complete survey and one-eighth scale plans of two floors and elevations, and architectural tracings of a vicarage) to 2*l.* 2*s.* I may say I expected the honorary architect in London knew no more than I did in the moon how far I had travelled and cycled to the building before I surveyed it. In connection with this in my account, the surveying and travelling to this building alone required a very long day's work, before my architectural tracings were commenced. The plan in question was for by the society, and the cost of the small additional vicarage was under 100*l.*; it can therefore be seen I should receive a large 5 percentage commission. I wrote to the society and protested that it was unfair to injure me, and cause my client to think that of course an honorary architect knew better than he did, and as a consequence leave me to believe that I was proposing to make an unreasonable charge. I desired that my account, which I am certain was reasonable, should be brought before the R.I.B.A., or any recognised architectural society. It is fair to say that the secretary acknowledged they had had complaints from the R.I.B.A. as to similar buildings. I was obliged to let this matter end thus, not being



to conflict with this somewhat important society. tended to let this be forgotten were it not that in of another association the secretary in like manner direct to my clients requiring alterations to some s advised by their honorary architect or architects. say exactly similar details in specification and s had on two previous occasions been passed, and r was satisfactorily carried out without the so-called ee of honorary architects having a word of fault to any improvement to suggest. However big such honorary architects are, or are supposed to be, I liberately and calmly and thoughtfully dare to think they are (shall I add perhaps blindly and ionally?) acting the part of a sneak and a unless they honestly sign their names and nd direct with the architect they are injuring, and at he has to say before or when their secretary his clients.

man wishes to help good work let him make proper for professional business and give proper attention if he is fortunately able to do so let him give the us earned to help any good cause. I am thankful at, in the two cases I have named, the so-called y architect's proposals were taken no notice of. I respectable practising architects should refuse to such permanent position or to be members of any nt committees of so-called honorary architects. re exceptions to every rule, and I know that a few ble and able men on rare occasions act as honorary s, and a few also allow their names to be on such ees, and they do little or nothing more than this. n if they have ever considered whether they are g more harm than good by even going thus far. I opinion that in the case of such committees of y architects most of the members are making up a from amongst whom the one or two men cannot ily selected, who are, unintentionally and ignorantly doing the mischief in an anonymous way. One are, however, generally suspected to be the acting ous so-called honorary architects. Why can they ch case come out into the daylight and let us have nes and know whom we have to reason and corres- ith, and who we are to expect will give proper to any business in question?

so because I know that other provincial architects so to submit to similar anonymous attacks or s, and perhaps London architects have also to do en such a society is not able to make a proper y grant let them say so and give no donation at all, cause so much trouble and misunderstanding. I urther again suggest that the so-called honorary r architects should sign their names to their and that the secretary should send out with the their remarks a copy of their signatures.

s hitherto been the custom to elect our presidents ds of two years. I believe the time has come s should no longer be the invariable custom. In case, I do not think but I know that there are ho should have been president before me. I think portant towns in our populous district could well frequently represented in the presidential chair. re desire that you should agree with me to nomi- neone to take my position for a year at the end of ion. I shall with no ungrateful feelings to the ion hope to retire in favour of a representative other town, believing that it will be for the good of ociation, and it is not because I undervalue the you have so kindly placed me in.

prizes in the competitions were announced as —Sketches—1. Mr. R. Mauchlen, Newcastle; 7. Milburn, jun., Sunderland. Measured drawings—C. Hunter, Gosforth, and Mr. Sydney Ash, Gates- ided.

## S AND YORKSHIRE ARCHITECTURAL SOCIETY.

e annual meeting an address was delivered to the embers and Associates of the Leeds and Yorkshire tural Society by the president (Mr. H. S. Chorley). es gained by student members were distributed as —Measured drawing—Mr. F. Scatchard (silver and 5*l.* 5*s.*), Mr. J. T. Pilling (bronze medal); —Mr. J. Greaves (3*l.* 3*s.*), Mr. J. H. Farrar (1*l.* 1*s.*); g—Mr. G. H. Foggitt and Mr. J. Greaves (prize 2*l.* 2*s.* each); construction—Mr. H. Carnelley

(3*l.* 3*s.*); essay—Mr. J. Greaves (2*l.* 2*s.*); sketching club—Mr. R. A. Easdale (5*l.* 5*s.*), Mr. W. P. Rylatt (3*l.* 3*s.*).

The President, in the course of his address, said it was the thirty-second annual meeting of the Society, which had had a very successful career. It had been helpful not only in bringing them together, but it was necessary if they were to be successful. They needed all the help they could give one another. They were surrounded by many and great dangers, their responsibilities were great and extended in many directions. All people were influenced greatly by their surroundings, and if the environment was sordid and devoid of beauty, depravity and a low moral condition would usually be found among the people. On the other hand, beauty was usually accompanied by refinement, a high state of civilisation and, as a rule, a high moral condition. Architecture, like dress, tended to become more cosmopolitan and less national. He was doubtful how far that was to be welcomed. Half the charm of architecture, at any rate from an archæological point of view, lay in the varying ways in which it was developed in different countries, taking upon itself the distinctive character of a people and often bearing in itself the record of a historical past. Such interest must very largely be a thing of the past, and architectural design would tend to a world-wide similarity. He believed that there was much originality to-day, but any original idea was quickly spread until it was shared in many countries. Local individuality could be maintained to a much larger extent than at present if more attention were paid to the natural building materials which a locality provided. This was a matter which architects should seriously consider. It was a pity that the old Yorkshire stone slating should be replaced by imported tiles and that the old Yorkshire flag floors should be replaced by concrete. Careful consideration should also be given to the relation of a site to the building to be raised on it. Mr. Chorley went on to refer to architectural competitions and especially to the regrettable incident connected with the competition for the Acton municipal buildings. He also spoke of the various branches of work of the Society, especially mentioning the sketching club and the library. The school of architecture in connection with the Leeds education authority was now an accomplished fact, and the classes should be of the greatest assistance to architectural students within the district. There could be no doubt that the scope of an architect's work was being increased year by year and becoming more complex, so that the training which was sufficient for their fathers would not suffice for to-day. The tendency of modern work was towards the greater elaboration of working drawings. Their profession must be progressive, but, unlike other professional men, the architect must look back. He must be to some extent an archæologist, at any rate in the sense that he should fully study the works of those who had gone before him. He hoped the students would not only avail themselves of the excellent classes in Leeds, but would also travel and sketch as much as possible. In conclusion, he said that they might congratulate themselves that the Society had had on the whole an active and successful year. For themselves as individuals they must hope for continued prosperity in the future, recognising that though few of them could be great in their profession they could all do their best, and any good and honest work was a step in the right direction.

On the motion of Mr. Percy Robinson, seconded by Mr. Edwards, of Bradford, the President was heartily thanked for his address, and a vote of thanks was also accorded to Mr. A. E. Kirk, the hon. secretary.

A smoking concert followed.

The Local Government Board have affirmed the decision of the district auditor in allowing payment of 150*l.* to the Beckenham surveyor for extra work in connection with school enlargements. At the recent audit of the Council's accounts, a member of the Council and the President of the Beckenham Ratepayers' Association objected to the item.

A Committee appointed to arrange for a memorial to the late Mr. Charles Eamer Kempe, M.A., appeal for further funds, about 400*l.* having already been privately subscribed by a few of Mr. Kempe's personal friends, to enable them to carry out the full scheme decided upon. This includes the placing of one or more windows in Southwark Cathedral and in St. Agnes, Kennington Park, and also to offer heraldic tablets to his memory to Pembroke College, Oxford, and Chichester Cathedral.



## NOTES AND COMMENTS.

ONE of the prizes of which the Municipal Council of Paris have the control is that known as the Prix Lheureux. It was founded by a lady and is to be alternately awarded to a sculptor and an architect. The value of it is 2,500 francs. The first recipient was M. DALOU, the sculptor. The second was M. CHARLES GIRAULT, who designed the Petit Palais in the Champs-Élysées. The prize, it should be remembered, is intended to express recognition of some superior work, or in other words it serves as a reward to artists who have gained renown and therefore do not need 100l. M. PASCAL, the architect, was another gainer, but somehow the sculptors have been allowed to take more than their share of the prizes. Among them are M. BARRIAS, M. ANTONIN MERCIÉ and M. COUTAN. M. FORMIGÉ was the last architect to whom the prize was offered. This year it is the turn of an architect, and the Municipal Council profess that one who is eligible is not easily found.

THE freedom with which museums and picture-galleries in France can be visited has been one of the attractions of the country to strangers. It is not unlikely that a great alteration in the arrangements will soon be sanctioned. The depredations in the Louvre have demonstrated the necessity of more watchfulness, and, in other words, the employment of more attendants. At present the public galleries are expensive and larger votes on account of them are not obtainable. The only resource remaining is payment for admission. The experiment is about to be tried in the Lyons museum. From the first day of next year a charge of a franc will be demanded from each visitor or half a franc each for the members of a party. Gratuitous admissions will be allowed only on the afternoons of Sundays, Thursdays and public holidays. As an obstacle against vandalism, pictures and drawings will be protected by glass. A railing will also be placed at a distance of 1 metre from the wall.

It might be supposed that a body of Scottish architects would be acquainted with the names of their countrymen who followed the art. They are not numerous, for with few exceptions the Mediæval rule prevailed until the eighteenth century, for the architect was not separable from the master of works or the builder. However, Mr. ALEXANDER GARDNER, as president of the architectural section of the Royal Philosophical Society of Glasgow, selected as a subject for his address on Monday "Some Notable Scottish Architects." Sir WILLIAM BRUCE, of Kinross, whose name is connected with Holyrood Palace, was the only representative selected of an earlier period. WILLIAM ADAM (1689-1748), whose name is overshadowed by the fame of his celebrated son, ROBERT, was a pupil of BRUCE, and succeeded the latter as surveyor of the king's works in Scotland. He carried out many important works, and collected and published his designs, and those of his contemporaries in a folio work, "Vitruvius Scotticus." ROBERT ADAM (1728-92), son of the former, together with his brother JAMES as partner, enjoyed a practice more extensive than that of any other architect of the eighteenth century. Glasgow owed its Infirmary and the Old Assembly Rooms to them, and Edinburgh the Register House and the main block of its University. The Brothers ADAM designed furniture in character with their apartments, of singular and original merit, adapting Classical forms to modern uses with a success unrivalled by any other designers of furniture in Britain. To WILLIAM STARKE (d. 1813) Glasgow was indebted for four public buildings—St. George's Church, the Justiciary Courts in Jail Square, the asylum in Parliamentary Road and the old Hunterian Museum.

A better known contemporary of STARKE DAVID HAMILTON, of Glasgow (1768-1843), whom we had Hamilton Palace, the Glasgow R. Exchange, Western Clubhouse, Normal School, Lennox Castle, and many of the principal buildings in the West of Scotland. A brilliant quartet of contemporary Edinburgh men were JAMES GILLESPIE GRAHAM (1777-1855), THOMAS HAMILTON (1784-1858), WILLIAM BURN (1789-1870) and W. H. PLAYFAIR (1790-1870). GRAHAM rose from the position of a working tradesman to be a leading architect; Blythswood House, Brodie Castle, St. Andrew's R.C. Cathedral, Glasgow, and the beautiful Assembly Hall of the Church of Scotland are from his designs. THOMAS HAMILTON's best known works were the Edinburgh High School on the slope of the Calton Hill, and the Burns Monument in Edinburgh and Alloway. The classical Greek buildings of PLAYFAIR were dominant features in views of Mount Athens. The fame of GEORGE MEIKLE KEMP (1784-1844), whose humble origin and tragic end formed a romantic story, rested on his one executed work—a fairy-like structure the Edinburgh Scott Monument. Among other architects treated of were DAVID BURN (1803-76), CHARLES WILSON (1810-63), J. T. ROBERTSON (1814-78) and "Greek" THOMSON (1817-75).

THE metre as the unit of length in France and other countries of Europe has importance, but it has a peculiar interest, as it is the earliest scientific product of the French Revolution. In 1790 it was proposed to arrive at such a measure by means of investigation conducted by the French Academy of Sciences and the Royal Society. The English Government would permit the co-operation of the latter body, and the mission consisted mainly of Frenchmen. What was sought as a basis was the length of a pendulum vibrating seconds in latitude 45 degs. and at the level of the sea. Several geographical and mathematical inquiries followed, and eventually the metre of 39.37 inches was arrived at. The standard is usually said to be among the national archives, but a reproduction is in the Pavillon de Breteuil at St. Cloud. It is made of platinum, and is said to have cost 18,000 francs. It has been used in an international conference on weights and measures, for the metre is the only measure of length which has a definite relation to the great circles of the earth.

THE conditions governing the competition for designs for the new county hall on the site near Westminster Bridge provide that the competitors in the final round shall vote for a third assessor to act with Mr. NORMAN SHAW, R.A., and Mr. W. E. RILEY, in assessing designs in that stage. The Council have approved the necessary expenditure (2,100l.) for a fee of 1,050l. to Mr. SHAW and the third assessor. The result of the voting of the twenty-three competitors in the final round shows that the highest number of votes was cast for Sir ASTON WEBB, R.A., to act in the capacity of referee. Sir ASTON WEBB has sent a letter to the Council that, whilst "fully sensible of the great responsibility involved," he has pleasure in agreeing to act as one of the three assessors. It is proposed to hire the Metropolitan Examination Hall, Victoria Embankment, for the display of the drawings while they are examined by the assessors, and for a subsequent exhibition to the public.

## ILLUSTRATIONS.

THE COTTON EXCHANGE, LIVERPOOL.

TULLYLAGAN, CO. TYRONE, IRELAND.

RAVENSMOUNT, ALNWICK, NORTHUMBERLAND.

DESIGN FOR CLOCK TOWER, SALISBURY.



# THE ARCHITECTURAL ASSOCIATION.

MEETING of the Association was held on Friday evening last at Tufton Street, Westminster, Mr. Tanner, vice-president, in the chair.

Words of thanks were passed to Mr. Hugh Stannus for bringing a small collection of photographic negatives of churches, and to Mr. Herbert Batsford for his gift of an engraving by Hollar, depicting London and its bay in 1647.

The following gentlemen were elected members:—H. J. W. Etheridge, M. S. Daly, J. A. Cheston, Annan, R. P. Annan, W. S. Holt, J. R. Truelove, French, R. D. Elliott, P. D. Hepworth and J. W.

B. J. GREENWOOD read a paper entitled—

## The Relations of the Architect to the Builder.

I am not sure where the line of demarcation is to be drawn between the subject of Mr. Gibson's paper and my own, and consequently I may inadvertently trespass upon his nerves, as he may on mine. It seems to me that a line in the relations between architect and builder would be both topics. However, if I trespass, I know of no laws applicable to the case—at any rate, such trespass cannot be prosecuted though they may be per-

me occurred to me that I might apply to your secretary for a more definite delineation of the boundaries of my subject, but on reflection I concluded that a man acts for himself when he invites limitations. They can be of no use to him and may be the contrary. So I am able to proceed with a sense of freedom of which you may think I avail myself to a rather extravagant

me may say that the relations of the architect to the builder are, or should be, confidential. I do not use that word in the sense that these relations should be private—I use it in the sense that there should be no reason why the dealings between architect and builder should not be open to all parties interested, although necessarily open to those who are not concerned—but the word "confidential" in the sense that between architect and builder there should be mutual confidence, and that their relations cannot be pleasant and are not necessarily advantageous.

The element of suspicion with regard to the builder pervades and permeates all building contracts need to be imported into the subsequent relations between architect and builder. Without adequate and unmistakable proof the builder should not assume that the architect is going to get 25s. for 17s., and without similar proof the architect should not assume that the builder is scheming to get 19s. for 17s. If in the course of a contract it occurs to the architect that some better method of securing a desired result should be adopted without detriment to the structure, and that it is to the architect a suggestion accordingly, there is no reason why the architect should jump to the conclusion that the builder is seeking any unfair advantage, even if the suggestion should afford some benefit to the author of it. The builder in the course of his business has to employ all sorts and conditions of men—often through the fluctuations of the market he is unable to know by experience the character and disposition of all those whom he has to place in positions of more or less control and responsibility, and if in any cases such persons should act without his authority or knowledge in a manner which might be described as questionable, it does not follow that the builder is untrustworthy, provided that he is ready at once to rectify his fault and stand against its repetition. I have known cases where an architect has been deliberately done badly and then reported the architect in order to damage the builder's foreman. It is unreasonable to expect that architects, who have a comparatively small staff under their immediate supervision, should have some consideration for builders who employ hundreds of workmen who are only controlled by subordinates whom he has selected to the best of his ability. Of course, the direct responsibility for the work of his employes rests with the builder; but the moral responsibility does not always follow, and I suggest that the relations of the architect to the builder should be free from any element of unwarrantable suspicion.

In the second place, the relations of the architect to the builder should be mutually beneficial. Neither party poses himself as a philanthropist. The architect expects, and rightly so, that the contract shall enhance his own prestige and reputation and gratify his clients, and the builder in

his sphere has similar expectations. The architect expects, and rightly expects, that the contract shall be remunerative, and I imagine that he very seldom if ever fails to realise that expectation, although I have heard rumours that the remuneration is not always consistent with the professional ability and energy displayed. The builder also expects that the contract shall be remunerative; but in this case, unfortunately, his expectations are frequently doomed to disappointment, and it is no uncommon experience for the builder to contribute unwillingly if not ungraciously to the cost of the building. Under the depressed state of the building trade that has prevailed during the past two years, I am afraid this experience has become lamentably common; but I think I may safely admit that builders need not be credited with motives of philanthropy in this matter, for if they contribute to the cost of their contracts, it is neither by desire nor intention, and it is not unusual for them to make laudable efforts to avoid such occurrences. The ideal result of a building contract should be to the benefit of the client, the architect and the builder, and if in either case this result is not attained, there is something wrong which should be rectified if opportunity arises, as it seldom does.

In the third place, the relations of the architect to the builder are variable—as variable as the wind "that bloweth where it listeth." This point opens a wide scope for comment, and I will therefore endeavour to abbreviate my remarks. The relations of the architect to the builder are inevitably variable because of the widely differing characteristics and customs of the individuals concerned. As to the varied individuality and customs of builders, I have very limited knowledge or experience. Builders are not particularly confidential amongst themselves; on the contrary, there is generally a considerable amount of reserve in trade relations, and the delightful theory that I believe was held at the London County Council some years ago, that builders were a happy family replete with confidence and mutual concern for each other, was altogether a fanciful apprehension. Recent experience leads me to think that builders may rather be likened to a pack of hounds when the scent is hot.

It needs a clever man to talk apparent sense on a subject about which he knows little or nothing (and there are such clever men to be found in the House of Commons if nowhere else). I therefore pass the inviting topic of the variable relations of the architect to the builder arising from the varied characteristics of the builder. (Perhaps Mr. Gibson knows more about them than I do.)

I proceed on what is perhaps more delicate ground in this audience, viz. the variable relations of the architect to the builder arising from the varied individuality of the architects. For instance, there is the autocratic architect; his relations to the builder are not as other men's. He is careful to emphasise the impassable gulf between the profession and the trade. When an audience is granted to the builder it becomes him to proceed with great deference if not with awe. If the builder has opinions of his own they must not be advanced, and suggestions or advice would be regarded as impertinence. I remember one incident bearing on this point to which I may refer, although the architect in question was certainly not autocratic. A certain limited liability company, newly formed to work a more or less speculative patent, required certain work to be done. The builder called at the architect's office to agree the contract, and ventured to ask for particulars as to the subscribed capital of the company and its financial standing. He was informed by the architect's chief assistant that such a request was quite undesirable, and that it should be quite sufficient for the builder to know that the company was a client of his employer. I imagine that if it was part of an architect's duty to guarantee the financial obligations of all his clients, it would in some cases be necessary to raise the scale of his fees.

Then we may sometimes meet the legal architect. His relations with the builder are not the same as the others; he has a patent pneumatic form of contract, so constructed that by the movement of a simple lever the commercial life of a builder is crushed out of him without any troublesome noise or struggle—a sigh and he is gone. The architect carefully explains that he will never touch the lever—unless it becomes necessary. His variation orders are printed in elaborate and legal form; variation orders are issued for additions and omissions, chiefly omissions. If in the foundations a good bottom is found at 3 inches less depth than anticipated, although in the process the builder has had to cut out concrete foundations at the price of ordinary digging, an omission order is promptly delivered. Unless



official orders are secured for every extra, there is considerable doubt whether the work will ever be paid for.

I express here no opinion as to the desirability or otherwise of this rigid form of procedure—it undoubtedly has its advantages as well as disadvantages, for the legal architect is generally just, though his justice is not often tempered with the other thing. I realise that it is becoming highly necessary that I should make an explanation—an important explanation viz. that I am now indulging in imagination and exaggeration. This may seem to be a damaging confession, but let us examine it.

It would be highly improper and discourteous and quite foreign to my reputation and disposition if I were to come before you with any personal criticisms of individuals known to me, although my careful study of human nature leads me to the conclusion that in all probability the individuals I describe might possibly be found if one searched long enough. A romance is more entertaining than a history, and I judge that if this Association exists chiefly for serious study there is all the more reason why entertainment should occasionally take precedence, so please take it for granted that I am drawing upon my imagination, otherwise I should be too embarrassed to proceed. I confessed to exaggeration as well as imagination. This latter may seem a more difficult matter to defend, but I assure you it is a virtue. Let me endeavour to prove this somewhat enigmatical statement. Here are two short lines drawn on paper; they are apparently parallel, or nearly so. I want to ascertain the truth. Are they parallel or not? How am I to ascertain this? Exaggerate the lines; make them five times as long and the truth becomes apparent.

A botanist has a certain theory with regard to the construction of a petal. A student has a certain theory with regard to the result of certain treatment on insect life. How can they test the truth of their theories? By exaggeration; they place their subjects under the microscope (which is just a mechanical exaggerator) and exaggeration undoubtedly contributes to the truth.

But you will, of course, perceive the danger of my proposition if it is unqualified, and the necessary qualification is that the exaggeration must be clearly admitted—that is to say, concealed exaggeration contributes to deception. Admitted exaggeration may contribute to the truth. My exaggeration comes under the latter definition; it is freely admitted. Caricature is only exaggeration; but who will deny that *Punch* has a mission, and frequently conveys truth in a palatable and entertaining form? And there may be a modicum of truth in my remarks under the head of the variable relations of the architect to the builder, even though I am drawing on my imagination and that with exaggeration. By-the-by, I must add that such remarks only apply to this particular division of this paper; all the other is intended seriously, I can assure you.

Now to proceed, asking pardon for such a lengthy digression.

There is the "easy-going" architect, and his relations to the builder are not as other men's. He gets out the contract drawings more or less accurately to a small scale, and virtually says to the builder:—"Now I want a good job; get it done and don't bother me. Details? Make your own details," and, beyond an occasional detail on the cuff of his shirt, no more drawings are supplied. The specification is brief and leaves ample scope for the imagination. No agreements have been made with the adjoining owners as to party walls or ancient lights; "I always settle them as we go along," and the correspondence on the contract is virtually confined to the application for and issue of certificates. Such architects, if they have a good quantity surveyor and a good builder's foreman, often get through difficult contracts with marvellous success, but it is not always so.

As a contrast to the "easy-going" architect, let me mention the "scrupulous and painstaking" architect, who holds the builder in leading strings. The foundations of a garden wall must not be put in as shown on drawings before the bottom has been carefully tested. Elaborate details are issued in profusion for every subordinate item; although it is true that, by oversight, a builder is sometimes allowed to use his own discretion as to the position in which the nails are to be driven in fixing an architrave moulding to a pantry door. I have known 100 sheets of drawings to be issued for the construction of a small addition to a private house, and it makes me sometimes anxious as to whether such voluminous services are adequately remunerated.

Then there is the "nervous" architect who writes to his

client to ask if he may issue a certificate; and through sheer nervousness and with no evil intent twice the amount provided in the contract. Rather than report a perfectly legitimate extra to his client he writes to pay the cost himself, which the builder cannot and consequently loses the money and so on.

I must not omit to refer to the "vacillating" architect. His relations to the builder are fortunately not men's. It is sometimes difficult to satisfy the architect who knows what he wants, but the labours of Sisyphus are but a trifle compared with the task of endeavouring to satisfy the man who does not know what he wants. One portion of the works and then another is pending further consideration, and the builder's drafts his men from one point to another in his vain attempt to keep them employed. I am afraid that even architects who have a thorough and practical knowledge of the works are quite unable to appreciate the serious consequences of the builder of indecision in the issue of instructions. The architect may perhaps be able to convey some idea of the consequences by the illustration of a railway-engine. By a constant expenditure of power the engine can draw its load from Euston to Rugby without stopping; but if it is to stop at a dozen intermediate stations, each stoppage is a waste of power both in arresting and restarting the train, which means more wear and tear on the rolling stock and a larger consumption of fuel, and this obviously means an increased cost. In the same way, when a builder's contract started in good running order and has selected a proper number of workmen proportionate in number to the work to be done, he can work together without waste of labour, the work can be stopped here and there without throwing the machinery into disorder and causing a definite loss of time. It is exceedingly difficult to represent on paper in a simple form. Moreover, the builder himself loses his control of his works. When a building proceeds rapidly the architect is able to form his conclusions as to what stage the work has reached at a given date, and if his anticipations are not fulfilled, he can investigate the cause and remedy the fault. But when he is told by the foreman that the work has been stopped or delayed at various points, he discovers that although his wages sheet is not in arrears, the return for the wages paid is obviously reduced, and he is not in a position to remedy the evil, the general organisation of the works preventing any effective supervision and control. I have heard of an instance where more than a dozen different drawings were issued for the same portion of a building, and then when the surveyor came to measure the variation, not one of the drawings actually represented the work as finally executed, and the architect consequently had to measure from the work itself in order to be accurate.

There is a wide-spread opinion that variations are advantageous to a builder. Well, they ought to be, but possibly they may be if such variations are made at the commencement of the contract and then adhered to. When these variations are made as the work proceeds, they involve hindrance and stoppage of portions of the work at various stages, then I unhesitatingly assert that they are a disadvantage to the builder unless they are valued at a price considerably above the prices that the builder set in his estimate for work that was understood to be done continuously without interruption. It is, however, fair to say that in many such cases the architect is to blame, because he has a vacillating client who is responsible for the situation. Here I expect that you will sympathise. Architects are doubtless painfully aware of the worry, anxiety, wasted time and energy caused by the vacillating client, who often fondly anticipates that his vacillation will cost him nothing (however much it may cost others) and is very wroth when he finds that his anticipations are not realised. When a client does not know what he wants he should not expect his architect to be done by contract, but by daywork or by an agreed percentage of profit on the cost, so that others are not made to suffer by his indecision. I venture to submit that it is not equitable that work carried out under the conditions that I have endeavoured to describe should be valued on the same basis as work submitted for work to be carried out under different and more favourable conditions. The relations between the vacillating architect (whether his vacillation is original or merely transmitted) and the builder are, always friendly, but they are inevitably accompanied by a certain feeling of resentment on the part of the architect which he more or less successfully conceals, although



poet suggests, "Concealment, like a worm i' the bud, in his damask cheek." I have ventured in a per-  
sively and possibly humorous manner to refer to  
exceptional characteristics of architects, or rather the  
istics of exceptional architects, in a more or less  
ry and exaggerated way, not for the purpose of  
n, but for two reasons—(1) Because they directly  
e subject of my paper, "The Relations of the Archi-  
the Builder"; (2) so that you may grow sympathetic  
builder in his difficult position, and perhaps admire  
summate skill with which he sometimes steers his  
rk clear of the rocks which surround him. That  
would please one architect would often offend  
; that which one approves another condemns, and  
the poor builder to do? One architect will say, "I  
ay for that extra work; you should have obtained  
n order at the time; go and look at your contract."  
the next case, when the simple-minded builder  
—not, not "refuses," but "indicates his unwilling-  
o carry out verbal instructions until they are con-  
by an official written order—the architect regards  
ude as an imputation on his honour, as an inference  
word is not to be relied upon, and the innocent  
is regarded as a vexatious and litigious person.  
ere is nothing surprising or extraordinary in all  
simply confirms my statement that the relations of  
itect to the builder are variable in consequence of  
ed individuality of architects. But the builder still  
s, and in an experience of over a quarter of a cen-  
ave had dealings with architects possessing, to a  
less extent, all the little peculiarities I have been  
ough to exaggerate, and I confess that in the long  
e builder has more cause for congratulation than  
int.

what about the varied individuality of builders?  
do architects have to put up with? I know very  
out this matter, but I know that the architects have  
actual remedy that builders have not. A builder  
ut up with the varied customs of architects; but  
ts can easily escape all these vexatious variations  
ders by a very simple expedient which my innate  
y makes me hesitate to indicate. But the position  
y here this evening calls for self-sacrifice, and  
a sense of duty sufficiently powerful to even  
ne my timid modesty; so with blushes which  
ot be apparent externally, I suggest that all the  
us variations in the customs and practices of builders  
be avoided if all the architects in this honourable  
tion were to systematically place their contracts  
e firm I have the honour to represent (without com-  
). Having surmounted, or rather wriggled through  
st delicate and dangerous part of my topic, I proceed  
sense of relief to remark that the relations of the  
ct to the builder are judicial. When a professional  
any other man is appointed, retained, employed  
munerated by one party, he is generally bound in  
to seek to protect and promote the interests of that  
clusively. But an architect holds a very peculiar  
ique position, for his duty is not to promote and pro-  
clusively the interests of the person by whom he is  
ted and remunerated and from whom he may expect  
appointments, but to act impartially, judicially be-  
his client and the contractor, who has nothing to do  
s appointment or remuneration. The position of an  
ct in this respect is obviously difficult, if not contrary  
are, and can only be rightly held by men of high  
les and honour. I say that it is an exalted tribute  
architectural profession that with so few exceptions  
sition is consistently held with such rectitude and  
ty that one is accustomed to expect it as a foregone  
sion.

this particular aspect the architectural profession  
to be placed on a higher pinnacle of honour and  
ty than even His Majesty's judges; for I suppose  
ter a judge was appointed to try a case, if it was  
ed that one of the suitors in the case had secured the  
appointment and was providing his remuneration,  
ine that public opinion would declare that these facts  
disqualify the judge from acting judicially. But in  
se of an architect, public opinion raises no such  
t, and he exercises his judicial functions under  
r unfavourable circumstances with conspicuous honour  
ility.

one need wonder that architects holding such a  
n require an arbitration clause inserted in building  
cts; for, under such circumstances, the responsibility

of dealing judicially with all the different and varied situa-  
tions that arise in the ordinary procedure of a building  
contract must be sufficiently onerous, and when questions  
or disputes arise on delicate issues in which the architect  
may be more or less personally and directly involved, it  
must be an unspeakable relief for him to be able to lay  
aside the responsibility of decision and refer the issue to  
some eminent disinterested expert. As I have already  
hinted, it is not every architect who fully realises the  
judicial relations of the architect to the builder; and there  
may be some new to the profession who have not yet  
entirely succeeded in putting aside the natural feeling that  
they are only the agents of the person or persons who  
appoint and remunerate them.

I may mention, in conclusion, that the relations of the  
architect to the builder are, or should be, co-operative.  
They are both devoting their energies and abilities to a  
common end, and mutual assistance is of mutual benefit.  
The builder may render considerable assistance to the  
architect, and *vice versa*, and this statement is so familiar  
that it needs no emphasis or illustration. The head cannot  
say to the hand I have no need of thee, nor can the hand  
say to the head I have no need of thee. I imagine that the  
discussion on such papers as these will be far more inter-  
esting and entertaining than the papers themselves (I  
apologise to Mr. Gibson—I mean than *my* paper *itself*), and  
for this reason I will not occupy further time; but having  
merely introduced the subject, I beg that if in my brief and  
diffident remarks I have been in any way indiscreet, you  
will be generous enough to put it down to want of experi-  
ence rather than want of courtesy or good feeling.

Mr. JAMES S. GIBSON contributed a paper from the  
architect's standpoint.

Somehow, the relations between the architect and the  
builder, he said, seem to be accepted by us without question  
or demonstration, just as the laws of gravitation, and  
although we drift almost automatically into the acceptance  
of these relations, it may be that the younger men here will  
find the little I have to say helpful in directing their atten-  
tion to what is one of the most important matters incidental  
to the practice of their profession.

The consideration of this subject implies the pleasant  
knowledge that the architect has secured a client; that he  
has prepared all his designs and written his specification;  
that quantities have been taken out. The builder then  
appears on the scene with his estimate and offers to erect  
the building in accordance with all these particulars. So  
far all appears to be plain sailing. I will not at the present  
time touch on the trials and troubles of the architect, either  
with his client, his design, his specification or the quantity  
surveyor; these are, perhaps, subject matter for a separate  
paper dealing with the woes and worries of an architect's  
career; and as you will later inevitably experience them,  
it would be a species of refined cruelty to read you a paper  
about them at this early stage of your career. But, having  
surmounted all these initial difficulties, the form of contract  
is signed by the client and the builder, and everything is  
thereby in order for the work to be started.

The form of contract which will be signed in prac-  
tically all metropolitan areas will be the form issued by the  
Institute, and everyone of you should know this form in a  
real sense; that is, you should know its meaning and  
purport, not its mere word, so that you may be able to act  
upon it when necessity arises. I would commend it to your  
serious consideration for the purpose of understanding its  
fairness and impartiality between all parties to the con-  
tract and to realise the responsibility which it throws upon  
you as architect and as referee in all building operations.

I should like to direct your attention to the practical  
obligations you have towards the builder to enable him to  
do his duty to your client. The very first thing which you  
must do is to supply the builder with a copy of the draw-  
ings upon which his contract is based; these, together with  
the specification and quantities, enable the builder to  
ascertain approximately the quantity and quality of materials  
and labour necessary to do the work. The drawings must  
be accurate, that is, they must be not only accurate in the  
sense that they fit the site of the buildings, but they must  
also be accurate in that they are workable. This sounds  
like the utterance of a platitude, but I have seen plans sup-  
plied to a builder which showed that the site had either  
been wrongly surveyed or never surveyed at all; in con-  
sequence all the plans had to be redrawn to fit the land.  
The levels should be accurately taken and the drawings  
made to suit the contours.

The drawings should be workable; by that I mean that



they should be practicable in construction, the points of support properly designed and worked out, the flues, staircases and lift wells delineated from the bottom to the top, and nothing left to chance. The drawings and specification should also be clear and unmistakable in their intention. A drawing which is incomplete, sketchy or inaccurate is certain to lead to misunderstanding and perhaps to serious trouble. A specification which is ambiguous, or involved, or not sufficiently detailed, is sure to be a hindrance rather than a help. We have now established three points; your drawings must be clear in their intention, accurate and workable. In addition to all this, your designs must be made so as to comply with the requirements of the authorities governing the building operations, and for the purposes of this paper I will suppose the buildings are to be erected in London. This necessitates, on your part, a thorough knowledge of the London Building Acts, and I consider it no mean feat if you can accomplish this, as the various Acts are so involved and complicated, and have been interpreted in such diverse ways, that it has become a matter of considerable difficulty to know exactly how far they are applicable to each building. Within the metropolitan area you will often find it necessary to make special applications to the London County Council for such things as lines of frontages or building lines, projections of bays, oriels, balconies and cornices, means of escape in case of fire, separation of parts of buildings, methods of construction, and a host of other things which, if not applied for in time, will mean delay in the building operations. These special applications have to be accompanied by drawings, and often interviews and explanations have to be given to the authorities, and these things take up a great amount of time. If you have not foreseen and provided for this the result will be that the builder may be stopped or cannot proceed as quickly with his work as originally intended, and so delays are caused for which the builder can in no sense be held responsible. You all know how important it is that London work should be completed within the contract time; usually very heavy penalties are inserted in the contract for delays in completing, and I would impress upon you the obligations you are under to your client and the builder to make all the necessary applications to the proper authorities in plenty of time, so that the builder may be enabled to carry out his part of the contract. We will, however, assume that you have secured all the necessary consents of the authorities, and the builder therefore starts the work on the best terms.

The next matter that arises is to provide him with all further drawings, full size, and instructions from time to time so as to enable him to go on continuously with the works. You must remember it is the builder who is responsible for getting the structure erected within the contract time, and when he makes any reasonable request to you for additional drawings or instructions you should at once supply all he requires. I am afraid the architect does not always do this; he may be pressed with other matters or not in the humour of doing that particular job; but any unjustifiable delay in providing the builder with drawings and instructions may be a very serious matter for the architect. It may appear to you that there is no particular hurry to make certain drawings; you think a few weeks later will probably suit just as well. But you must recollect that the builder has to make arrangements far ahead of the requirements of to-day, and you will rarely find that he asks for drawings without good and sufficient reasons for doing so.

The next practical point I would direct your attention to is the employment of sub-contractors. As you know, sub-contractors, or specialists, are largely employed on all contracts. They are usually nominated by the architect or client, and carry out their works for the builder, who is responsible for them, and who is usually paid a percentage or profit on the amount of the sub-contracts. You may occasionally find a client who is desirous of omitting from the main contract a number of the sub-contracts, for such things as grates, electric fittings, sanitary goods and decorative matters, and often this is done for the purpose of obtaining a portion of the discounts usually allowed to builders. On the face of it this appears a reasonable and equitable thing to do, that if the client can save for himself a builder's profit on sanitary goods, electric fittings, grates, &c., he is a wise man to do it; but you, as architects, must look at the equity of the transaction as between both parties.

There are two points in relation to the builder's claim for profit which demand your attention; say we are dealing

with a contract for a house costing 5,000*l.*, and includes 75*o* of provisional amounts. If the client takes these moneys directly and saves 75*l.* by so doing, he certainly has to pay the builder, or some other party, for the handling, delivery and fixing these goods, but the establishment charges incurred in dealing with the goods in charges for fixing sanitary goods, grates, tiles, fittings and such like things, there is a possibility of diversity of opinion on values, especially if all the articles themselves have been deducted from the contract as an axiom that what the builder loses in one place he can make up in charges for materials and fixing, &c. I always strongly advocate paying the builder a reasonable profit on all sub-contracts, varying from 5 per cent. to 10 per cent. on their value, as being the most satisfactory and equitable way of dealing with these matters.

The second point which claims your attention is that the builder has been invited to estimate for a complete house to cost about 5,000*l.*, and the condition is implied, expressed, that the goods and labour included in the estimate for provisional amounts shall be supplied by the builder, and upon which it is only reasonable to calculate on obtaining a profit when making up the total of his estimate. As the builder is primarily responsible for the execution and maintenance of all the works, and may, and almost always does, protect himself against the sub-contractor, it is sometimes the case that the builder has a proper objection to the appointment of a sub-contractor who may be nominated for certain works, and the builder should give the very greatest consideration to that before making any appointment. On the other hand, the client must be extremely careful not to accept the nomination of any sub-contractor by the builder without first satisfying yourself that he is the proper person to be entrusted with your work, as no excuse will absolve you from liability to your client.

There are a great many matters in connection with building operations, especially in the use and introduction of new materials, new types of fittings and appliances, which the experience of the builder may be of great value to us, and I have always found them ready and anxious to put their greater experience at our service, and I frequently availed myself of it to the manifest advantage of the work. Life appears to be too short for us to have a practical acquaintance with the thousand and one materials and materials that are brought before our notice, and patient and persevering gentlemen who climb over the wall and lie in wait for us on the doorstep, to show us the things with which we have not even a bowing acquaintance, and weird inventions we can hardly understand. Regarding the majority of these things, I am sure these gentlemen would do well to cultivate the builder more and more, and to be less, and by doing so the time of all parties would be economised.

I believe it to be almost impossible to carry out building operations without variations on the original designed works, and I certainly believe it to be almost impossible to carry out works of real architecture without variations; but I must counsel you to deal with variations in a business-like way. However small the important variations may appear to be, always give the builder an order in writing, or a letter or a drawing to make it quite clear between all parties that something now proposed to be done which was not originally intended. There are instances, many of them, in which you will give verbal orders when you are on the works, such as depths and dimensions of foundations, the builder will use pier in cement instead of lime mortar, the altered position of a flue or the course of a down pipe; but make these at the time in your note-book, and as soon as possible thereafter put all these instructions in writing and send them to your client and the builder. This will save a great deal of body trouble in adjusting the accounts at the conclusion of the contract, and will free your mind from a lot of petty details during its progress. Whenever you possibly can, have a certain amount of these variations fixed before giving the order, and you will find the quantity surveyor of great help to you in these matters; and get your client's approval of them. You should always know just how matters stand in relation to the contract. On the more important architectural matters you will probably have to do with the sculptor, and even in a minor matter like this, conclude your consultations with him and get the modelling executed at the earliest possible stage. It is astonishing how much expense and inconvenience and hindrance to the work can be caused just because the sculptor and the archi-



de up their minds how the decorative sculpture is to be treated. And when you reflect that the builder has to do everything for the sculptor to work on, to get the joints of the stonework in the right positions, so that a joint does not come right down the middle of the face of Diana, or a horizontal joint cut off her chin, and that these joints must be worked back to depths to suit the sculptor, and a thousand and one other matters of a like kind, I am sure you will agree that equity to the builder requires on your part a large measure of foresight in dealing with the work.

Turn now from the practical side of this matter to the more important one—the ethical relations of the architect to the builder—and desire to say a little on two aspects of this relationship. The first is between the architect himself and the builder, and relates to all the things involved in carrying out his designs as he desires. We all know that we have prepared our designs they represent what, at the time, is our best ideas of how the building should be built; but as the work advances, and especially if it is a large building, the erection of which takes one, two or three years, fresh ideas come, and we modify and alter the original design in many ways. In this there is a strong temptation to the architect to get his later ideas carried out by the builder without extra expense to the client; but this temptation must be resisted where it is inimical to the fair treatment of the builder. Remember, we start out with a contract based on drawings which show what we intended to build at that time, and if we frequently change our ideas so that additional cost is incurred, we must see to it that the builder is recompensed for that extra cost. The architect is sometimes in a difficult position with his client; he knows that his ideas are the best, and that his client expects the best, but he is often against any additional expenditure. But the architect's clear duty is to lay before his client his later schemes and get his consent to these, and if, as is sometimes the case, giving the builder instructions to do the work and risking his client's approval of additional cost. In a great many minor things there are variations, but we always find the builder willing to meet us in a reasonable way; a spirit of give and take on both sides enables an architect to get a better result for his client without incurring any loss to the builder. Some time ago I heard of a firm of builders who kept a large staff to go through all the drawings, specifications and instructions of the architects for whom they worked, so that if a moulding girthed 9½ inches instead of 9 inches a variation might be made, without taking into account the fact that a moulding of 6 inches may be more to work than one of 9 inches, owing entirely to its shape. The result was inevitable; the cost of finding out these variations far exceeded any monetary advantage gained, the confidence and sympathy of architects were lost and the firm passed out of existence. I also know of an architect in the North who prepared his own estimates, this being a common practice there, and he used to measure up ordinary three-coat plasterwork with such exactitude that every eighth of an inch was measured and the result was a result that he became the best-hated man in the district, and so you may see there can be faults on both sides. Perhaps the most important relation of the architect to the builder is that of seeing fair play between the desires of the client and the obligations of the builder. As a general rule clients are content to abide by the decision of the architect in all matters relating to the interpretation of a contract; but it sometimes happens that a client has misunderstood the contract or expects a great deal more from the builder than the contract warrants. Should this occur it is the duty of the architect to hold the balance fairly between both parties, and this has been so done by architects who have obtained the confidence and respect of all the able builders in these matters. It will be your privilege one day to carry on this fine spirit of justice and equity, and I am sure you will ever have before you the illustration and example of those who have always endeavored to keep the architectural profession free from any suspicion of unfairness in all its dealings between architects and contractors.

Mr. LOUIS AMBLER, who proposed a hearty vote of thanks to the authors of the two papers, said Mr. Greenwood was very modest in suggesting that his views were exaggerated. His paper had made architects out to be ideal people, and nothing that was nice, except in one or two instances. Mr. Ambler was not quite sure that there was so much exaggeration in the paper because many of the extreme

cases quoted would often occur in practice. He thought one of the reasons why the architect was sometimes considered to be vacillating in his work was because the client was often undecided. Regarding the individuality of builders, a point Mr. Greenwood had passed over in his paper, the speaker said all architects would agree that there was quite as much difference in the individuality of builders as there was in the individuality of architects. It seemed to him that one met builders who gave no trouble and others who seemed to make trouble the whole time they were engaged on a job. Mr. Gibson, in his paper, had covered the whole ground as to the relations between architects and builders. He seemed to have met a number of ideal builders, and they could congratulate him on having been so fortunate.

Mr. G. NICHOLSON seconded the vote of thanks and remarked that it seemed to him impossible for the architect to find his contract remunerative on small houses, unless several were built from one design. With regard to builders, he thought architects had great sympathy with them, more so than the client, and it was in keeping with that sympathy that he believed it was not fair to put first-class building firms in competition with outsiders who might do scamp work. Then, too, alterations and variations should be paid for at full prices according to schedule.

Mr. F. D. CLAPHAM suggested that as they had to spend the rest of their lives in dealing with builders, it was very necessary that their relations should be of a friendly character. They could certainly help the builder, and mostly, perhaps, by avoiding delay in supplying drawings.

The CHAIRMAN in some concluding remarks said he hoped Mr. Greenwood had mostly exaggerated in his paper. The relations between the architect and the builder would vary he thought on every different job. The chief duty of the architect was to hold the balance between the builder and his client. He had smaller experience than Mr. Gibson, but he could endorse his statement that the relations between the architect and the builder were generally most satisfactory.

## THE SCIENCE OF THE BEAUTIFUL.

AN address was delivered by Mr. J. Lavery, R.S.A., vice-president of the International Society of Sculptors, Painters and Gravers, last week, to the members of the Bolton Arts Guild, of which he is president, and Mr. J. B. Gass, vice-president. Mr. Lavery observed, says the *Bolton Chronicle*, that art was a very big question, and had been defined by someone as the science of the beautiful. To him that was a perfect definition of art, for it had no other object than to beautify. The intention of the artist, he considered, was to search for beauty and represent it to those who would look at it. Art had been described by writers as having various meanings, such as decorative, ornamental, art as applied to manufacture, and new art. The last definition, in his opinion, was absurd, because art could not be new. Mr. Lavery then proceeded to treat of the various departments of his subject and his profession; and, dealing first with decorative art, described it as the beautifying of objects—the giving of additional beauty to any object, whether it be a piece of cloth, furniture or wall-paper, without losing the material. That was to say that if they decorated a piece of wall-paper it still remained a paper; if they decorated a chair it remained a chair, and was not transformed into something they could not sit on. The Japanese—and, perhaps, the Chinese—were, to his mind, the people who understood the exact meaning of the word decoration, for, while carrying it into effect, they were very careful to retain the utility of whatever they touched. In regard to ornamental art, he did not quite understand what was meant by the term, for to say that a thing was ornamental was to convey the idea that it was not useful. When art interfered with the utility of a thing it could not be right. Dealing with the subject as applied to industry, that, he would say, was perhaps the greatest art. The sculptor was at his best when producing a beautiful object, but it was not necessarily useful. The artist who applied himself to an industrial object added to it that which was of greater value, and was thus of more use in the world than the mere pictorial artist.

There was a curious sentiment attaching to the artist; he was excused for a great many things because he was an artist and therefore not a reasoning person. It was quite right of guilds such as that under whose auspices they were met to promote the study of art, but to promote art itself was impossible, though it was generally thought capable of



accomplishment. They could not make a man an artist; he occurred and was there, but they could promote the study of art, and he commended the work of the guild for what was being done in this direction, expressing the opinion that it was adding to the greatness of Bolton. It might interest those present to hear the views of a painter of what might be considered a way of acquiring knowledge of painting. They began with technique. It was necessary to learn to see things, and if they would do this they must first master the drawing of them, for without drawing painting was an incomprehensible tangle—the brush was broad-pointed and the material became unmanageable. Having got the length of a painting, the question of colour arose, and they could only master that if they had the gift of the eye for it. If they had it they could develop the faculty; without it no amount of training would make them see colour. This was a quality that all the great masters possessed; he knew none who was not a great colourist. Dealing with water-colours and chalk-drawing, Mr. Lavery said these in the same way required a natural or born instinct for colour, and without it they could never excel. In reference to portraiture, it was a general idea that the first quality required was likeness, and that to be perfect it should be "speaking," but while he did not say there should not be likeness, he would certainly say there should not be "speaking" likeness, because there was nothing could be more offensive than anything that simulated nature. That realism in art was wrong. The realisation of nature pure and simple was wrong, for if that were the highest form of art they would have nature and art allied, and they would not be able to tell where one began and the other ended.

Art was a thing reproduced by the artist, and a man when he was painting was in the atmosphere of a picture and not in the atmosphere of reality. He did not mean to say that the portrait of a lady was to be "prettified," for when he spoke of beauty he did so in the highest sense. They often went to an exhibition, looked round, and made up their mind what were good pictures and what were not. They did not admit they were all good. There were some faults they found, and, of course, these they gave the artist, but the virtues only they accepted as their own because they saw them. They did not realise that a fine picture took just as long to know as a fine man or woman. They could not see it at once, and even if they had it alone on the wall and spent merely a minute or two looking at it they would still not know it. But to see 100, 500 or 1,000 pictures and give an opinion on them was of doubtful value, even from an artist, because the sense of sight was so keen that the instant they saw an object, what was seen was conveyed to the brain and the eye ceased to see it. The eye was more sensitive than the keenest photographic plate that had yet been made, a fact which could be scientifically demonstrated. They looked with their knowledge and not with their eyes. Another question which appealed to him as chairman of the International Society was the one of internationalism in art. There was an idea more or less general that a man could not paint or be an artist unless he painted and studied amongst his own people. It was a common thing to hear artists, when pictures came up, say "That's a foreigner," meaning that they must criticise it. Nationalism in art was a great thing; he felt that it was the one thing which was universal, that an artist could speak to any living being through his art and be understood equally well. If they became so patriotic that they could only look with eyes of prejudice on foreign work, then the National Gallery would really be a poor exhibition, because they would have to remove nearly all the great masters. In conclusion he tendered thanks to the chairman, and expressed his indebtedness to the guild of which he had the honour of being president. He felt strongly that he had been backward in not coming among the members last year, but now that he had rectified the omission he was impatient to thank them for their kindness to him.

Mr. F. Balshaw moved a vote of thanks to Mr. Lavery, and Mr. J. McKelvie, M.A., seconded the resolution, which was adopted.

The Edinburgh Dean of Guild Court last week passed the plans for the cattle markets at Gorgie. The Lord Dean of Guild complimented the architect on the way in which the plans were prepared, and expressed the hope that the work would be pushed on, and that the slaughter-house plans would also be brought before them as soon as possible.

## ARCHÆOLOGY AND CLASSICS.

A LECTURE on "The Relation of Archæology to Classical Studies" was delivered by Professor V. Ridgeway, Disney Professor of Archæology and B. Reader in Classics in the University of Cambridge, at the Classical Association of Scotland on Saturday.

Professor Ridgeway said it was a patent fact to within recent years, and for a long time before, there had been a growing feeling against classical studies. The result was not simply the work of Philistines or of science; the worst symptom of the whole matter was much of the discontent with classical learning, and especially with Greek, came from those who themselves had a classical education. He did not think we could say much of older classical scholarship as a training for literary work. Yet what was the value of classical studies? Why had they caught hold of the best minds ever since the Renaissance in this country and every country in Europe? It was literature itself which was the chief element, and something which could tend to darken it, to encumber it, and to be regarded as hostile to the best interests of classical education. He was inclined to believe that the reaction against classical studies had been entirely due to the methods of classical scholars themselves. The success of classical studies must depend on how these three elements—literature, verbalism and archæology—were united in each other. He took it that this was the true key. Language was the key by which the student entered into that treasure-house in which the kings of the ancient world—great minds, great philosophers and thinkers—had left us their treasures. Archæology came, and with her lamp illumined for us many crevices of that chamber, and showed us priceless treasures, the existence of which we would otherwise have suspected. In this struggle, as it were, which had too often gone on between literature, verbalism and archæology, let them realise what archæology could do. He would take a familiar example. If the ordinary person came to read Shakespeare or to see a play performed at the theatre who had no knowledge of old English antiquities—material antiquities he might know, and also had no knowledge of old English life, and of the way in which things were done in old times—he would be covered with all kinds of cumbersome notes from Johnson downwards, distaste naturally followed, and the products of the divine bard were to him far from being a subject of enjoyment, only an element of nausea. On the other hand, if a man came to the study of Shakespeare with knowledge of the customs of the time—Elizabethan houses, fine old castles, material remains—and also with a proper appreciation of the ordinary objects which surrounded the life of the time, from the queen herself down to the peasant, the allusions were perfectly easy, and the reading of the plays in performance was a matter simply of unalloyed delight. He believed that the revival of the interest in Shakespearean drama in the last thirty years was largely due to the great outburst of interest in the antiquities of our own country which had spread to all classes. It was thought necessary for us to use every adjunct of the way of reality as regarded material which we could use to elucidate Shakespeare and Chaucer, who, after all, lived only a few centuries before ourselves, how much more necessary was it to make use of every means at our disposal to place ourselves at the standpoint of those who wrote that literature that grew up some two thousand years ago?

It was not merely a matter of desire to elucidate classical authors; it was a matter of primary importance that we should regard the study of ancient history as being one of the best mental exercises that could possibly be devised. They wanted to teach the student to project himself into his own surroundings and to make him think if he possibly could as the people thought in the time of Shakespeare, Chaucer, and still better, to realise the standpoint and attitude of the age of Pericles. That was a real intellectual gain, and whether they were to be administrators or governors of other great colonies, it would enable them to be sympathetic and most appreciative of those who had grown up in surroundings and environments very different from their own. After discussing what classical antiquities had done for archæology, the lecturer said it was of the greatest importance to us in some ways to rehabilitate those ancient historians, but after all that was not so much. He maintained that there was behind that much greater principle—that to have case after case



a statement of these ancient writers was proved to have altered our whole moral attitude towards history. It quickly abolishing among the younger generation of scholars that poor pettifogging spirit of scepticism which held that the only way in which a man of ability could make his scholarship was by declaring that a certain writer in this or that great writer was simply a false prophet or a sheer invention. Therefore he thought that the effect upon the scientific study of history was enormous and would be more so in the process of time, and it was entirely due to archæology. Dealing, in conclusion, with the obligations of archæology to scholarship, Professor Ridgeway said there could be no doubt that the first duty of the classical archæologist was to have an accurate knowledge of the languages of Greece and Rome, otherwise he was liable at every moment to make blunders. In the face, without literature lightening up the material he had he was maimed and could perform only half his duty. After all, what was the relation of the three sciences—literature, grammar and archæology? There was no question at all about it to his mind, and he spoke to the minds of most, that it was literature which opened for us the things of the spirit and of the mind, the spirit was above all things material, so literature and the trinity must be before and the other two must be after. Archæology and the work of the grammarian must be secondary to the real object of classical study, namely, literature itself. The three taken together, properly combined and interwoven, would make that triple cord which is not quickly broken—nay, rather he should say, a cable which for generations to come would be able to hold the mooring to classical studies in every system of education.

Professor Phillimore, in moving a vote of thanks to Professor Ridgeway, said that nothing was more important than the conclusion the lecturer drew, that we were recovering our history, but he would not say slowly—indeed, rather from an age which suffered from a positive mania of credulity, when they had only to go about and find things to disbelieve, and they passed for men of science. The conclusions of archæology were the conclusions of common sense. Just where pedantry in one line of study had deviated from common sense, just there archæology had come to the rescue and put us straight. Archæology had now proved by positive demonstration that common sense had set out by believing—that on the whole the historian was probably to be trusted; any other safe starting-point was the credulity and the error of history until they had proved to the contrary. The Chairman conveyed the thanks of the meeting to the lecturer, and Professor Ridgeway's acknowledgment closed the proceedings.

#### A READING PAGEANT.

At a meeting last week of the Berks Archæological Society, the Rev. P. A. Ditchfield read a paper on "The Reading Pageant," in which was presented his suggested programme for such a display. Reading was, he observed, not only locally far and away the most important town—next to London—outside London, and if that meeting served no other purpose than to recall that fact, he should be satisfied. There had been some difficulty in making a selection of incidents, owing to the necessary limitations; but he had reduced the matter into thirteen episodes or incidents, with each a tableau, some being historic and some dramatic. Ditchfield then presented his "episodes," for which he had written a "book" in sonorous blank verse. The "episodes" were, according to the *Reading Mercury*, arranged in the following order:—I., the conversion of Reading, the coming of St. Birinus while Saxon warriors were gathering in the harvest, Birinus and his monks singing a Latin hymn. II. "Alfred and the Danes" the invasion of the Danes and the contest between Alfred and his Saxon warriors, who then go off to chase the Danish wolves, and free our England from the ruthless foe." Episode III. is the founding of the priory of Queen Elfrida, widow of King Edgar; the queen blesses her and the queen goes to the altar. Queen Matilda coming to Reading Abbey shows her devotion by the abbot and monks. The abbot expresses regret at her coming, as he had just previously entertained King Stephen; but finally the queen, threatening him, compels the holy man to yield to "stern necessity." IV. is "the consecration of the abbey and the fight between Henry Earl of Essex and Robert de Montfort."

The abbey is consecrated by Thomas à Becket, Archbishop of Canterbury, and a very gorgeous procession accompanies the prelate—kings, lords, knights and bishops. Subsequently the trial by combat takes place between the two knights, the Earl of Essex being slain. Episode VI. is Heraclius, Patriarch of Jerusalem, offering the keys of the Holy Sepulchre to King Henry II. The monks singing "Sumer is i-cumen in," Heraclius is received by the abbot and enlarges on the glories of the abbey, and, the abbot having introduced him to the king, describes the terrible sufferings of pilgrims in the Holy Land, and moves the knights and others to persuade the king to undertake the pilgrimage. The king replies that he cannot leave his kingdom, but hopes that a son of his "may gladly dare to rid thee of thy foes." Next comes the granting of the first charter to Reading, and coupled with it "the affair of the Oxford Students"—very graphically described by Mr. Ditchfield. Episode VIII. is the marriage of Blanche, daughter of Henry Plantagenet, to John of Gaunt (spectacular), and IX. "The fall of Reading Abbey," including the visit of Dr. London, the king's commissioner, and subsequently the farewell to his sorrowing people of the abbot as he is led away to execution. The visit of James I. and his queen to Reading—when a masque is performed before them, and a "clever Reading boy" (afterwards Bishop Laud) is presented to the king, comes next. Episode XI. is concerned with the Siege of Reading, and XII. with the visit of Charles II. and his consort to the town. "The Reading Skirmish" was Mr. Ditchfield's suggestion as the final episode. A messenger calls the Mayor and Corporation out of church with the news that the enemy are at Hungerford. After a lively and amusing dialogue the councillors are about to retire to discuss the news "in solemn conclave" when an Irish regiment of James II. arrives and is defeated; the townspeople welcome the Prince of Orange with joy, and the tableau closes with the singing of the quaint local ballad, "Five hundred papishes came here to make a final end."

Mr. Ditchfield's scholarly and able paper was listened to with great interest, and was followed by considerable discussion, in which the difficulty of finding a site and the probability of considerable financial loss were argued, while it was admitted on the other side that Mr. Ditchfield had presented a most admirable scheme, and that the history of Reading afforded most illimitable material for pageant making. Eventually it was agreed that it would be desirable to hold a pageant in Reading, subject to the necessary financial and other arrangements being made; and it was left to the committee of the Society to appoint some of their members to meet members of the Reading Corporation on the matter, and to take any other steps they might think advisable to give practical form to the scheme so ably adumbrated by the hon. secretary.

#### METROPOLITAN IMPROVEMENTS.

THE attention of the improvements committee of the London County Council has frequently been called by the Building Act committee or by the Council's officers to favourable opportunities, owing to the rebuilding or extensive alteration of property, for effecting desirable improvements. There is no system, however, at present in force by which they can insure receiving early notice of building operations along the line of suggested or authorised improvements, and cases have occurred where information has not been obtained until it was too late to take any effective action. In order to remedy this defect the district surveyors, it is said, should be asked to notify the Council of building operations in such cases. The Council have no power to require district surveyors to give this information, and it is therefore considered that the Council should sanction the payment of a fee of 10s. 6d. for each notification. The cost for the current financial year will probably not exceed 50l. No provision for the expenditure was made in the annual maintenance votes and it will therefore be necessary for the Council to approve a special maintenance estimate.

Mr. A. E. Pridmore, past president of the Society of British Architects, who for fourteen years has been one of the representatives of the Ward of Bishopsgate in the Court of Common Council, sent in his resignation last week to the town clerk at the Guildhall.



## WINCHESTER CATHEDRAL.

THE Bishop of Winchester in his monthly letter says :—  
 "The statements made at our Diocesan Conference by the Dean of Winchester, Canon Valpy, and our eminent architect, Mr. Jackson, have once more brought before the notice of the whole diocese, and of the country generally, the anxiety which is felt for the safety of Winchester Cathedral. Once more I commend the subject to the prayerful thought and generous sympathy of Churchmen. There are still, I believe, many parishes from which no offertory has yet been sent to the assistance of the Mother Church. It is my request that any omission of this kind should be rectified. There should be no parish in the diocese which has not in this way testified to its relationship to the cathedral of the diocese, and to the corporate feeling which binds us all together. As this subject enters into our thoughts and perplexities as a diocese, it is right that it should be included from time to time in the prayers and intercessions of our people. On this account I have sanctioned the use of a special prayer which may be employed in our churches."



## The Present State of St. Paul's Cathedral.

SIR,—For some years now the condition of St. Paul's has been causing the responsible authorities and a section of the public some anxiety. In the paper read by Mr. M. Macartney, surveyor to St. Paul's, before the Royal Institute of British Architects, he gives a clear and exhaustive report upon the present condition of the cathedral. This important building (Wren's masterpiece) is erected upon a clay soil, which accounts for the south side "moving outwards." This is the same cause in the west front. St. Paul's stands on Ludgate Hill with a considerable fall on the west to Ludgate Circus, where in the olden days the Fleet river entered the Thames. The southern elevation faces the river Thames, where there is also a considerable fall. The sinking of the timber dome is, in my opinion, on account of the enormous weight of this structure with its lead covering. In comparing the building of St. Paul's with some of the cathedrals on the Continent, how is it that these continental cathedrals, most of which were erected hundreds of years before the present St. Paul's, show no weakness in their domes and cuttings and arches? I have had the opportunity of examining, amongst others, the roof of the cathedral at Limburg on the Lahn, Germany, where I observed that the centres of domes, arches and vaults were constructed out of a concrete made with "Bim sand," a volcanic production found in large quantities near the river Rhine. This "Bim sand" (pumice), combined with a good cement such as Portland, makes an exceedingly strong, light and fireproof material, and is most suitable for this kind of construction. If the dome of St. Paul's had been constructed with this kind of material no sinking of the structure could have possibly taken place. The present dome of St. Paul's is constructed of great timbers, now nearly 250 years old. These are covered with lead, and the dome at its base is held together by a great iron chain ring. Would it not be possible to reconstruct this, the most graceful dome in the world, in the above-mentioned materials, and thus relieve the walls and foundations of the enormous weight which the base has to bear? The damaged foundations, of course, would be underpinned. I trust that the saving of this, the most important building in the City of London, will be taken into serious consideration before more damage is done or it is too late.—I am, sir, your obedient servant,

HENRY H. B. SANG,  
 Architecte-Décorateur.

## Egyptian Doggerel.

SIR,—May I be permitted to express my admiration of Mr. Robert Williams's perspicacity? for it is a curious fact that, after preparing for my bath recently, I mislaid my slippers. I wish Mr. Williams would send me over his office boy to find them, as I feel very cold and uncomfortable. The young dog would be better employed in looking for my slippers than in writing sorry doggerel. But perhaps it is only Mr. Williams's humour, and the lines may be really his own production, in which case I should

grieve to animadvert upon them. "Ex Nilo nihil fit" be the explanation, and his office boy will translate "What comes from the Nile is fit for nothing."

I trust Mr. Williams will be reconciled to my retention of my anonymity. When the office boy entered my service (through your convenient by-the-by), he can write and tell his former employer identity of, sir, your obedient servant,

THE CLEAN BUT UNSLIPPED PANT.

November 18.

## GENERAL.

His Majesty the King has subscribed 250*l.* towards restoration of Winchester Cathedral.

A Fresco has been discovered at Newton Regis, Cambridgeshire, which is undergoing restoration. The subject is the "Last Judgment," and it is believed to be 500 years old. It was hoped to preserve the painting, but it is feared that this will be impossible.

Mr. James Alkin Paskin, civil engineer, late water engineer for the Halifax Corporation, died at Lytham on Saturday at the age of sixty-six. Mr. Paskin, who was born in London, began his career in the office of Mr. Bateman, C.E., F.R.S. He subsequently became works engineer to the Halifax Corporation, and was associated with all their big undertakings of the last twenty years. He successfully carried through the various schemes, including the Castle Carr, Widdow's, and the newly-opened Walshaw Dean schemes, which, combined, bring up the district water-supply to about 6,000,000 gallons per day.

The Battersea Borough Council have agreed to the proposals of the highways committee of the London County Council with reference to the electrification of the tramway from Nine Elms Lane to East Hill, and adopted the Council's suggestions in regard to procedure for acquisition of property. The borough surveyor was authorised to prepare estimates of the cost of widening works.

M. Cordonnier, of Lille, the architect of the Palais de la Paix at the Hague, has been successful in the competition for the new theatre at Lille. M. Dehaut obtained only 10 votes, less from the jury.

Amongst Other Interesting discoveries made at Winchester Cathedral works are a series of "marks," made by the old "stone squarers" and carvers, to indicate their work. The marks in several cases indicate the cross, with variations, and the ages range from Norman times down through the 13th and 14th centuries. Mr. F. Messrs. Thompson's manager, has taken sketches of them.

The London County Council decided on the 19th inst. that a large majority, that, with a view to decreasing the amount of non-employment in this country, it be an instruction to all committees authorising the purchase of manufactured articles to show preference, wherever possible, to goods wholly or in part manufactured in the United Kingdom.

The Church of St. Giles, Colchester, which is the burial place of the two Royalist knights, Lucas and Lisle, slain by General Fairfax after the siege of Colchester, is now undergoing restoration. While an old oak chest in the vestry was being examined this week there was found in it a purple altar cloth bearing the insignia of the Lucas family and the date 1617. The cloth had evidently once draped the altar in the Lord Lucas chapel on the south side of the church, and had probably been hidden under a pile of documents in the oak chest to escape the attention of the Roundheads.

Ayr Academy has just been enlarged by the addition of a new art school, the building and equipping of which has cost over 8,000*l.* The structure, which was designed by Mr. J. A. Morris, architect, Ayr, is separate and to the north of the main building. The new school is of three storeys, including an underground floor which contains the heating apparatus, &c. The first floor is mainly occupied by a technical workshop, and an architectural building construction and mechanical drawing lecture room. On the second floor there is a studio 45 feet by 45 feet, in which is being taught the whole of the elementary art drawing of the Academy. On the same floor there is also a large modelling-room. On the top floor there is another small life-studio, and a painting gallery abutting on the modelling-room. All the rooms have lofty ceilings and are elaborately heated and ventilated. Nearly the whole of the north side of the building is glassed and artificial light is supplied by the electric light.





PHOTO-LITHO. SPRAGUE & CO. 17 & 19, EAST HARDING STREET, PETER LANE, E.C.

"RAVENSMOUNT," ALNWICK, NORTHUMBERLAND.  
GEORGE REAVELL, JUN., A.R.I.B.A., Architect.









PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR CLOCK TOWER, SALISBURY.

By JOHN DONKIN, F.R.I.B.A.



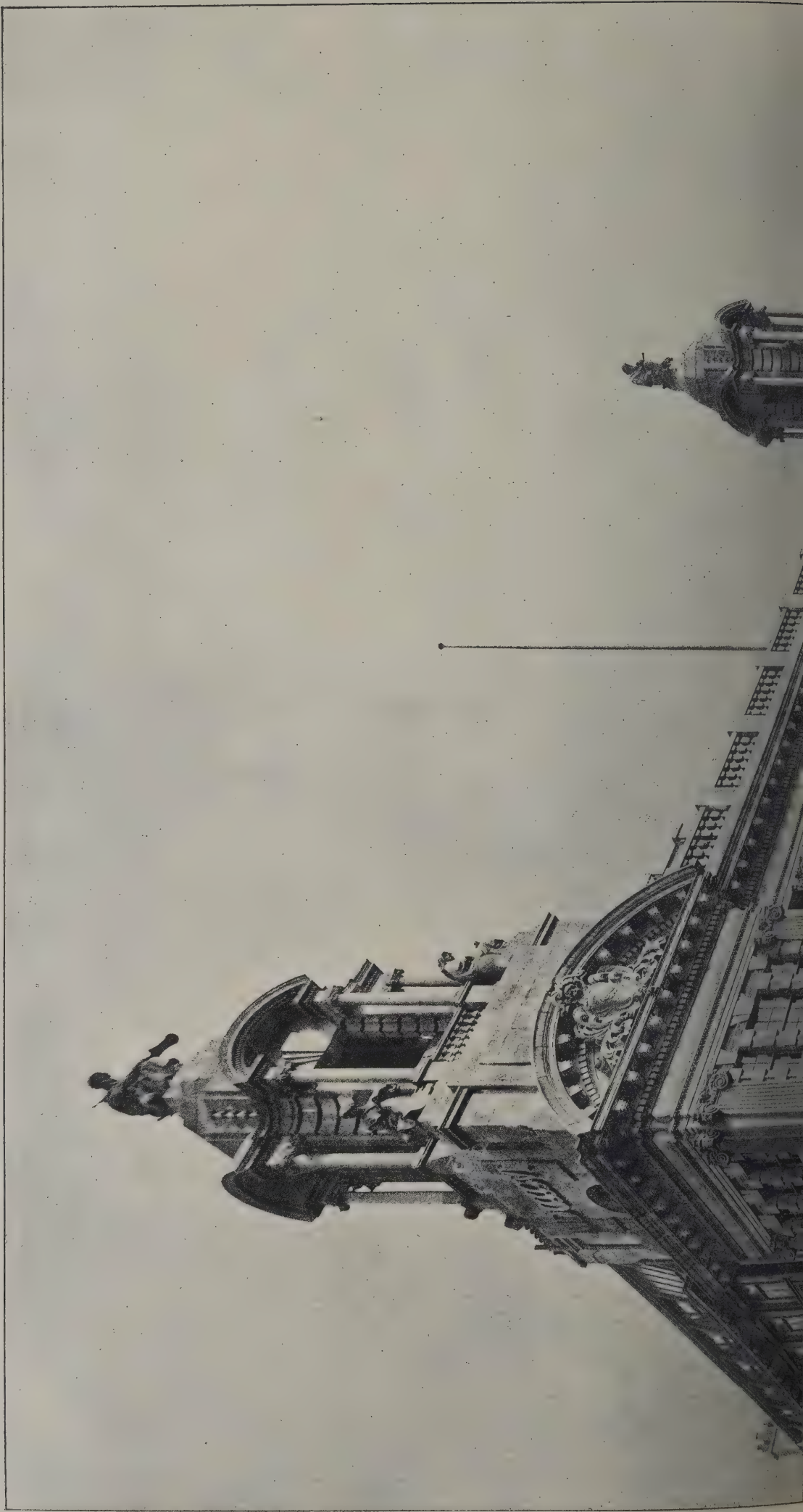




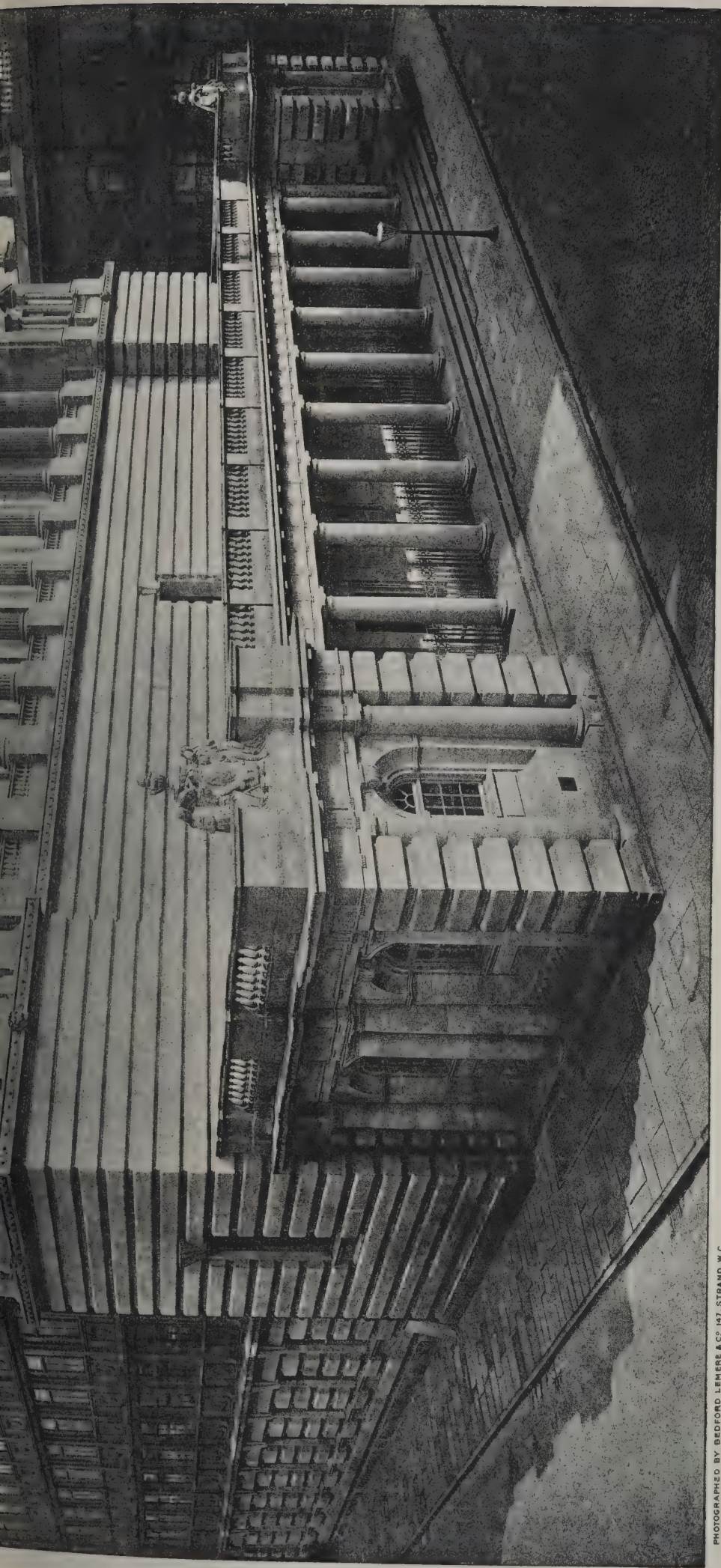




The Architect. Nov. 22nd 1907.







PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

"INK- PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

## THE COTTON EXCHANGE, LIVERPOOL.

Messrs. MATEAR & SIMON, Architects.













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# The Architect.

## THE WEEK.

ect of the Methodist Church House on the Aquarium at Westminster has been so long, it seems rather late for the authorities of the Westminster Hospital to discover that the new may cause inconvenience. The principal will be to Prince's Street, and the tower be about 20 feet from the hospital. Sir L. BARRY has called the attention of the City Council to the subject. He contemplates the Council should acquire sufficient power to allow of the widening of the thoroughfare. The tendency of traffic is not, however, to pass Prince's Street. It appears that the improvements considered the matter last year, but the Westminster Methodist Church intimated that if they desired to acquire the necessary land for the extension they would have to do so under compulsion. The committee, regarding the cost of acquiring land as prohibitive, did not feel suggesting action in the matter, and they are of the same opinion. The hospital treasury is a small one, and if litigation became necessary it would be difficult to see how it could be carried on. The position is a difficult one, and without any breach of the law it has been occupied after the failure of the extension with a building that would be more embarrassing to the inmates of the hospital than the present Church House.

Changes which have taken place in the ecclesiastical affairs of Scotland will have an important bearing on the arrangements concerning churches and chapels. At the meeting of the United Free Church of Scotland which was held last week it was stated that the General Assembly had failed to secure joint accommodation for the two Churches in certain buildings. It was a serious alternative before the Commission either was to provide churches for dispossessed members or to allow them to join other communions. It was considered that the erection of forty-three stone churches or halls and chapels would have to be erected as soon as possible. The minimum expenditure was estimated at £1,000,000. It was agreed that the adoption of a standard plan for churches was a mistake. The instructions had been given, and committees were to be allowed to employ the services of local architects in certain cases.

Sanatoria are found to be effectual in overcoming diseases—and there can be no doubt on this point—the friendly societies should certainly erect one or more for the benefit of their members. They possess large sums of money, a part of which with advantage be applied to the erection of sanatoria. It has been shown by Dr. F. E. Littlehampton, that from consumption alone over 100,000 members of friendly societies are lost every year. In all the sanatoria in the kingdom are means of the labouring classes. A sanatorium can be built for 70,000l. or 80,000l. Three patients could be treated at a time, and their treatment would average three months, which only mean about 1,000 cases per annum dealt with. Two-thirds of these could be cured, which meant 700 to 800 members being restored to the ranks of the labouring classes again, instead of being a drain on the resources of the societies. Now eight hundred draw the rate of 12s. per week. The institution of a sanatorium, would mean that something like 400l. could be saved in sick pay. By a levy of 4d.

from each member of a friendly society the money could be obtained in a year to build the sanatorium, and a further levy of 1½d. per member per annum would cover the whole expenses of upkeep, as well as paying the sick pay to the families of those under treatment. If the friendly societies did not soon take this matter in hand, the State would have to step in, for the disease was gaining rapid strides. Another advantage of action on the part of friendly societies would be the encouragement of self-reliance. The danger is allowed to grow while men are waiting for benevolent persons to exercise their influence in gaining admission for them into existing establishments. In sanatoria founded by friendly societies members would feel they had a right to treatment and were not objects of charity.

IN 1891 Mr. ADRIAN JONES exhibited a small model of a quadriga at the Royal Academy. After sixteen years there is now a possibility that the work will be carried out on a large scale. Quadrigas are generally supposed to be memorials of war, but in this case Peace appears to be driven by a boy who controls the steeds. A figure of a lion suggested it was a national symbol. Lord MICHELHAM has proposed to have the quadriga executed in order that it may be placed on the archway at Constitution Hill. It will be remembered that originally the arch faced Apsley House and was used to support the equestrian statue of WELLINGTON by WYATT, which has been more often caricatured than any sculptor's work, ancient or modern. The alterations in that part of Piccadilly made it necessary that the arch should be removed. WELLINGTON and his charger were exiled to Aldershot and the arch was placed in its present position. The arch always appeared to be in the way, and it cannot be said that it is at present in a right position. It is to be hoped, however, that when Mr. ADRIAN JONES's quadriga surmounts it the appearance will be improved.

THE name Aylesford is sufficient evidence that the river Medway could be forded in its neighbourhood. The Romans may have erected a bridge to allow of traffic when there were floods, and some of the old masonry may be incorporated in the existing structure. The history of the bridge is uncertain, but everyone who sees it must admit that it is very ancient. The conditions of modern traffic are not always met by arrangements which served in Mediæval times. In consequence, old bridges are from time to time demolished and substitutes found which have wider roadways and waterways. During several years the traders of Aylesford have come to the conclusion that the old bridge has existed too long. They wish to have it removed. The first question in such a case is whether removal is essential; and the next is, who are to pay for the construction of a new one. It appears that a navigation company, by an Act obtained in 1862, possess the power to take down and rebuild Aylesford bridge or to alter and enlarge any of the arches. Although the company may therefore claim the bridge as their property to some extent, they have not attempted reconstruction. They were, perhaps, acting prudently in their own interests, for if the bridge was to cost some 10,000l., it would not follow that an increased revenue would be obtained through the passage of boats, barges and other vessels. Their inaction may be taken to prove that the bridge is not an obstacle to navigation. The County Council is therefore justified in concluding that as their authority is mainly concerned with the roadway, they would not be justified in becoming responsible for the outlay on a new bridge. The subject was discussed at the last meeting of the Kent County Council, and, as was to be expected, antiquity triumphed. It is rarely such a victory is gained.



### CONTRACTORS AND MUNICIPAL AUTHORITIES.

THE town of Maesteg in Glamorganshire contains about fifteen thousand inhabitants, and with all respect for them we must say it is not remarkable historically or commercially. But the town is certain of remembrance, especially in treatises on the law of contracts. It has been said that the people are happy who have no annals, and it would be better for the present inhabitants of Maesteg if they were not involved in a law suit which has been on and off for a whole month in the Official Referee's Court. But they are entitled to the credit of a clearer definition of the rights of municipal authorities in dealing with contractors. Considering the ease with which a second National Debt is being incurred by the operations of corporations, urban councils and local boards that is an important matter. If it has been discovered that elected authorities in the eyes of the law are not much unlike private individuals when they deal with contractors, that also is worth knowing. Maesteg, therefore, may be considered as an instructor, although it will have to pay dearly for assuming the office.

A few years ago the population of Maesteg was under ten thousand. But as coal mines were opened there was a vast addition to the population from other parts of Wales. It was therefore necessary to provide for an increased water supply. From the geographical position of Maesteg it did not seem a difficult undertaking, for the main requirement was to construct a dam of puddle and concrete, by which the water running down the hills would be impounded. Plans were prepared, the Public Health Act was put into operation, a Local Government Board inquiry was held, and the contract was let to Messrs. JONES & SON, of Neath. The amount was about 30,000*l.*, but it was anticipated that eventually the contract would work out to about 60,000*l.*

The operations were commenced without much delay, and proceeded until Messrs. JONES had received 21,838*l.* Then doubts arose concerning the possibility of finishing the work, except at a price which would largely exceed 30,000*l.* The design was considered to be unsuitable. Mr. R. E. MIDDLETON, an engineer of experience, was called in by the Council and advised them to abandon the works, as he had misgivings as to whether the reservoir could become sufficiently watertight. The Council accordingly concluded they were warranted to order the contractors to discontinue operations. The work done was measured up by Mr. MIDDLETON's orders and was valued at 18,986*l.* 7*s.* 2*d.*

The plaintiffs had not undertaken to make the reservoir watertight, and it could not be said there was any unfavourable allegation concerning the manner they carried out the contract. When they received notice to discontinue they replied by saying there was no justification of the Council's action, and that they would have to be paid a large sum as compensation for outlay on plant and materials and for the loss of profit which would be derived from the completion of the works. Some contractors would have taken the Urban District Council of Maesteg at their word and would have removed all their property from the ground. But Messrs. JONES realised that if the timbering of a large trench were taken away the surrounding earth would have fallen in, and Maesteg would suffer by the obstacle to the water supply. As the Council would make no concession Messrs. JONES brought their action to recover damages amounting to about 40,000*l.* Owing to the extent of the details which had to be taken into account the case came before Mr. MUIR MACKENZIE as official referee.

It is not necessary for us to consider the arguments at any length. Evidence was given on both sides by engineers of experience. Those who appeared in support of the plaintiffs testified that the original project on which the contract was based was practicable;

the site selected for the reservoir was sufficient and when puddled the trench would be so. The engineers who appeared for the defendants considered that the ground had been disturbed by geological forces, that the water could easily escape by fissures and that in a dry summer the reservoir would be empty. One engineer expressed the opinion that a mixture of concrete and puddle was not a safe basis for such work, and the expense of securing a watertight bed might extend to 75,000*l.*, or even more. Differences of opinion appear to be common in connection with water-works. Even when the strata are rocky it can be supposed that sooner or later they will sink or rise, and walls of masonry or concrete are liable to cracks and leakage.

The legal points raised by the Urban Council were more important. In the first place, the Council was unable to rely on the absence of sealing. The Public Health Act of 1855 states that every contract made by an urban authority, when the amount exceeds 100*l.*, must bear the common seal. Even if the contract had been executed and the Corporation have been benefited from them the rule applies. It has been held that in such cases the urban authority need not observe the absence of a sealed contract. Human nature, however, is too weak to neglect so potent a warning, and it was produced in the Maesteg case. But it was mentioned that no value appears to have been placed on the plea by the counsel for the plaintiffs' official referee. It was also contended that by the contract the Urban Council could order the contractors not to execute any portion of the work, and the reliance was placed on that point as if it signified a suspension of all the works. The procedure under the Public Health Act was said to be beyond the financial powers of the Council. The Council considered the dam might be possible, but if the work was not completed there was no money available to pay the contractor.

The learned official referee came to the conclusion that the contracts had been legally executed, and the Council must therefore be considered as being bound, unless the transaction took place with ordinary individuals. The Council's contention that a watertight reservoir could not be constructed on the site unless a different design was adopted and additional expense incurred was set aside. There was nothing conditional in the contract about the payment being subject to the raising of the money required. The American case *CLARK v. Mayor of New York* was relied on, and it was laid down:—"Where one party agrees to construct an embankment for a certain sum per cubic yard, such place as he shall be directed by another party to place selected is such that there is a natural foundation while the embankment is built, and a consequent waste and shrinkage of the earth, any system of measurement which does not take into account the embankment which supplies the place of the soil is not a correct one." The Council's theory, inasmuch as nothing was said about payment being subject to an increase in the depth of the excavation, was held to be a liability.

The Council also seemed to think that after giving notice to the contractors to cease working, they afterwards be held as failing to carry out the contract. But the official referee relied on the decision in *DAVIES v. Mayor of Swansea*, and others, and of his conclusion that a contractor is not responsible if he is not allowed to complete his work on the conditions.

The amount of payment to be awarded for the work could be calculated after measurement, and contract prices. As respects unfinished work, the estimate of expense incurred and of ultimate profit would be more or less conjectural. After careful consideration the referee came to the conclusion that Messrs. JONES should have judgment for 17,909*l.* 3*s.* 7*d.*, with



lently the Maesteg authorities brought all the upon the town through erroneous ideas about and liability. An Urban Council is expected ide for the preservation of the health of the to the extent prescribed in certain Acts. For purpose money can be borrowed if authority given. The work required can be carried out in and different contractors may be employed. A or who tenders is not obliged to understand the adopted, nor to inquire why, as in Maesteg, a ounting to 30,000*l.* was let when the ultimate would probably rise to double that sum. The value of Maesteg is very limited, and as reports read about failures of costly embankments in irts of the country and the bursting of reservoirs Continent, the Council may have concluded they olved themselves and the town in responsibilities ere too onerous for their means. In so good a ey might assume they would gain official pro- The strange judgment given in THORN v. tion of London" thirty years ago was relied on sel for defendants to sustain the argument that ractor undertakes risky work without an express t he must accept the consequences. But it did y in the Maesteg case. The contractors carried work according to plans and conditions, and pared to continue doing so until it was com- The failure was with the employers, and they suffer.

ll be wise for other authorities to bear in mind dealing with contractors there is no special y from consequences, however disagreeable. e was treated as if it were one where a building ied to wriggle out of a contract when his fears e him concerning his outlay. The people of will have to pay over 40,000*l.* for their experi- hich it is to be hoped can be utilised. If that e originally fixed, it is not unlikely an adequate of water would now be at the disposal of the ts.

### SOME STATELY HOMES.\*

ATEVER may be the advantages of Socialism, we cannot suppose it will ever lead to the of residences which will compare with the old s of the English nobility and gentry. Upholders ialistic theory would no doubt look upon them alies and would contrast them with the inferior s of other classes of society. It is not our to discuss the principle by which the wealth of try was at one time confined to a comparatively lies, who were liberal in expending a large part ings. We can only accept things as they once e. We maintain, therefore, that when all things mmon there is no more possibility of having uses like those of the Tudor and subsequent than of having temples for Positivists and nists which will surpass Mediæval cathed- There may hereafter be sumptuous build- general use, although the supposition is not a past or present experience. But what are s the stately homes of England owe their individuality, and when that power is super- ere is an end to costly mansions. As we er tell when a change will take place, and the great houses may become, like Aston Hall, useums, it is well to study them whenever we ortunities or as they are presented to us in HAM's fine photographs.

ne way they appear to us in the volume of n Homes" as if they were deserted or had

English Homes. The internal character, furniture and ts of some of the most notable houses of England, pic- icted from photographs specially taken by Charles Vol. II. The letterpress edited by and an introduction y H. Avray Tipping, M.A. (London: Country Life and s, Ltd. New York: G. Scribner Sons.)

become mere spectacles. There is nothing to suggest they are inhabited. When JOSEPH NASH brought out his "Mansions of England in the Olden Time" he took care to introduce figures arrayed in the costume which corresponded with the architecture. They expressed the great fact that architecture was made for man, while they served to indicate scale and suggested purpose. If the present owners of those historic houses were introduced in modern costume it must be allowed they would not be in keeping with the surroundings. It was then right to forego the use of such aids. But while contemplating the photographs we cannot avoid emotion like that of TOM MOORE when he said:—

I feel like one who treads alone  
Some banquet-hall deserted,  
Whose lights are fled, whose garlands dead,  
And all but he departed.

The apparent silence of the show-places seems more marked when so much of the history of the possessors of the house is revealed by paintings and other objects. Staid barons, gay and gartered earls, countesses mature in robes and pearls, judges in formidable ermine, bishops who had not left a single sermon, generals in armour or in wigs of MARLBOROUGH's martial folds, NIMRODS, whose canvas could scarce contain the steed, to adopt BYRON's classification, which has its truth, appear to regard the desolate rooms. Then in some houses, like Adlington Hall, there are innumerable armorial bearings suggestive of the family and its alliances. Shields, breastplates and early muskets recall that England was not always in a peaceful state, while foreign paintings and sculpture remind us of the time when English gentlemen enriched many continental dealers. Everything recalls times of action.

The influence of history in imparting character to English mansions is well suggested by the views of Marsh Court, Hampshire, which comes last in the volume. It was erected by Mr. LUTYENS, and is a most interesting example of a modern building in which the characteristics of the Tudor period are treated in an independent manner. As a specimen of architecture it surpasses many of those of older date. But there is no affectation of the antique. The chairs and tables, if in old style, are plainly of modern manufacture; the portraits are few and small, and there is a general absence of anything which might represent heirlooms. All the rooms are elegant and refined. The billiard-table is a work of art. But the perfection of the interior and the absence of everything which could be considered incongruous separates the mansion from its companions. It is not improbable that in some of the other houses dealers could tell queer stories about the portraits, furniture and "antiques." But somehow, whether genuine or not, they appear to be necessary in order to carry out the characteristics of an old English home. Even the images which are used for the furnishing of the chapels, and which do not date from pre-Reformation times, can only be taken as substitutes for those which at one time would have existed. Marsh Court stands for truth, and more or less coldness therefore belongs to it. The other buildings have poetry about them, much of which may be fiction, but which still can afford pleasure to weak mortals.

About fifty mansions are introduced, and most of them represent sixteenth and seventeenth-century work. The first is Ightham Moat, which is familiar to most students of English architecture. Part of it dates from the fourteenth century. But much was altered in subsequent years. Another ancient house is Maxstoke Castle. St. Donat's Castle is remarkable as being a fifteenth-century fortified house. Holland House still survives, although the encroachments on the Park impart more truth to MACAULAY's words when he said, "the time is coming when, perhaps, a few old men, the last survivors of our generation, will



in vain seek, amidst new streets and squares and railway stations, for the site of that dwelling which was in their youth the favourite resort of wits and beauties, of painters and poets, of scholars, philosophers and statesmen." Although it is now generally associated with the Fox family, they were not connected with Holland House until 1749, when HENRY FOX obtained a lease of the fine property at a rent of 182*l.* 16*s.* 9*d.* The house was built early in the seventeenth century by Sir WALTER COPE, who was one of the officials of JAMES I. Another mansion which now has a peculiar interest is Welbeck Abbey. The older part belongs to the time of Sir CHARLES CAVENDISH, who, in the early part of the reign of JAMES I. utilised the old abbey for a new mansion. Then it passed to the family of BENTINCK, who was a loyal factotum of WILLIAM III. But it has been many times altered and is a medley of styles. The Dutch spirit is, however, manifest within it, for it abounds with paintings, furniture and objects of different kinds, although pottery, which is generally so attractive in Holland, is not in excess. The great ball-room, which was used last week, might be considered a picture gallery, for the walls are hung with full-length portraits.

This second volume is a fitting companion to the first. The two of them are well adapted for table-books and can afford pleasure for hours in contrasting the examples. We hope the series is not complete, for the plates show what can be done by photography in providing accurate copies of the details of English architecture, not only in a way which no artist could surpass, but at a moderate cost. The descriptions of the buildings by Mr. AVRAY TIPPING increase the interest of the illustrations.

Residences of another kind are exemplified in the volume on "Flats, Urban Houses and Cottage Homes."\* To the pages a great many English, Scottish and foreign architects have contributed examples. Mr. VERITY deals with "designing," Mr. E. T. HALL writes mainly on the foreign flats, and Mr. G. C. HORSLEY on urban houses and cottage homes; while the Editor treats the subject from a flat dweller's point of view. Not only are exterior views given (sometimes in colour) and plans, but interiors have been photographed as they are, and in that way those who have no particular ideas of their own about decorations and furniture will find many suggestions. The volume has therefore all the elements for success in its timeliness, and it is rarely so much value is offered for the small sum of five shillings. Mr. VERITY, whose block of flats in Hyde Park Place has been reproduced in *La Construction Moderne* this week, concludes his introductory notes by saying:—

All dwellers in flats will admit that the expense of service and maintenance, with the annual expenditure necessary for repairs, are much less than in a house having similar facilities for entertaining. There are also staircases, so that the cost of furnishing and upkeep is considerably reduced. The *flat-de-luxe* has long been a great success on the Continent, and here in London, no doubt, more buildings of this description will be erected year by year. Not only do they possess all the comforts to which the wealthy are accustomed; in addition to that, they need fewer servants than are necessary in large houses, and it is easy to lock up a flat and leave it in charge of the manager. When considered also from an architect's point of view, the designing of mansion flats offers great opportunities both for planning and artistic treatment—opportunities, perhaps, even greater than those which present themselves in the building of a town mansion.

A volume which can serve as a supplement to the preceding is "The House Beautiful and Useful. Being Practical Suggestions on Furnishing and Decoration." By J. H. ELDER-DUNCAN (London: CASSELL & Co.)

\* *Flats, Urban Houses and Cottage Homes.* The text by Frank T. Verity, Edwin T. Hall, Gerald C. Horsley and W. Shaw Sparrow, Editor. (London: Hodder & Stoughton.)

For young housekeepers who aspire to have a tation for modernity the book is a true guide. It is not produced in the interests of any manufacturer, although the contents of many of the London furnishers have been carefully studied. The examples selected are in an accepted style, and several of them if found together could not be considered as clashing. Wall-papers and carpets are compared with the pages as well as articles of furniture. In many instances prices are given. It must not be supposed that in any way resembles an ordinary catalogue. Mr. ELDER-DUNCAN has taken care to avoid the character of such a production. His volume is a treatise on furniture that is fitting for use under varying conditions. If occasionally a name is mentioned the reader can be confident the praise has not been arranged on principles. The illustrations are nearly all from photographs and are therefore truthful.

### MURAL PAINTING.

AT a meeting of the Incorporated Institute of Decorators held on Monday evening last at Hall, Trinity Lane, E.C., Sir W. B. Richmond, R.A., D.C.L., explained his method of mural painting. The president, Mr. J. D. Crace, occupied the chair.

Sir WILLIAM RICHMOND said that before his time he was pointedly practical he would like to take the subject with him on a little excursion into an age which was ancient history, but it was a history so intimate with the subject upon which he was to address them that they might call it almost a history of their own time. There is an old saying, which he believed to be perfectly true, that knowledge was of any value until it had been forgotten. That, of course, showed the enormous value of tradition. They happened to live in, he would not say an age, he called it a decade of experiments, when many old truths which had made the world what it was were apt to be lost sight of. Much scholarship, much work, much strenuous labour of thousands of years possibly be lost in ten years of superficial value. The loss of tradition was so enormous that if it were to be suddenly from them they certainly would not go back to the Golden Age, but to the veriest age of savagery and the grossest forms of existence. They wished them to think back a moment; they would have to traverse thousands of years before they would find anything like the roots of those ancient traditions. They could go back and find them in Crete 4,500 years before the Christian era. They would find them in Egypt, Greece, and later on they would find them in Phoenicia, then in Rome and Italy, and still later on they would find the same traditions in England. Surely that being the case would be bad luck if they were to cut the thread of the chain between the present day and the experience of 5,000 years ago. As a preface to his remarks, he must make an anachronism. Whatever he knew of mural painting was not a discovery in the very slightest; it was all of it known 3,500 years ago. They were things known to the ancients, and they were all of them truisms, and he thought they were truisms to-day. He asked to be allowed to picture for them what the old artistic education was like.

They must imagine they were in Florence in the fifteenth century. It was early morning near the Duomo, and they would see troops of young men going towards the workshop or shop—it was not called studio in those days—where the men were apprenticed to learn their business, and where painting was a business—it was a craft. They would see the students a middle-aged man and little boys. They would watch them enter into the shop they would see the master, or headman, if he was there, and in all probability he would be, because the Italians were an industrious people and the *maestro* would welcome the older pupil as if he were a little boy. The youngest pupil would promptly sweep the shop, after which he would be told to clean well the palettes, vessels and brushes; thus he was taught first tidiness and neatness. Then the various grades of pupils would be given their appointed work, the less advanced would be tracing of the master's work and so on. The more instructed and advanced pupils would then gather round the *maestro* himself, and in watching him at work they would learn from him the beauty and subtlety of forms. The



in those great days was a trade, a craft made as the carpenter was taught to make boxes. If it had later on that the pupil became master, or showed developed distinctive talent, he had legs to stand on, he understood the very grammar of his art—from the shop, grinding the colours and putting on and above all he had learned to draw well. It was the kind of education which they missed nowadays, when every young student wished to jump into fame before he had strided over a ditch, to make a splash before he had time to aspire before he could draw. Those matters which required investigation. Therefore, those who had visited Italy, and those of the audience who had not, but were acquainted with the great works by Giotto, Gaddi, and others, would know that the masters, the great men who differentiated from the crowd, were very few—the very supreme and great. Through the grades and grades of pupils they finally came down to the man who, perhaps, had no genius, no invention of his own, but who was, nevertheless, a great master. That was what education ought to do. Nobody could create. No education or practice could make it, but education could supply the solid, well-grounded means to a man's power of expression and liberty, and it was that which was lacking in education. For the benefit of those who were not personally acquainted with his subject, the lecturer was allowed to give an instance of pupilage. He would not restrict the subject to the great masters in art, but they might go nearer to our own time, that he hoped to substantiate his argument. Raphael copied his master Perugino, but so sensitive was he that, notwithstanding the extremely close resemblance, Raphael's early work bears to his master's, as a difference. There was seen in it a spontaneity and a depth of feeling that was not in the master's work. The great Michelangelo also showed the master's influence in his works, when they looked at the beautiful things he did the Michelangelo was so strong that it overruled even the influence of such a sworn friend as Perugino. Again, Sir Joshua Reynolds under Hudson. Young Hudson was what did he do but learn his trade? Hudson was an excellent portrait-painter. He knew his business, he knew that it was a bad thing to put white over white. He knew all those facts, and Reynolds, his pupil, an intelligent fellow, used them. Reynolds's pictures were very like Hudson's; but the lecturer thought he had to use his free manner in painting through the training he had under his master. Therefore, Sir William Richmond began his opening remarks by saying that no knowledge was worth anything until it had been communicated. He regarded the meeting that evening as a little discussion among themselves than a didactic lecture, for his purpose was only to tell of his method in mural painting was not at all of his own. It was what all the old tempera

did. If all they had to make up their minds in such a form of decoration that they would work directly on a wall. Wall-painting, no matter how arduous a task; by that he meant to painting directly upon the wall. They must be quick, sharp and sure; and they must not be surprised if the result was different to anything they ever saw in their studio. They must be prepared that if the picture they had painted upon the wall were removed out of the position in which it was first exposed, that it would in all probability look utterly ridiculous. First, then, the lecturer would apprehend that they were all agreed that the picture must be seen upon the wall, and then he thought the picture was to put that design which the mind had conceived very swiftly upon paper. They should do this so that the visual impression, which only lasted a very little time, was indelibly sealed, and then he urged them to leave the drawing alone and not to alter it. After the lapse of a few days, he suggested they should look at the picture not to make alterations. They should then put a tracing paper over their design, and trace it down the hard line, leaving the tracing paper over it if they wished to make any alterations, but adhering faithfully to the first sketch. The method of tracing over the first sketch in some sense weakens the first impression, but the lecturer told them not to be dismayed at this because they would be always adding some-

thing; they were adding experience, whereas, if they altered the visual impression on paper, they had nothing, and it was his experience that in ninety-nine cases out of every hundred he found the first impression was always the best and they would always go back to it. They would remember the advice of a master, "Never destroy first lines; first lines were the voice of God." It was that which they were hot on that they must do, that and none other.

While they were young and inexperienced, and in fact until they were scholars, they would be perfectly right in making full sized cartoons for all work. He urged them to draw well, hard, sharp, fine, banal if they liked. This last term he understood was the word used to express good drawing. The young student was apt to think himself uncommonly clever; when he got older he began to find he ought to have worked harder, and when he got to be as old a man as he, Sir William Richmond, he would only wish he had drawn a great deal more in hard lead pencil and less in charcoal. Therefore he would tell them to make their drawings as hard as they could and not to mind finding their early attempts laughed at. They should not mind being told they were working like students so long as they drew well, and yet they were not to allow themselves to be flattered into thinking they were geniuses when they had not finished lapping their mother's milk. The drawing on the cartoon made, they still had trouble before them. They had to pounce the design on the wall, and he would tell them that that division of the work was done in the Italian bottega by little boys of twelve and thirteen, and it had now to be done by youths of twenty years. Then they must be clean in their work or the surface of the wall would be spoiled, and when they had drawn the design in charcoal they would afterwards rub it out, and finally they would have to show beautiful drawing on the wall, perfectly done, hands, feet, drapery, everything ready for the application of the colour. Everything drawn upon the wall was inside, and they must realise that. The process of the drawing of it they had learned from the distance of one thing from another, in point of fact they had got the perspective. Then came the great test. How were they to establish the tone of colour? This should be governed by the amount of light that would fall upon their painting, just as they established the tone of all objects seen in the street by the tone of the sky. Then they came to the treatment of the furthest distance, from which they would come up gradually to the figures. These would be painted last, observing the relative tones of the picture, and suggesting the figures by the most subtle enrichment, but remembering that strength did not rest in violent contrasts, but in delicacy of relations. Thus, said Sir William, they had the whole environment of their picture, the sun, the sky, the shade, so that they could feel they were not standing against a flat wall but in the middle of a semicircle, as if they were actually among the figures represented. That was so if they realised, and the artist must realise it if he was to paint a great work of art. The artist must realise that it was not a wall which was before him, but that he was inside the scene represented and among all the people gathered there. Thus it was that the more the artist realised that he was the centre of an entire circle, the more truthful in tone and colour would be his picture.

Sir William Richmond then explained a diagram of colours in weak tones, but in his arrangement of them they became practically all of the same tone value. He cautioned the students against putting their tones in the wrong places.

Speaking of the best medium for tempera painting, the lecturer said milk was the best spreader of colour, and it was undoubtedly used by the Latins in their mural work, and an Assisi painter had told him to use curdled milk. There were two ways of painting in tempera, said Sir William, as there are in most things. The word tempera, as often used, was a very ridiculous term. All vehicles that were mixed with powdered colour were tempera, so that it was misleading to talk about temperas. Oil tempera had often been tried upon walls, but he knew of no single instance in which it had been successful. Of course, the great failure in that medium was the "Last Supper" of Leonardo da Vinci. In more modern painting in England and elsewhere they could also point to work that had suffered. Then there was a difference in temperas; whereas the oil tempera made the colour work unpleasant and dirty the other temperas had a sense of subtlety and freshness. If on their various visits to English towns or English cathedral cities they would look at the attempts which had been made to revivify old work,



they would at once appreciate the difference in temperas—the old paintings full of life and charm, and the modern work hard and unpleasant. He wished to say a word about the dark and light ground, and they must go to Pompeii for examples. In some of the recently discovered series of paintings there were lots of little dancing figures painted upon a black ground. They really were painted on black, but not in oil, in wax. Where the figures had been painted on a white ground they found an entire difference in the colour. Thus the result of the painting the artist wished to make was dependent upon the ground, so that if he wished to paint a tremendously strong bit of local colour he would paint on a black ground, and if a light and airy subject on a white ground. Velasquez had an amazing sense of decorative treatment, and they would find all through his great work an automatic harmony in all colour. If his sepia was grey, his red was also grey, his black was also grey, the whole conception was always one amazing harmony. Therefore, said Sir William, it would seem that they would be extraordinarily safe in taking two schemes of that kind as their starting-point, whether they worked on a white or black ground, and arrive at harmony. Thus they would have a great reserve. Sir William counselled them to always reserve their darks for the last, for even then, if they did not wish their painting to appear black, they could put in a little white. Therefore, whatever was their work as decorators, their scheme of colour would be light, but they must beware of the spot. They should be quite certain that the scheme of colour, whether it was dark or light, was without spots, and then it would not look weak. They must not be misguided and imagine that because a thing did not look black or white on the wall it was weak, or because it was not vermilion or blue it was weak. The strength of the painting would rest in the perfect gradation of colour.

Mr. J. D. CRACE said he wished to make one or two remarks, and also to invite the meeting to express their thanks to Sir William Richmond for his interesting lecture. Sir William had alluded to apprenticeship, and said it was the groundwork of the great success of the men who practised in early times. In the pages of Cennini, as well as in other works, reference was often made to apprenticeship. Cennini mentioned incidentally the curious fact that he was himself apprenticed, and for the term of twelve years—three years in learning to draw, three years in learning colours and after that six years in painting. It was therefore remarkable that, going back a great deal further in history, they found that Apelles himself was apprenticed for twelve years, and his master taking apprentices with a premium of 200*l*. Twelve years was considered a reasonable time in which to learn one's work, whereas at the present time he believed six months in a school was considered to be sufficient.

Mr. FRANK MURRAY asked whether egg tempera exposed to the atmosphere of London would last twelve years, and Sir William Richmond, replying to the question, assured him that it would last even a longer period.

Prof. FORMILLI seconded the vote of thanks proposed by the President and the meeting terminated.

#### THE GLASGOW SCHOOL.

"TO see ourselves as others see us" was considered desirable by Robert Burns. For that reason it is interesting to read the following account of the origin and characteristics of the Glasgow School of Painting, which the Inspector-General of Fine Arts in France—M. Armand Dayot—will include in his forthcoming work on "English Painting":—

It was amidst the business agitation of Glasgow and in its smoky atmosphere that the new Scottish school came into being and has flourished in so dazzling a manner. It should not be forgotten that the early efforts of this young school were as coldly received by the Royal Scottish Academy in Edinburgh as by the Royal Academy in London. It was the enlightened, although somewhat exclusive, patriotism of one of the wealthy merchants of Glasgow that not only encouraged the early manifestations of the young school, but which, involuntarily it may be, led to its appearance in the history of art.

About 1880 he brought over from France several examples of the Barbizon school, of which the masters, although appreciated by a few Scottish amateurs, were not much known to the majority of artists. The paintings, amidst which some specimens of Monticelli had glided, were eagerly admired by the young Glasgow painters, who

at the time were wearied of the official formulae, through the influence of some of Whistler's works. The novelties of the Japanese, had been dreaming of a reaction against the traditional academicalism as well as pre-Raphaelitism. They wished to combine with those who afterwards founded the International Society with the Munich secessionists, and with the artists and creators of the New English Art Club in London.

A few years later the Glasgow Corporation, in an academical opposition, purchased Whistler's portrait of Carlyle, which is one of the chefs-d'œuvre of the school. From that time the contemplation of the landscape of the French school, of Whistler's portrait and of the Japanese prints created an ardent love of truth, and resolved to employ in painting the richest and most varied resources of the palette. A sense of decorative effect was awakened in them, and their imagination, which had been paralysed by the doctrines of the school, was set free. It should, however, be mentioned that prior to the appearance of the works of Rousseau, of Dupré, of Monticelli, of Whistler, and of Hokusai, which had made so deep an impression on the Glasgow painters, MacGregor, Melville, Paterson, Guthrie, Lavery, and Taggart, the silent lessons of the great Raeburn had been religiously respected.

One name dominates the modern Scottish school of painting, that of W. J. MacGregor. It can be said with truth that he was the real founder of the Glasgow school. He it was who, after passing through the ranks of the Scottish painters James Docharty and James Greenless, and then that of Legros at the Slade School in London (where he made a most advantageous study), returned to Glasgow as a prophet, and as such he gave an example of his works as by his enthusiastic utterance he revolutionised the esthetics of his young compatriots. At once grouped themselves around him as their leader, and taught them that painting should become synthesis; the part assigned to decorative invention should be essential, and that care should be taken to avoid being lost in the infinity of details; they were to strive after a harmony of tones with which nature adorns itself, and the pencil should generalise the forms, and so on. This was in opposition to the Ruskinian doctrines of the pre-Raphaelite catechism. His eloquence was at its height in the latest and most audacious expressions of painting, long as his health permitted he carried out his work, and most conscientiously studied his subjects from nature, expressing in rich and delicate harmony landscapes, seascapes and rural subjects.

It was also MacGregor who, by exhibiting at the New English Art Club, was the first to form a bond between the independent painters of Scotland and England. His ardent and generous propaganda he moreover contributed to the extension of that revolutionary activity of which the effect is seen in all the artistic circles in Great Britain, even on the walls of the Royal Academy. It is a phenomenon to find a pupil of the French Legros, a passionate admirer of the romantic school of France, to take up such a rebellion against the manner of art which had been accepted, and whose nationalism was so restrictive, even Watts himself preferred its icy academicalism to the French painting, of which he could never speak in other than disdainful terms. In art even more than in politics, the most disconcerting evolutions are the most sudden, and it is not necessary to play at prophesying about the international reaction which may succeed to the revolution coming by the Glasgow school. For the present we may turn our attention to the champions who are most prominent.

One of the characteristics of the new Scottish school is the sense of artistic fraternity which exists amongst its members. Notwithstanding the marked differences between the individual temperaments, almost all of them are united under the influence of Mr. MacGregor in an enthusiastic admiration for the French romantics, for Whistler, for the Japanese, for Velasquez and Frank Hals; and they combine in a generous and persistent protest against the conventional formulæ which are too often imposed. It may be added that this sort of freemasonry is seen in the meetings in MacGregor's studio, or at Brig o' Turk in the Highlands, which is a favourite sojourn for the artists in summer, at Kirkcudbright, and even at Paris, where the works of James Guthrie were formerly much admired, where those of John Lavery each year obtain a legal success. But their real "quartier" is Glasgow; and amidst the bustle and smoke of a great city under its soot and on the banks of the Clyde, which are more sombre than those of the Styx, that they are



parkling palettes and indulge in their dreams of glory. No members of the group—one might almost say of otherhood—who are most universally celebrated are Guthrie and John Lavery. It is permissible to assert the art of these two remarkable painters the general of the Scottish school is manifested, and they suggest influences to which it has been subjected as well as tendencies. In many ways the first name is attached to strong technique of the Dutch school. For in the number of his portraits Guthrie appears as the pupil of Hals, though as one who was born under the same Raeburn. Lavery allies himself rather to Velasquez, he admires through the subtleties of the Whistlerian tonies.

One of the most original and most interesting figures of the Glasgow school was Arthur Melville. Death carried off prematurely. After he had become emancipated from the influences of Meissonier, Gérôme and Fortuny, to whom he had subjected himself during his residence in France, he attained a distinctive manner of his own, but in it was possible to discern through the (sometimes disconcerting) originality of his temperament affinity with French impressionism pushed to an extreme, and Japanese caprice in its wildest expression. There can be found in him something of Seurat and Hokusai, but his paternal relations were dominated by an undoubted reality. The subjects preferred by Melville were derived from the East or from Spain, and his favourite manner to use them was in water-colour. He excelled in rendering movements of crowds under the blinding light of Africa, in pencil expressed by brilliant but detached strokes and sumptuous harmony, which was marvellously adapted to faithful impressions of bull-fights, for which precise graphic rendering seemed unsuited. The "fascinating" appears well-adapted to suggest the work of this unique painter. His water-colours from the time he made a vivid impression upon Brangwyn. When his voyages to Morocco and Spain he found himself in the shadows of the mountains of his native country, and there he painted some subjects taken from the life of Scotland. But he could not resist the influence of the East, and under his rapid pencil the green hills of Scotland assumed a burning tint, the shepherds were bronzed and everything was enveloped in an atmosphere of fire. Melville was by nature an Orientalist. Much to be regretted that no specimen of the work of this individual and interesting an artist has yet been seen in the Glasgow Gallery.

The name of Arthur Melville evokes that of another of a similar temperament—one who, although English, may be classed in the group of Glasgow painters with whom he was once closely associated, viz. Mr. Joseph Mall. He is undoubtedly one of the most original among contemporary artists. His art, like that of Melville, is partly derived from French impressionism, but especially from Japanese artists, from whom he has derived a firmness of drawing with the most capricious.

But his technique differs very sensibly from that of Melville, whose touches contrast singularly with the nervous line and instinctive and powerful strokes of Mall—a draughtsman of the highest class, whose graphic works recall the chefs-d'œuvre of Hokusai. Joseph Crawhall, in spite of his prodigious facility, produces little that never exhibits. M. Dayot says he has had the pleasure to see lately in Scotland examples of his water-colours, and he felt profoundly impressed by them.

Like Melville he loves water-colours, and he uses the reference Dutch paper of a sombre tint. His favourite subjects are sporting scenes, and he does not disdain the mobile, although he prefers horses as befits the son of an artist who could also handle the crayon. But his use of art is not limited by sporting exercises, for there is a manifestation of life which has escaped his observation, and he can express his impressions quickly and accurately. For animals he has no equal unless, perhaps, the Welsh artist, Bruno Liljefors, and he might become the most remote of caricaturists if he cared to be more generous in his humour. He only works when he is in the mood, and he does not allow his drawings to be seen, for he looks upon them for the most part simply as studies which are far from perfect.

Another artist is MacTaggart, whose art is analogous to that of Claude Monet. His vision is no less luminous, and his observation of nature is served by an excellence of technique and an astonishing facility of hand. His landscapes are conspicuous by their deep feeling. Another

personality among the artists is E. A. Hornel, whose technique owes much to the works of Monticelli, an artist who is well represented in the private collections of Glasgow and neighbourhood. It is to the Marseilles painter that Hornel owes his marvellous palette, which is adapted for painting the delightful decorations resembling dazzling textiles or painted mosaics which have caused so much surprise in the misty North. His aggressive manner is subdued whenever he paints Japanese subjects or represents children playing in fields sun-bathed. Hornel is an Australian, but he came to Scotland when young. He at once entered into an alliance with the local painters, and then, after having studied under Verlat in Antwerp, he went, in 1893, to Japan with his friend George Henry, whom he encountered in MacGregor's studio.

The difference between the temperaments of the two brilliant artists was displayed on their return from their Eastern voyage. While Hornel was attracted by the joyous aspects of life, and exhausted his palette in representing them, George Henry, an impeccable draughtsman and marvellous colourist, expressed the melancholy of his mind on canvases which were executed amidst the smoke and vapour of the manufactories or on the sombre and crowded quays of the Clyde, or in the Highland twilight where mystery appears to reign. His "Cinderella" is a masterpiece of imagination and colour. Henry, in collaboration with Hornel, produced a remarkable decorative painting, "The Druids," in which their respective qualities can be clearly seen without any injury to the general work. The place occupied by Henry in the ranks of the young school is very important. His realism appears to become more emphasised every day, and more lately he has produced portraits of a high class. In this new evolution his art suffers a little by the loss of subtlety and refinement, but it is compensated for by the gain in power and in penetration. He has won the admiration of the English during his residence of some years in London, and in spite of the revolutionary character of his art he has been elected an Associate of the Royal Academy—that is a sign of the times.

It is necessary in spite of the brevity of this study to suggest the history of the Scottish school in order to indicate its general character. The Scottish artists of the first period, Wilkie, Faed, Nicol, Nasmyth, Phillip and Scott Lauder lived in London, but if their original talent did not suffer under any English influence, none of them with the exception of Wilkie made any impression upon English artists. This is no less true of the pupils of Scott Lauder, including Pettie, Orchardson, Macbeth, Colin Hunter, David Murray and Graham, who also frequented London studios and occupied the first ranks of the Royal Academy but whose art, although personal, has never been able to penetrate within the bounds of English art.

At the present time, under the revolutionary impulse of Hornel, Henry, Melville and their associates, to whose efforts can be added those of the French impressionists, Manet, Claude Monet, Cecily, Renoir (whose works are beginning to be carried across the Channel), and added to which are the exhibitors at the New Art Club, an apparent movement is being manifested in the ranks of English painters, although they are still too subjected to cold academic conventions and pre-Raphaelite fictions. Their eyes are being opened to the pure light of art, to the great light of Heaven. The persistent efforts of the young school of Glasgow, with its passion for beautiful colours, has greatly contributed to this happy event.

#### MANCHESTER ART GALLERY.

AN exhibition of works by modern French painters, chiefly of the Barbizon and Impressionist groups, will be opened at the Manchester City Art Gallery during the second week in December, and will remain open for about six weeks. Among the painters represented will be Rousseau, Diaz, Dupré, Millet, Corot, Harpignies, Boudin, Moret, Manet, Pissarro, Carrière, D'Espagnat, Mauffra and Pointelin. Works by such English painters as Constable, Turner and Bonington will also be included, to illustrate the influence of English landscape art on landscape painting in France. Most of the pictures will be from the collections of M. Durand-Ruel and the late Mr. Staats Forbes.

Sir William Mather will deliver his presidential address to the Manchester University Education Society on "Education and Duty" in the Whitworth Hall on December 3.



## NOTES AND COMMENTS.

THE completion of Vauxhall Bridge has been taken as an opportunity by the highways committee of the London County Council to prepare a code of by-laws for the management and regulation of all the bridges which are under the control of the Council. The object is to prevent injury to any part of the structures and the mooring of boats or vessels to any part of them. But the most important part is that relating to the maximum load which will be allowed to be brought on each bridge. There is to be no limit to the weight on Battersea Bridge, Putney or Fulham Bridge, Vauxhall Bridge and Waterloo Bridge. A load of 15 tons will be allowed on Hammersmith Bridge and Westminster Bridge. The loads are limited to 5 tons on the Albert Bridge, the Chelsea or Victoria Bridge and Wandsworth Bridge. Only  $2\frac{1}{2}$  tons will be allowed on Lambeth Bridge. Among the county bridges, there need be no limit to the loads on Beckenham Lane Bridge, Lea Bridge, Lea Green Bridge, Seven Sisters Road Bridge, Plough Bridge and Wandle Bridge.

If the design of Professor W. H. BURR for the Heinrich Hudson Bridge at New York is realised it will demonstrate the strength of reinforced concrete under extraordinary conditions. The material has been used in arched form for bridges over roads and rivers with spans equal to those of masonry bridges. For the projected bridge Professor BURR has arranged a central opening of which the span will be 710 feet. That is far in excess of any masonry arch hitherto constructed. The details of the bridge have been under consideration for over a year and various engineers have examined them. But there is no doubt they will be subjected to keen criticism in other countries as well as in America. Courage is, however, sure of respect in the United States, and the experiments hitherto made throughout the country have proved that the limitations of the material are not yet defined. When it is known that a tower in New York has been carried up to a height of 612 feet, it is allowable to assume that an equal if not a greater dimension may be adventured in an horizontal arrangement.

## ILLUSTRATIONS.

NEW PREMISES FOR THE NORWICH UNION LIFE INSURANCE SOCIETY.

WE publish in our current issue, by the courtesy of the architects, Messrs. ERNEST RÜNTZ & FORD, their design for the new building to be erected on the important West-end site at the eastern corner of Piccadilly and St. James's Street for the Norwich Union Life Insurance Society. The building is designed for banking and other commercial purposes, and has been so planned that the dividing up of the various floors can to a large extent be governed by the nature of the business to be carried on. Forming as it does, in conjunction with the opposite corner (where the new building for the Royal Insurance Company is being erected from the designs of Mr. JOHN BELCHER, A.R.A.), the "gateway" of the thoroughfare leading directly to Marlborough House and St. James's Palace, we are pleased to hear that both buildings are being erected in Greek pentelikon marble, supplied by the Marmor Company, so that there will at least be a harmony of material, which should greatly enhance the appearance of the historical street of St. James's. The lower portion of the building illustrated will be faced in jasper serpentine, ranging in colour from purple to heliotrope. The roof will be in purple Broseley tiles, and the sculpture, balconies, gutters and some other features will be of bronze. It will be noted that a somewhat ingenious method has been adopted by the architects for stopping main cornices, thereby surmounting the difficulties often experienced by these features overhanging adjoining premises. It will also be observed that the usual turret for corner premises has been

omitted and a somewhat new treatment introduced, giving an opportunity for the legitimate use of sculpture, which in this instance will consist of a group of b.



figures representing "Justice," "Forethought," "Thrift," very happily conceived to denote the purposes of the insurance world. Operations have commenced and the building will be completed in July 1902. Messrs. PATMAN & FOTHERINGHAM, LTD., have been entrusted with the contract, after keen competition by Mr. HIBBERT BINNEY, who designed and executed the frieze at the Gaiety Restaurant, has been entrusted with the design and execution of the group of statues, a photo of which we reproduce. The central figure represents "Justice," the female figure "Thrift," and the male "Foresight."

We understand that contracts in connection with the building have been let as follows:—The heating, ventilating and radiators by Messrs. STRODE & CO., of Osnaburgh Street, N.W.; the lifts by Messrs. ARCHIBALD SMITH & STEVENS, of Battersea, S.W.; and the wood-block floors by the Zeta Wood-Block Floor Co., of Crispin's Wharf, Marshgate Lane, Stratford.

NEWDIGATE PLACE, SURREY: THE HALL.

THIS house is erected on an elevated site overlooking Leith Hill, with lovely views over Reigate and Horsham. The walls are faced with local bricks, the upper part being covered with weather tiles. The roofs are tiled; the whole of the external woodwork is of oak, cut from trees grown on the estate. The hall has an open oak timber roof, with a gallery roof on two sides lighted by stained-glass windows. It is panelled to a height of 10 feet with oak panelling, a carved screen separating the hall from the staircase, which is also of oak. The dining-room has oak panelling with oak beams to form panelled ceiling. The drawing-room has a deal dado, painted ivory white. The billiard room has Oregon pine framing carried up to under the frieze. All other internal joinery is also in Oregon pine, stained and beeswaxed. The house was erected by Messrs. J. & J. WARD, of Worlington, from designs and under the superintendence of Mr. HATCHARD SMITH, F.R.I.B.A., who also designed the decorations, which were carried out by Mr. CARRICK REIGATE.

CLYDE STREET SCHOOL, HELENSBURGH, N.B.

CATHEDRAL SERIES.—SOUTHWARK: NORTH CHOIR AMBULATORY.



## FIRES IN HOSPITALS.

President of King Edward's Hospital Fund for London, the Prince of Wales, in February, requested Messrs. Massey Shaw and Captain Wells to give advice on the method of securing protection against fire in the hospitals. The two experts have prepared a report in which they say:—

Submitting suggestions for safety from fire which are generally applicable, it must be plainly stated that suggestions to be practicable must be very few in number, as otherwise many of the most obvious and important of them would not be applicable to more than a few buildings.

There has never been a general or generally recognised method of constructing hospitals; on the contrary, all that we have ever seen have been situated apparently where ground was available, whether suitable or not, and to be constructed by different architects or builders on different plans, or even in some cases by the same architects or builders but on different plans, although in the same town or city. For this want of system there can be no remedy, as each case must depend on local circumstances and conditions—especially local finance.

For these reasons it is absolutely necessary to say that, although in any one case there may be no difficulty in obtaining a complete and exhaustive report upon which recommendations might be based, such a report could not be applicable to others, as in each case the individual circumstances would have to be specially and separately considered.

Nevertheless we may, however, remark incidentally that in the construction of hospitals it would be an advantage if the site and structural considerations could, to some extent at any time, be influenced by the committee of the fund, with reference to safety of life in case of fire or panic, and to insure for future hospitals some "system" in their construction.

Cleanliness and freedom from dust are, of course, very essential for reducing risks of fire; and in one important point hospitals have an advantage over almost all other public institutions in having virtually a watch on the door in the shape of nurses, who are never absent.

We repeat that exhaustive recommendations in the case of individual buildings could only be drawn up upon a basis such as would be made by an experienced fireman, of the particular institution. But we enclose in an annex a series of suggestions framed entirely with the view of helping existing authorities in existing circumstances, while we do not entertain the idea of responsibility for the committee of the Fund or for ourselves. It is again clearly stated that in many of the smaller hospitals no steps in the way of safety are possible without great care and cleanliness on the part of officials, and constant watchfulness for the first symptom of danger, however slight, and immediate notice to all concerned, both inside and outside the premises.

The suggestions are classified as (1) points which should be borne in mind by hospital committees when framing regulations, and (2) points which should be remembered by the staff when an alarm takes place.

The first class are the following:—

It is important to have some arrangement for warning those who should be alarmed. In arranging the method for alarm, it is necessary to avoid startling the patients unnecessarily. Police whistles distributed are of consideration, and would have the effect of summoning aid as well. Every endeavour should be made, however, only to disturb the affected area.

Each building containing patients should have means for immediately despatching information to the nearest fire brigade or police-station, and the nurses or others in charge should be instructed as to the proper mode of sending for this external aid without waiting to see whether their own local appliances are sufficient or not. If the hospital is not on the telephone, the staff should know where the nearest fire-alarm post in the neighbourhood is located and how to use it. This information should be given on the card of printed regulations. In order to save expense, an offer might be made to the fire authority to allow a public fire alarm to be placed at the hospital gate, which would be available for use by the public as well as by the hospital officials. If the hospital is on the telephone, the London Fire Brigade should be summoned by telephone and by fire-alarm post in the street. A following slip should be posted near the telephone, if possible:—

"In Case of Fire.—Ring up in the usual way. Say,

'Put me on to the fire brigade.' When answered, say, 'Fire at \_\_\_\_\_ Hospital, \_\_\_\_\_ Street, &c., and any detail that your presence of mind dictates, viz. large, small, roof, basement, &c.'"

3. The regulations of the hospital should provide for an organisation that will immediately stay "panic" and guide the patients to safety. If alternative staircases are not available, anything like a cul de sac, where several are accommodated, particularly on upper floors, requires special attention and consideration.

4. Every hospital should have within its walls some "first aid" apparatus to deal with the outbreak. As the probable position of any outbreak can generally be foretold, the risks should be located and studied beforehand. Roof, kitchen, store-rooms, cupboards, heating-places, workshops, laundry, &c., are examples of likely danger points. Fireplaces and guards, gas fittings (especially swinging gas fittings), curtains, rubbish collections and places where candles and matches are used near clothing and bedding should also be studied. Fire drills adapted to the special dangers of the particular hospital should be quietly arranged periodically. This location of risks is the essence of effective fire drill. Certain of the staff should be detailed to handle the hospital fire appliances and they should know this is their job. They should be so selected that some will always be present. The whole number should periodically be summoned to the different "fire risks" for drill. An ordinary mop and bucket will prove useful, in the early stages, to splash water, and anyone can use them. Should the fire be due to electricity or upset of oil, be careful in applying water, but rather endeavour to smother with sand or wet blanket till the fire brigade arrives.

5. Printed instructions should be posted up freely, so that all are reminded that fire is a possible contingency. These instructions should deal with all the foregoing points, with any additions or amplifications appropriate to the particular hospital or to its appliances.

It is recommended in the second class that the following points should be remembered by the staff when an alarm takes place:—

1. On the discovery of a fire or on smelling smoke the staff and employees should not run about aimlessly or shout or shriek, &c., but quietly think and act on the instructions for raising the alarm.

2. The first object is to prevent "panic" among the patients and visitors, if any.

3. If the fire brigade has been called, the actual fire damage should not be much in the thoughts of the staff. It is imperative to see to the removal of patients who are in danger to safety, which is, as a rule, out of the smoke-area, and preferably outside the building involved if a comparatively small one, or into a separate block if a large one. In a densely smoky atmosphere a wet flannel over the face is beneficial.

4. Those detailed for appliances should go to the duty at once, and endeavour to check the progress of the fire. It would be as well also for some one in authority on the spot to detail those who are to remove patients, and also those who are to receive them and see to their proper clothing and comfort.

N.B.—As far as the details of the actual steps to be taken when an alarm takes place are concerned, the printed regulations drawn up by the individual hospital, and the periodic fire drills, should insure that every member of the staff knows what is his or her duty in the event of an alarm of fire.

**A Meeting** was held in the Mansion House, Dublin, on Friday, with regard to the erection of the Parnell monument. The report of the committee stated that subscriptions to the amount of 5,978*l.* were collected. The statue by Mr. St. Gaudens cost 25,000 *dols.* There has been paid in respect of this contract the sum of 5,191*l.* 18*s.* 5*d.*, and the statue and all the bronze ornamentation for the monument, together with the plans, specifications, &c., have been delivered, and are at present in the Royal Hibernian Academy. In order to complete the monument according to the sculptor's plans, all that is now requisite is that sufficient money should be raised for the erection of the masonry and architectural work. Estimates for this work have been obtained, the lowest of which amounts to not far short of 3,000*l.* It is considered that this work will take several months to complete.



## SCIENCE AND PRACTICE.\*

THE words "science" and "practice" are somewhat loosely used, and it is difficult to attach a definite meaning to either. The dictionary does not help us much, and literature perhaps helps us less. The dictionary states, "Science is literally knowledge, but more usually denotes a systematic and orderly arrangement of knowledge." "Practice, the actual performance of the application of knowledge or science to the wants of men." From this it would appear that science or knowledge must precede practice. Sir William Hamilton has long ago stated the distinction more clearly—using, however, the word theory instead of science. "There is a distinction, but no opposition, between theory and practice. Each, to a certain extent, supposes the other; theory is dependent on practice, practice must have preceded theory." This appears to me the more natural relationship. Practice generally exists first without explanation, and science is in the first instance an attempt to explain practice by theories. In modern times this attempt to explain is partly experimental; and experiments lead to the discovery of new facts, which themselves both aid explanation and require explanation.

The function of science lies in the explanation of existing facts, and in the prediction and discovery of new facts. In ultimate or fundamental explanations, science has signally failed. No single complete explanation is to be found in the whole realm of modern science. Even the simplest of fundamental concepts have to be accepted without real understanding. In proximate explanation, however, she has been very successful. Vast numbers of apparently dissimilar phenomena have been shown to be similar and capable of classification in comparatively few groups. Practice then concerns itself with the doing of things, and science with the explanation of things which have been done.

The task of the engineer is to do things, whether he understands them fully or not. If he waits to understand all the various operations involved, he will never succeed with his process or produce his machine. This is evident upon studying the process of evolution of any invention. The progress of heat-engines furnishes clear evidence of this.

Science has thus acted on practice; and practice, in turn, acts on science. New forms of heat-engine—for example, the steam turbine and the gas-engine—have given rise to further investigation on the scientific or abstract side, and to-day a host of investigators are at work on further studying the properties of steam and investigating the properties of air and flame, so that practical application and scientific investigation go hand in hand, each aiding the other. Even now, however, after more than two hundred years of steam-engine practice, we do not fully understand all the phenomena of the steam-engine. Still less do we fully understand those of the gas, petrol and oil-engine, although active experiment in such engines has now gone on for over one hundred years, and it is forty-seven years since the first fairly commercial engine appeared in Paris. The practice of the gas-engine includes among its most noted foreign names Lenoir and Otto and Daimler; and its science, Beau de Rochas, Slaby and Witz. Of home names there are many, but I need not go over them. They are well known to you all.

The story of the gas-engine shows the same imperfect knowledge, but shows also practical success attained notwithstanding ignorance. In 1876, for instance, Dr. Otto thought his success due to the use of stratification in his engine, while in actual fact stratification had nothing whatever to do with it. His success was wholly due to correct mechanical detail and the effective use of compressed gaseous mixtures. Following Macquorn Rankine, Witz, your President and others have calculated the effect of compression, assuming simplified cases. Such calculations were made originally in 1882, and have proved a sound practical guide during twenty-nine years.

I mention these matters to show that the practical man has many serious problems to face—that he cannot always wait to understand every part of his field before finding a solution; and that, consequently, the solution found by him often includes a multiplier intended to neutralise the effect of ignorance. An engineer need not be ashamed to own ignorance; but he must know exactly where his ignorance lies, and, broadly, the proportion to be allowed to cover that. The late distinguished engineer, Sir Benjamin Baker,

for example, I understand, felt many doubts as to calculations of compression strains in the long struts formed part of the Forth bridge. But he estimated the extent of his ignorance and provided for it successfully that the Forth bridge stands to-day. The American engineers who designed the Quebec bridge were more particular to design it in a form in which, according to estimates, the stresses could be more accurately determined, but, unfortunately, they do not appear to have estimated the particular part to which this proportion of ignorance was applied. Hence they failed and their bridge fell.

In many other matters we have to be content with a partial solution of problems, and study of difficult mechanisms which have been produced shows faults to be remedied. Where those faults bear upon the health and life of a whole community, engineers should take a serious view of their responsibilities. In the matter, for example, of the enormous extension of the use of motor and motor 'buses, with petrol engines, it is necessary to recognise the fact that, under certain conditions, engines discharge as much as 10 per cent. of the poisonous gas—carbonic oxide—into the street. It is the engineer's duty to study these conditions, and to so arrange the mechanism as to make life in our large towns healthy and safe.

This question of carbonic oxide arises in matters of great interest to the members of the Society of British Gas Industries. It is the ambition of all gas men, if I so call them, to find as many uses for coal gas as possible, and they have been enormously successful, both as to economy and motive power. If gas consumption is to greatly increase in gas-fires and gas-stoves, it appears to me desirable that you should study the problem much more closely than has yet been done. A great mistake is made by many engineers—and, I may say, journalists. They treat the consumption of gas in closed spaces as if the matters considered were merely those of consumption of oxygen and its replacement by carbonic acid gas. I agree that so far as the production of carbonic acid is concerned there is no great harm in open gas-stoves or in closed fires. The conditions of combustion of gas, however, are such that, unfortunately, carbonic oxide is readily produced, and this, it cannot be too clearly recognised, is a very poisonous gas. So far as present open gas-heaters are concerned, this problem does not appear to be satisfactorily solved. Undoubtedly very many of them produce carbonic oxide. The test of this is unfailing, even apart from the chemical methods of examination. The human being is a delicate reagent to carbonic oxide. I know it myself, because I am long familiar with the effects of carbonic oxide poisoning. Many people have severe headaches with even a minute trace of carbonic oxide in the atmosphere. In many gas-stoves introduce a quite sufficient trace for this purpose.

I am, as I have already said in another place, entirely against the heating of rooms by the products of combustion of either gas or coal admitted to the room itself. It is to heat in this way, it is true; and the heating efficiency so far as heat is concerned, is great. But it is not efficient heat without producing carbonic oxide in some proportion or other; and this should entirely banish such gas-stoves unless some of you can come forward with a solution of the problem of so burning gas as to produce no carbonic oxide whatever. Even then, however, it is not advisable to burn by sending the products into the room. It is far preferable to burn as little gas as possible in a room. This is not attained, so far as lighting is concerned, by the Welsbach light; but so far it has not been very perfectly attained in any gas-stove. Even gas-stoves furnished with flues to carry away the products of combustion often discharge a large quantity of products into the room. This should be remedied. It appears to me that in designing gas-stoves some fundamental principles have been neglected. It is a well-known fact that if a gas flame, or practically any flame, comes in contact with a cold surface, or even with a cold surface at all, the combustion becomes imperfect and carbonic oxide is produced. If the gas could be burned in some way so that combustion was fairly complete before the mass of the products struck any solid body, a great improvement would be effected, and practically no carbonic oxide would be produced. Such a stove may be difficult to design; but, in my view, it is well worth designing.

When the members of the Society of British Gas Industries have greatly improved their fires and stoves, they have advanced forward to an enormous extension in the use of such fires and stoves; and, accordingly, a great extension of the

\* From the address by Dugald Clerk, M.Inst.C.E., F.C.S., president, delivered before the Society of British Gas Industries.



al gas and the purification of the atmosphere. With such improvement, however, it would not purify the sphere to replace visible smoke by invisible carbonic. I am now speaking from the scientific side, and it very well be that the practical problem presented is a difficult one to solve; but it is for you to solve it.

I have said enough to show how, in my view, practice describes science and suggests problems for solution by science; while even the partial scientific solution of a problem suggests new fields of practice; and so one reacts on the other until it is difficult to say which is the more important. There is a difference, however; but notwithstanding the difference, practical men of to-day should be thoroughly acquainted with the results of science, if not in all fields, at least in their own.

Examination of the history of the rise of any industry is at first a certain thing done which is useful to mankind; and the understanding of the thing done, at first very imperfect, as the years go past increases more and more. This is very clearly shown in the gas industry. At first, a long knowledge that coal, when heated in a tobacco pipe, produces gas through the stem, which can be lit; and the application of this elementary fact by an able man, Murdoch to the lighting of Boulton and Watt's works. In years of practical application, and considerable commercial and practical success, while yet the complicated chemistry of destructive distillation was unknown. The products of the gas-works, however, gave scientific men objects for study. Taking one instance only, the discovery of benzol, and from benzol the discovery by Faraday of carbene, has led to enormously important industrial scientific results. In the same way, the study of the phenomena of flame luminosity, originated by gas-lighting, passed through many stages, until a combination of chemistry and practical application was made by Welsbach, which brought all the accumulated knowledge, both practical and scientific.

Numerous scientific discoveries have been made as the result of the gas industry, and numerous practical applications have been made as the result of scientific discoveries. The whole of our gas industry has advanced science, and has been advanced by scientific investigation. Not one article manufactured by the members of this Society, or one product which the members supply apparatus, but has not the subject of long-continued work by many minds, both scientific and practical. The union of science and practice is becoming more and more firm. In older times professors of our universities were accustomed to deplore the ignorance of the manufacturers in scientific matters, while the manufacturer was accustomed to smile at the ignorance by the professor of the practical problems which he had to be faced. A truer appreciation of both departments of work has been attained, and this was very visible in the British Association address of Professor Sylvanus Thompson this year. That address showed a complete appreciation by a scientific man of the work done by the practical man; and I think I can say now that the practical man, on his part, appreciates entirely the work of the scientific man.

In a matter more nearly concerning ourselves, this Society of practical men has had great pleasure in co-operating with the other branch, the professional side of the gas industry, and as a first result of this co-operation great success was attained at the recent Manchester Gas Exhibition. In my view, the co-operation of the Institution of Gas Engineers with our own Society is one which closely embodies the co-operation between science and practice. This is entirely necessary for the other.

### THE MANCHESTER INFIRMARY.

THE special committee of the Corporation who are investigating the subject of the utilising of the infirmary and its site recently requested Mr. T. E. Collcutt, P.R.I.B.A., to prepare a report on the subject. It has been issued and is as follows:—In compliance with the invitation from your Council, conveyed to me by the city architect, to report on the possible adaptability of the Royal Infirmary buildings for the purpose of a reference library, art gallery and municipal offices, I now beg to say that I have inspected the buildings of the building, and have the honour of reporting the conclusions of my investigations. The city architect supplied me with plans, sections and elevations of the buildings in their present state, which I have found of the greatest service in studying the problem I have before me. He has

also forwarded me a mass of literary matter from the Manchester newspapers, including the whole of the correspondence appearing in the *Manchester City News*, which I found contained many interesting suggestions on this important question.

I have made a very close inspection of the art gallery, and also the free library, housed in the old town hall in King Street. I was much impressed by the art gallery buildings; the lighting, wall space and planning seemed to be all that could be desired. The free library, on the other hand, is in my opinion housed in a most deplorable manner. I was surprised to find such a very valuable collection in a building far from fire-resisting, and I can quite appreciate the anxiety of mind of those who must feel responsible for the safety of its contents. I was enabled to form an idea of the size and importance of these collections and to appreciate their probable growth in the near future.

I made a very close inspection of the infirmary buildings, in which I was assisted by the city architect and the clerk of works of the infirmary, and am of opinion that the building is a substantial and sound structure; there are some settlements of walls to be traced, but these perhaps may be owing to the nature of the subsoil, which I understand to be clay. These settlements, however, are not of a serious nature.

I am of opinion that it would not be a difficult matter to make considerable modifications to the interior without impairing the stability of the general structure. Nearly the whole of the corridors and staircases throughout the building are of fire-resisting materials, but the floors of the rooms and wards, excepting some portions of the basement and ground floor, are constructed in wood, and of course are not fire-resisting in the slightest degree.

In making myself acquainted with the immediate neighbourhood of the infirmary I was much impressed by the magnificence of the site, worthy, I venture to think, of a building of greater architectural merit than that of the present one. The Royal Infirmary is built in a strict Classical style. The architect seems to have followed very closely the remains of the ancient Ionic temple on the Ilissus, near Athens, which was illustrated in Stuart and Revett's "Antiquities of Athens," published 1762. Attention was drawn by Stuart and by subsequent writers to the fact that the entablature of this temple, *i.e.* the architrave, frieze and cornice surmounting the columns, must be considered more in harmony with the earlier Doric order than with the more ornate and delicate treatment found in all other Ionic buildings, and that probably this treatment was adopted to admit of sculpture to the frieze in somewhat the same manner followed by the architects of the Doric order. There can be no doubt that this sculpture was necessary to bring into harmony what would otherwise have been an incongruous mixture of the two orders.

Be this as it may, the severe and bald treatment of the architrave, frieze and cornice of the infirmary buildings appears to me to be absolutely inharmonious with the Ionic columns. Furthermore, the building is not designed consistently; the entablature is not a continuous feature, as it should be, but is abandoned in places to allow of the introduction of windows to the various rooms, with the result that the effect is not only incorrect but is very displeasing.

I am sure that most Classicists would agree that this building is anything but a happy illustration of the Ionic order, and that the massing of the wings of the building is out of proportion with the central feature. The general effect is uninteresting, sombre and depressing, not so much from the unhappy colour of the building as to the lack of Classic knowledge and refined feeling in the design.

I may be travelling beyond the scope of the instructions of your Council in criticising the architecture of the buildings, but I am venturing to do so because I feel very strongly that such a noble site deserves to be adorned by a building of finer architectural conception.

In studying the question of the adaptability of this building for the purposes of an art gallery, free library, &c., I have borne in mind the requirements necessary to be fulfilled in designing either an art gallery or a free library. In an art gallery the number and dimensions of the rooms must be determined by the number and importance of the specimens to be exhibited. The site also should be isolated, to prevent fire from the adjoining buildings and to enable the largest possible amount of light to be obtained. Where it is possible a building of this character should be mostly of one storey; where two storeys are compulsory the lower



one should be at least sixteen feet high, and would, of course, be side-lighted. This method of lighting is not objectionable, and indeed for some pictures it may be considered preferable to top light. But the windows should have a superficial area equal to one-sixth or one-seventh of the floor area, the sills should be about six feet from the floor, and the top of the windows should be as near the ceiling as possible. The rooms should be arranged so that visitors should not have to pass a second time through any of the rooms.

Space should be provided for temporary exhibitions and some accommodation provided for night attendants. Store-rooms, which may be in particular cases provided on an upper floor or basement, should not only be absolutely dry, but they should be lighted by windows to the outer air. Large lifts should be also provided for conveying heavy sculpture if gallery is placed on an upper floor.

With regard to the free libraries, the rooms should be of sufficient height to allow of a gallery being constructed round the rooms for access to shelves. All rooms, including store-rooms and repairing-rooms, should have direct light in the open air.

I have mentioned these principles, as it is of the utmost importance that they should be borne in mind in considering the problem whether the infirmary can be satisfactorily altered and adapted to the purposes of an art gallery and free library.

In the first place it is obvious that an art gallery might be provided on the top floor. A new fire-resisting floor could be inserted, internal walls could be removed and the necessary top light provided. To do this, however, it would be necessary to block up the windows to the exterior elevations, with the result, in my opinion, of destroying what little interest the building may now possess. I am quite aware that it has been suggested to treat the spaces formed by the building up of these windows with some sort of sculptured ornament, but this suggestion, I feel confident, cannot commend itself to anyone having a knowledge of architecture.

Assuming, however, these objections are not of great importance, I am quite convinced that it could only be done at the expense of rendering the rest of the building unsuitable for the purposes of a library. I find that the lower floors are not sufficiently high for library purposes.

It has been suggested that the inner open court of the building might be used partly as a reference library, but to do this it would be necessary to block up all windows to the surrounding rooms and thus render them useless for library purposes. Such an arrangement would also seriously affect the proper lighting and ventilating of the building, which is a very important factor to be considered. Moreover, the maximum floor area that could be obtained (even including a possible extension of a connecting gallery to the north) would be inadequate properly to house the present collections.

My conclusions are therefore that, although it might be possible to form the upper floor into an art gallery, it would certainly be impossible at the same time to form the lower floors into a library, and that any attempt to adapt this building for the purposes of an art gallery and library would certainly result in disastrous failure.

### EXPLORATION IN WALES.

IN connection with the School of Archæology of the Liverpool University a committee has been formed for "Excavation and Research in Wales and the Marches." At the inaugural meeting Sir John Rhys, according to the *Liverpool Courier*, said he believed the work of this committee formed part of a greater scheme, which was to do justice to the whole Celtic question from the beginning—to language, literature and archæology. In the Liverpool University, which was to undertake valuable work in this respect, there was an unusually strong staff of archæologists, and he hoped that what was going to be essayed for Wales would be done with the co-operation of the professors in the Welsh colleges. The Cambrian Archæological Society, he knew, would hail with delight any assistance it could obtain from Liverpool. Personally, he had been an archæological fraud all his life, but he now and then was called on to answer letters from some Mr. Jones who wanted to excavate a mound on his farm, whose only qualification for the work was that he had seen graves dug. He usually tried to dissuade Mr. Jones from attempting to spoil the thing for ever for any future generation, but in such cases he found people did not

ask for advice intending to take it. The more people read about archæology the more they itched to be digging, and in the full confidence of ignorance did much harm. With their excellent staff of archæologists in Liverpool they would be able to teach how to do these things without ruining the ancient monuments of the country. There was a great field to explore. Going west from Chester along the north coast into Wales they would not travel far before they saw Moel Famau, which probably meant "the round-topped hill of the mothers," and "mothers" in Celtic always meant mother goddesses, which played the same rôle in Celtic paganism that the Madonna did in Latin Christianity. Nobody had yet looked on Moel Famau for traces of anything commemorating the mother goddesses, but there must be a temple somewhere. In the valley of the Conwy there were also tumuli, in respect to one of which he was glad once that an old clergyman who dabbled in archæology was prevented by the landowner from breaking into it, doing damage. At Penmaenmawr there was a vast formation of a prehistoric nature, which he hoped was threatened by the quarries, though that looked to be a case. Further on at Dinorwic, the key to the Snowdonia district, there was a vast mound whose name meant "The Fortress of the Ordovices," that was apparently used by the Romans. He did not know if it had ever been explored, but he remembered that when taking rubbings of an inscription there he had one interesting spectator, a heifer, which partly demolished his umbrella. They knew how necessary an umbrella was in the neighbourhood of Snowdon, but he was afterwards consoled by the damage by learning that the same heifer had eaten a farmer's best linen shirt. After a reference to Dinas Dinorwic, which the speaker said led them into the classic ground of the Mabinogion, Sir John Rhys remarked that in research into these places they required the help of others than archæologists. He had no doubt that in Liverpool there was a scullery—not a culinary department—but a place where the students of skulls and skins carried on their investigations, and these could give great assistance in the study of the subject. Opposite Carnarvon there was another place called the "Red Fort" on a vastly small scale, where there was a very early Celtic inscription, where he would like to see an excavation that might throw light on the origin of the place. Although a poor man, he had spent a considerable sum in rubbing the moss from a great number of Celtic inscriptions in Wales, Ireland and Scotland, or anywhere where he could hear of them, but that was merely scratching the surface. A great deal had been gained from it; but they wanted to dig into the internal depths of these old monuments and mounds and fortifications to see if they could unearth the secrets they had held so long. After a reference to the forts at Trer Caeri and Carn Fadryn, the Roman remains at Caergwrie, near Wrexham, and the Pillar of Eliseg at Llangollen, Sir John spoke of the openings for archæological research in Shropshire, Uriconium and in the neighbourhood of the Wrekin, at which he offered some original suggestions. In conclusion, he remarked that in any town but Liverpool there would be faced by the question, "What is the good of this?" Tacitus, in speaking of this country of ours, said very little was known about its history, as was usual among savages. In any other city in the kingdom he was afraid this would not have any effect on his hearers, but Liverpool had a most go-ahead university, and had got hold of strenuous men who were determined to make progress, and they were backed by a class of wealthy citizens who were more cultured than any corresponding class in any city would say, in the whole of the Empire. He therefore felt extremely sanguine in making that appeal there.

### ESSENTIALS IN ARCHITECTURE.

AN address was delivered by Professor S. H. Carpenter, M.A., of the Manchester University, to the members of the Sheffield Society of Architects and Surveyors on "Some Essentials in Architecture." After noting Mr. Belcher's analysis, in his recently published volume, of the principles and qualities to be looked for in buildings, the lecturer briefly discussed, from the architectural point of view, the relation of beauty to truth, and then considered the different phases of truth in architecture—truth in materials and in construction; in the interpretation of construction and the consequent character imparted to building. The Greeks, he said, were the first to study



top the full resources of their materials, with æsthetic considerations as the predominating factor of their architecture. With their persistent appeal to reason, and their faith in reasonableness as the true basis of beauty, the Greeks in their architecture reached a level of achievement which has never been attained; and their work, although somewhat restricted lines, remains as one of the standards to which we naturally appeal to this day. Contrasting Gothic architecture with Greek, Professor Poel pointed out that truth to materials, though never used, was subordinate in importance to truth to construction in the architecture of the Middle Ages; and that, as joining these two great principles of material and constructive truth, Gothic building, at its highest, had never been surpassed. As compared with Greek and Gothic architecture, Roman work, magnificent as were the achievements of Roman Imperial architecture, and Romanesque, extremely interesting though its varied efforts were, and as were the strides it made in progress and development, must be considered as inferior and on a lower level of architectural truth. Much of our modern work—probably much of it—fell far below the standard set for us by the Middle Ages and by Greece. Hence the importance for architects of a thorough study of the greatest achievements of the past, as giving them the highest standard towards which to strive.

A vote of thanks to the lecturer was passed, on the motion of Mr. E. M. Gibbs, seconded by Mr. T. Winder, supported by Mr. C. F. Longden and the chairman.

### THE ELIZABETHAN PLAYHOUSE.

A LECTURE was given last week by Mr. William Poel in the Abbey Theatre, Dublin, on "The Elizabethan Playhouse," which was illustrated by a series of screen-plays, in which were shown ancient Greek and Roman theatres, the forms of the ancient Greek and Roman theatres, the types which those of later Italy assumed, and also the form of the Elizabethan open theatre, which was developed in England by the needs and circumstances of the time, together with views of costumes and of the style in which plays were produced.

Mr. Poel said:—Although the Church was now separated from the stage and the stage from the Church, and each lived on a more or less independent existence, yet the connection had not been so long in use that the connection between Church and stage had been entirely forgotten. The seriousness that pervaded the work of the Elizabethan dramatists was partly due to the fact that they recollected that the drama had a responsibility something like that of a teacher. The true function of the drama was to teach as well as to amuse. He did not blame the commercial theatre. It was an institution that could not be run on other lines. But it had its disadvantages, and at the moment a theatre was established that was not supposed to be run on commercial lines, a comparison was immediately instituted between the work of the theatre that must influence the commercial theatre. He had often felt that if he were in a position to dictate to theatres he would say:—"You may have twenty theatres in your city, but only on one condition, namely, that there shall be no protective theatre in which the interests of the public shall be protected and the interests of art shall be protected, and which shall, therefore, be looked on as a Temple of Art." The commercial theatre drew a crowd who paid their money for seeing what they liked to see. The tendency of the protective theatre was quite different. The former institution deadened intellect; the latter stimulated it. The arts of the ancients originated with dances, songs and games, and were in part religious services. The players in Greek dramas wore masks to disguise their personality. The stage was an open one and the theatre sometimes held as many as 30,000 people. The features of the masks corresponded to the tragic or comic character of the plays, and the actors wore stiffs. The stage did not represent any particular scene. Only the words of the poet and the action of the characters constituted the representation. Such was the Greek theatre about 458 B.C. The Japanese stage of that day resembled that of those early times. In Rome about 55 B.C., when the age was one of luxury and decadence, the theatre assumed a different form. The building was a beautiful one, and then, for the first time, actors appeared on a raised platform, instead of speaking and acting on a central space as before. That form travelled through Italy into France, and became the stage of Molière.

The first Elizabethan stage resembled that of the Greeks more nearly than the Roman stage. The defeat of the Armada awakened the English people to a sense of themselves, and was the parent of historians and dramatists. The first London plays were performed in a courtyard, approached by an archway, and the crowds and tumult that it gathered in the street, and consequent danger to shop windows, led to the providing of other means of exhibition. The first Globe theatre was a little round building on the north side of London, and in the screen picture they could see it and the bear garden. The next theatre was an octagonal structure. These were of about the date A.D. 1610, and nothing was then known about the Greek stage; the dramatists and actors were guided by the customs of their own country only. The plays had been previously exhibited from raised stages in inn yards. It might be hard to convert his audience to the opinion that the exhibition of a play from a simple raised stage, without scenery, was better than a modern theatre; but what the audience should be really interested about was what the actors said and did. When this mode of representation was lately tried in London with plays of Shakespeare the actors to whom it was proposed at first strongly objected, but afterwards gave way, and in the result it was found that Shakespeare's words gave them everything that they wanted, and they were lost in the author's words coming through the actor's mouth. Don't run away with the idea that this sort of thing made the play ridiculous—it did not. A point of the greatest importance was that the characters should be costumed exactly according to the period of the play and the dresses that the rank of the *dramatis personæ* and the situations that arose in the text required. This had been often ignored and it showed a great want of intelligence. Olivia, after the death of her father in Shakespeare's play, should appear in black; but some modern actresses had objected to that on the ground that it did not become them. Again, after Hamlet had been shipwrecked and robbed by the pirates he should not be seen dressed in palatial apparel. Shakespeare had given Greek names to several of his personages, but that did not warrant their being attired in Greek habits, as had frequently been the case in modern theatres. Errors of this sort were due to a desire on the part of actors and actresses to look pretty and sentimental.

### VALUER AND SURVEYOR'S EXAMINATION.

IN Ireland, unlike England, Scotland or Wales, there is a Government department for the valuation of the country. A competitive examination for a valuer and surveyor (second section) was held last month in London and Dublin. The limits of age were from twenty-two to twenty-eight years. The subjects for examination were English composition, including handwriting and orthography; arithmetic; land surveying, including draughtsmanship and the making and plotting of surveys; and either architectural surveying and valuing (for rating purposes), or practical farming, including the elements of geology and chemistry as applied to agriculture and land valuing. There were forty candidates for the single appointment.

For English competition three subjects were offered, of which one was to be selected. They were, "How would a system of Protection affect Ireland?" "The reclamation of bog-land," or "Alien immigration." Seven questions were proposed in arithmetic. For land surveying a plan of an estate was given, and the candidates were to mark in all the lines to be set out and chained. A field book for the survey was also to be prepared. For the second exercise a plan of the estate to a scale of three chains to an inch was to be plotted. The conventional manner of indicating a wood, orchard and marsh was to be shown, roads were to be coloured with a light wash of burnt sienna, buildings hatched, ponds coloured blue and title printed.

The following were the exercises in architectural surveying and valuing:—

A client wishes to erect a factory on a rectangular site fronting a public road 40 feet wide, with the following requirements:—

Block of offices—two floors—40 feet square.

Main factory—three floors—covering a ground area of 3,000 square feet.

Oil store with ground area of 200 square feet.

Stabling for four horses with loft accommodation.

Four-bay open shed.

"Draw" to any usual scale, in pencil, for the use of the



client, a ground plan of the proposed buildings arranged on the site, and simple front and side elevations.

Assume proper prices per cubic foot for all the buildings and estimate approximately the total cost of erection.

Make a freehand sketch (using pencil only) of the front elevation of a modern house of a rental of about 60*l.* per annum. Details of at least one window and door are to be shown.

Give shortly the usual methods which are adopted for arriving at the rateable value of (a) private house owned by the occupier; (b) gasworks; (c) factory; (d) brickyard; (e) licensed premises.

Give without comment six classes of property which are by law exempt from rating.

Estimate the rateable value of the following:—(a) A house let on full repairing lease at 100*l.* per annum; (b) a house let on a yearly tenancy of 100*l.* per annum, the landlord doing all repairs, which average 20*l.* per annum, and paying the tithe, which is 2*l.* per annum; (c) a factory held under a full repairing lease at 100*l.* per annum, including power plant, the property of the landlord, worth 400*l.* The tenant has spent 3,000*l.* in purchasing new machines (lathes, drills, &c.), which are worked by the power plant.

### BRITISH SCHOOL AT ROME.

ON Tuesday the annual meeting of the subscribers to the British School in Rome was held. The report, which was taken as read, stated that Mr. A. H. S. Yeames, of New College, Oxford, was appointed assistant director or librarian. The director, Dr. Thomas Ashby, had spent much time on the topography of the Via Latina, which formed part of his work on the classical topography of the Roman Campagna, and he and Mr. Baker Penoyre had visited Sardinia. The number of students and associates had considerably increased owing to the admission of students from the Royal College of Science, the Royal College of Art, the Royal Institute of British Architects and similar bodies of accredited position. Mr. J. P. Droop, of Trinity College, Cambridge, student of the British School at Athens, spent November and December in South Italy, devoting his attention to the question of the authenticity of Messapian inscriptions. Miss N. Erichsen continued her study of villas and gardens of the Classical and Renaissance periods. Mr. A. Graham Henderson, a student recommended by the Royal Institute of British Architects, pursued various studies in Italy. Messrs. J. Hindle Higson, A.R.I.B.A., and S. Herbert Maw, Soane medallist for 1905-6, spent three months in Rome in architectural studies. Mr. Arthur R. H. Jackson, of the Royal College of Art, South Kensington, visited Italy for the purpose of studying colour, principally in Venice. Mr. Allan D. Mainds, Haldane scholar of the Glasgow School of Art, during a stay of six weeks in Rome itself gave his attention mainly to the frescoes of Michel Angelo and Raphael in the Vatican. Mr. Harry Morley, Owen Jones student of the Royal Institute of British Architects, spent about six months in Italy, copying in colour the frescoes in the Vatican and the Sistine Chapel. Mr. F. G. Newton, architect, spent fully three months in Italy, and made detailed copies, in colour, of the stucco decorations in the columbarium of Pomponius Hylas on the Via Latina, just within the Aurelian walls, perhaps the best preserved specimen of that kind of work. Excellent work was also done by Mr. T. E. Peet, Mr. C. E. Stuart, Miss Sylvia M. Welsh, Mr. A. H. S. Yeames and Messrs. J. A. Bessant and Arthur Kidd, travelling scholars of the Royal College of Art, South Kensington. The receipts from subscriptions during the year amounted to 539*l.*, as compared with 522*l.* and 535*l.* in the two preceding years. To these receipts the Government grant must be added, making a total income of 1,091*l.*, as compared with 580*l.* The total expenditure amounted to 1,049*l.*

Professor J. S. Reed, the chairman, referred to the late Professor Pelham, who was one of the founders of the school, and said it was proposed to found a Pelham scholarship at Oxford for the promotion of studies connected with the work of the school. It was no disrespect to the school at Athens to say that the lines of study in Italy were broader and more multifarious; for the functions of the school at Rome went far beyond the borders of classical study, and any portion of that vast field, both of time and space, was open to the students of the school. He remembered a meeting of scholars, at which somebody said, "Roman art—why there's no such thing as Roman art." Mrs. Strong's volume on the subject was a sufficient answer

to such a statement, and Mr. Ashby's book on the Campagna was another. A most fruitful field was before them. Herculaneum, and hearty acknowledgment was due to Professor Waldstein for his labours in this direction. Although thanks were due to the Chancellor of the Exchequer for his aid, money was still wanting, and especially for the great work of cataloguing all the municipal sculpture in Italy.

### FIRE ESCAPE ARRANGEMENTS.

IN July 1907 the London Council approved a statement with reference to the requirements in respect of means of escape in case of fire from factories and workshops and certain classes of dwelling-houses and shops in accordance with the provisions of the Factory and Workshop Act, 1901, and the London Building Acts (Amendment) Act, 1905. It has since been pointed out by the London Chamber of Commerce that certain slight additions and alterations were desirable. The building committee consider that some of the suggested alterations are unnecessary, but that others, which make for elasticity without derogating from the Council's powers under the Act, should be accepted. The statement has been revised and the following details of the construction, &c., of means of escape are now proposed:—

#### I.—Enclosed and Protected Staircases.

A.—*Internal incombustible staircases.*—(a) The staircases, including landings, lobbies and passages from one flight to another shall be enclosed by walls not less than 9 inches thick, the outer edges of the steps and landings being properly supported. (b) The staircases shall be ceiled with iron and concrete where they are not carried up above the roof or where they are carried up above the roof and liable to attack by fire from an adjoining structure. (c) The staircases, including the flooring in the lobbies, approaches, passageways, &c., shall be constructed of incombustible materials with solid square or spandril steps, which shall be supported at both ends on brickwork. The steps and landings shall be not less than 6 inches thick. (d) Spandril steps where used shall be of the following thickness:—(i.) For staircases 3 feet 6 inches wide, not less than 3 inches thick in the smallest part. (ii.) For staircases 4 feet 6 inches wide, not less than 4½ inches thick in the smallest part.

B.—*Internal Fire-resisting Staircases.*—(a) The staircases, including the treads, strings, carriages, landings, joists and floors should be constructed of oak, teak, jarrah, karrar or other hard timber of not less than 1½ inch finished thickness (no fir or pine must be used), and the enclosure to the staircase should be a solid partition of incombustible fire-resisting material at least 3 inches thick, carried up through the thickness of the floors. (b) The ceilings and soffits to the staircases and landings, if any, should be of plaster or cement. (c) A suitable balustrade should be provided where necessary to the outer string of the staircases.

#### II.—External Iron Staircases.

(a) The staircases, including the strings, bearers and supports, should be of iron, and constructed throughout upon dead bearings, to the satisfaction of the district surveyor. (b) The steps and landings should be constructed of solid or perforated iron plates (if perforated plates be used no perforation should exceed three-quarters of an inch across each way). (c) The risers should be of iron either solid or of a close pattern. (d) Where an external staircase is in general use, the treads and landings should be finished with a surface of approved non-slippery material as distinguished from perforated iron or chequered plates. (e) All windows and similar openings by or through any such staircase should be glazed with fire-resisting glazing, and where necessary the sashes and frames should be fixed. (f) A balustrade of a close pattern at a suitable height should be provided on each side of the flights round the landings. If balusters be used they should be not more than 6 inches apart. (g) The staircases should descend into the outer air, at the ground level, into a public way, thoroughfare, or some large open space.

#### III.—Generally as to Staircases.

(a) Internal staircases should, where practicable, be placed next to an outer wall, and be so arranged that persons enter them from any floor level in the direction of descent. (b) Internal staircases should be properly lighted and ventilated by windows, or, in exceptional cases, other effective means. (c) The treads of the staircases should be not less than 10 inches wide clear of nosings, and the risers



re than  $7\frac{1}{2}$  inches-high. (d) Staircases should be provided with handrails fixed upon both sides thereof, and continued round the landings and chased into the end of wall where these occur. (e) Where the doorways of staircases may be used as a means of escape by not more than 200 persons, they should be not less than 6 feet 6 inches wide. (f) Where the doorways or staircases may be used as means of escape by more than 200 persons or by more than 100 persons on any one floor, they should be not less than 4 feet 6 inches wide. (g) The doorways for access to and exit from the staircases should in all cases be of the width in the clear mentioned above when the doors are open. (h) All doorways leading to staircases should, where necessary, be recessed. The recesses should be constructed throughout of fire-resisting materials, and be fitted with doors of fire-resisting materials (oak, teak, jarrah, karri or other hard timber of not less than 1 inch finished thickness) in two folds hung so as to open in the direction of exit or to swing both ways clear of steps, landings, passageways and footways. Such doors must be fitted with springs, weights or other approved appliances to close them after use. The frames of the doors shall be bedded solid to the walls or partitions. Staircases should be arranged in straight flights, without landings; each flight should consist of not more than fifteen steps; landings should be provided at the top and bottom of each flight; the steps and landings should be of the full depth of the staircases. (j) Landing spaces not less than 6 feet 6 inches wide should be provided between the steps of the flights and the escape doorways leading to and from the staircases. (k) All supports to internal fire-resisting staircases and their enclosures should be of fire-resisting materials, and all ironwork supporting internal staircases and their enclosures should be protected by plastering or other incombustible or non-conducting external coating not less than 2 inches in thickness. (l) Doors at the head of staircases affording access to the roof should be glazed in the upper panels with ordinary glass.

#### IV.—External Iron Gangways and Balconies.

(a) These gangways and balconies should be supported on dead bearings and be provided with solid floors of incombustible materials; if perforated iron flooring be used the perforations should not exceed three-quarters of an inch across each way. (b) A suitable balustrade not less than 3 feet 6 inches high should be provided to these gangways and balconies.

#### V.—Enclosure and Position of Lifts.

In cases where a lift will, in the opinion of the Council, endanger the means of escape, the following requirements should be observed:—(a) Lifts, excepting passenger lifts constructed within the open wells of staircases and enclosed only with metal grilles, should not be placed near to escape staircases and shall not be connected directly therewith by means of openings or otherwise. (b) In buildings where fire-resisting floors are provided lifts should be enclosed all round with incombustible materials and fire-resisting doors or shutters. When the shaft of the lift is carried up to the roof it should be continued through the roof, and, if covered, in glass should be used, protected on the outside with strong wire guards. (c) In other buildings where there are large floors undivided by partitions, fixtures, &c., lifts may be placed as far as practicable from the staircases, exits, &c., and may be enclosed with fire-resisting materials to a height of 10 feet above each floor level and above this with stout wire-netting guard.

#### VI.—Buildings used for the Storage of Inflammable Liquid.

(a) Rooms in which inflammable liquid is stored should be separated from other parts of the building by brick walls and fire-resisting floors and ceilings. (b) Doorways for access to such rooms should be fitted with self-closing, fire-resisting or iron doors. (c) Adequate ventilation should be provided. (d) Living-rooms, workshops or work-rooms constructed over or communicating directly with any part of a building used for the storage of inflammable liquid, should be provided with exit doorways giving access to some safe position as far as practicable from the storage, and with doors hung to open in the direction of exit with only such fastenings as can be easily and immediately opened from the inside.

#### VII.—General.

(a) Proper guard rails should be provided to the routes of escape on roofs, &c., and round skylights, lantern lights and ventilating cowls on the roofs of projecting shops. (b) Clear gangways should be kept up to and between all stair-

cases, gangways and exits on all floors. (c) All escape doors should be made so as to open in the direction of exit or to swing both ways, clear of steps, landings, passageways, &c. (d) All doors usable as means of escape from both sides should swing both ways and be kept free from all fastenings. (e) All such doors must, if required to be provided with fastenings during the time persons are upon the premises, be fitted during such time with automatic bolts only. (f) In buildings other than residential buildings a portion of the upper panels of all fire-resisting doors usable as means of escape should be glazed with transparent fire-resisting glazing, and it is suggested that a portion of the upper panels of all other principal exit doors should be glazed with clear glass, the glass to be at such a height as will enable persons approaching the doors in opposite directions to see each other. (g) Windows on the floors above the ground floor facing the public way, street, thoroughfare or open space should be made to open easily at sill level to a sufficient height and width to allow a full-grown person to pass through in case of need. (h) Windows and doors affording access to external escape staircases, balconies, bridges, &c., should be marked on the inside in large letters "Exit in case of fire."

#### Theatres, Music Halls, Concert Halls, &c.

Premises to be used for music, dancing, stage plays or entertainments of a like kind are specially dealt with under the Metropolitan Management and Building Acts (Amendment) Act, 1878, and the Metropolitan Board of Works (Various Powers) Act, 1882, and special regulations relating to such premises as have been made by the Council.

### TOWN PLANNING.

A LECTURE on "Town Planning" was delivered to the members of the Ruskin Society at Queen's College, Birmingham, by Mr. Raymond Unwin, architect. He said it was true of most English towns and suburbs that the work of planning and construction has been done without imagination and without any idea of anything beyond rigid necessities. Our modern suburbs were planned in a haphazard way, and their growth governed by financial and other conditions. The idea of making a suburb beautiful was for us quite a new idea, but it was not nearly so new in other countries, and by their experience we could profit a good deal. Mr. Burns and the Government had promised that next year they would give to municipalities some powers for town planning. That these were greatly needed was proved by a recent instance in the immediate neighbourhood of Hampstead, where the municipality were powerless to prevent a large estate being laid out in the usual gridiron fashion. In a few years' time this area would probably degenerate into an absolute slum. What they wanted was the power to control such plans as these. Many Birmingham citizens, and especially Mr. Nettlefold, had worked extremely hard at this subject, and in the Harborne Tenants Society they had an excellent example of what could be accomplished by combination. These tenants societies proved there was growing up just that sense of corporate and civic life which would bring the element of beauty back to our towns again. They must set to work to provide the actual needs of the people in the most beautiful way.

Mr. Nettlefold, chairman of the Birmingham housing committee, said the lecturer had drawn attention to a most important aspect of life, namely, the enjoyment of the artistic side. It had been his (Mr. Nettlefold's) lot to have to deal with this question of town planning rather more from the business point of view. He believed they could prove town planning to be a sound business principle. Unless they could do so they would never get what they wanted in "this dear old practical country." With regard to the local experiment at Harborne, it had been praised very highly by experts in London, who gave the Harborne plans first place over a number of others. All that was now wanted was more financial support.

The Demolition of two masonry walls in the south-west tower of Dunfermline abbey nave has laid bare a beautiful clustered column, the only one of its kind in the interior, besides four masonry arches, all of which are being restored at the desire of the Crown authorities. The interior of the same tower is to be pointed and repaired to the top, a height of nearly 100 feet, and a new floor has just been laid in the bartizan tower.





### How Architects get Work.

SIR,—I should like to revert to my namesake Mr. Robert Williams's original letter of the 18th ult. with reference to obtaining work, for in the more recent amusing correspondence the main issue has been lost sight of. And though it is clear, on Mr. Williams's own showing, that his own practice is independent of "a dress coat," yet I cannot but think that his contempt for those who hold different opinions is quite uncalled for.

Is not the world large enough to admit of the possibility of several roads all converging to one point—success?

Does Mr. Williams really believe that intelligent labour is all-sufficing in these days of strenuous competition?

Let it be freely admitted that social influence is insufficient without intelligent capacity; but I have heard (on reliable authority) of a gentleman whose professional career was successful as the result of money and influence, his large amount of work being designed and superintended by the office "ghosts," and I think that many similar instances have been known. It is surely an excess of virtue (if it is a virtue) to neglect social chances. But there is even more in the question, for an architect gains great experience from the beneficial exercise of his talent by mixing with men in all walks of life.—Obediently yours,

ROBERT WILLIAMS.

3 The Parade, Abercwmheli:  
November 25, 1907.

### Egyptian Doggerel.

SIR,—Your readers are being much amused by the correspondence on "How to find a Wife," and are no doubt much impressed, as is the writer, that one member of our remunerative profession has a bath and also wears slippers. This is most interesting, for we are taught that "cleanliness is next to godliness." Good, then, "Unslipped Pantaloons," you are undoubtedly happy, for "to be good is to be happy." Oh, what bliss! no wonder you do not require a wife to cheer and comfort you. Apologising for taking up your valuable space, Mr. Editor, I am, &c.,

A BACHELOR.

London, England: November 25, 1907.

### GENERAL.

**The Death Occurred** last week of Mr. William Alexander Longmore, F.R.I.B.A., Walthamstow, at the age of 82. He was educated in the district, and at that time resided with his uncle, the late Tom Hood. For many years he was the architect to the Walthamstow School Board. He had been a member of the Honourable Artillery Company about fifty-four years. In 1892 he was elected a Fellow of the Institute.

**The Commission** which was appointed to inquire into the cause of the collapse of the great cantilever bridge over the Quebec river has issued its report. The Commission finds that the cause of the disaster was due to making a change in the original designs which, in the opinion of the Commission, materially weakened the structure.

**The Memorial** to the late Bishop of Chichester (Dr. Wilberforce) is to consist of a personal monument in Chichester Cathedral, to be designed by Mr. Somers Clarke, the cathedral architect, and of an exhibition, to be called the Wilberforce Exhibition, to be given for the purpose of assisting those desirous of entering holy orders.

**The Streets and Buildings Committee** of the York Corporation unanimously recommend the appointment of Mr. F. W. Spurr as city surveyor. Mr. Spurr was elected acting surveyor on the resignation of Mr. A. Creer last February, and prior to that time was Mr. Creer's deputy.

**A Suggestion** has been made for the purchase by the Manchester City Council of the site of the building recently destroyed by fire in Aytoun Street. The building destroyed adjoined the Minshull Street police courts, and the site would be of great value in view of a proposal to extend the accommodation of the courts.

**Mr. A. D. Price**, Local Government Board Inspector heard evidence in the City Hall, Belfast, with reference to loan of 57,332*l.* which had been applied for to execute Corporation paving works. Mr. C. E. Dyer, city accountant, gave evidence as to the existing loans and other matters. The population of the city at the last census was 349,180 and the rateable value was 1,479,000*l.* The total net debt of the city was 3,068,532*l.* 16*s.* 7*d.*, including 1,072,450*l.* 6*s.* 5*d.* sanitary loans and 1,038,000*l.* electrification of tramways. The borrowing powers of the city under the Public Health Act were 2,980,176*l.*, less the sanitary loans, the amount which he had stated. The margin of borrowing power available was 1,743,524*l.*

**The Edinburgh Dean of Guild Court** last week passed the plans for the concert hall at the Scottish National Exhibition, to be held next year in Edinburgh. The hall will form a conspicuous feature of the exhibition buildings. Externally it is square in shape, with a domical roof rising in the centre to an extreme height of 61 feet from the ground. Each side of the building is 132 feet in length and the site is convenient to the exits to Balgreen Road. There are entrances to the building on three sides. These give access to spacious crush halls, which in turn open into cloak-rooms and into the concert hall proper. On the fourth side, flanking the platform recess, are entrances to rooms for the artistes and for the choirs and bands. Internally the hall is circular in shape and is in two storeys. Seating accommodation is provided for an audience of 2,000. With the exception of the gallery, which is of steel cantilever construction, the building is of wood covered externally with fibrous plaster.

**The Fifty-first Annual General Meeting** of the Glasgow Archaeological Society was held on the 21st ult. The report said that thirty-seven members were admitted last session, including several ladies. The treasurer's statement showed that the year began with a balance of 700*l.* 2*s.* 3*d.* and ended with a balance of 818*l.* 18*s.* 6*d.* Mr. George Neilson, LL.D., was unanimously elected president and the Rev. Professor Cooper and Mr. J. T. T. Brown were re-elected vice-presidents. Mr. George M'Donald, LL.D., was elected a vice-president to fill the vacancy caused by the election to the presidency of Dr. Neilson. Lord Provost Sir William Bilsland, Dr. Thomas H. Bryce and Mr. F. J. Amours were elected members of the Council. Messrs. William George Black and A. H. Charteris were elected honorary secretaries and Mr. George J. Walker honorary treasurer.

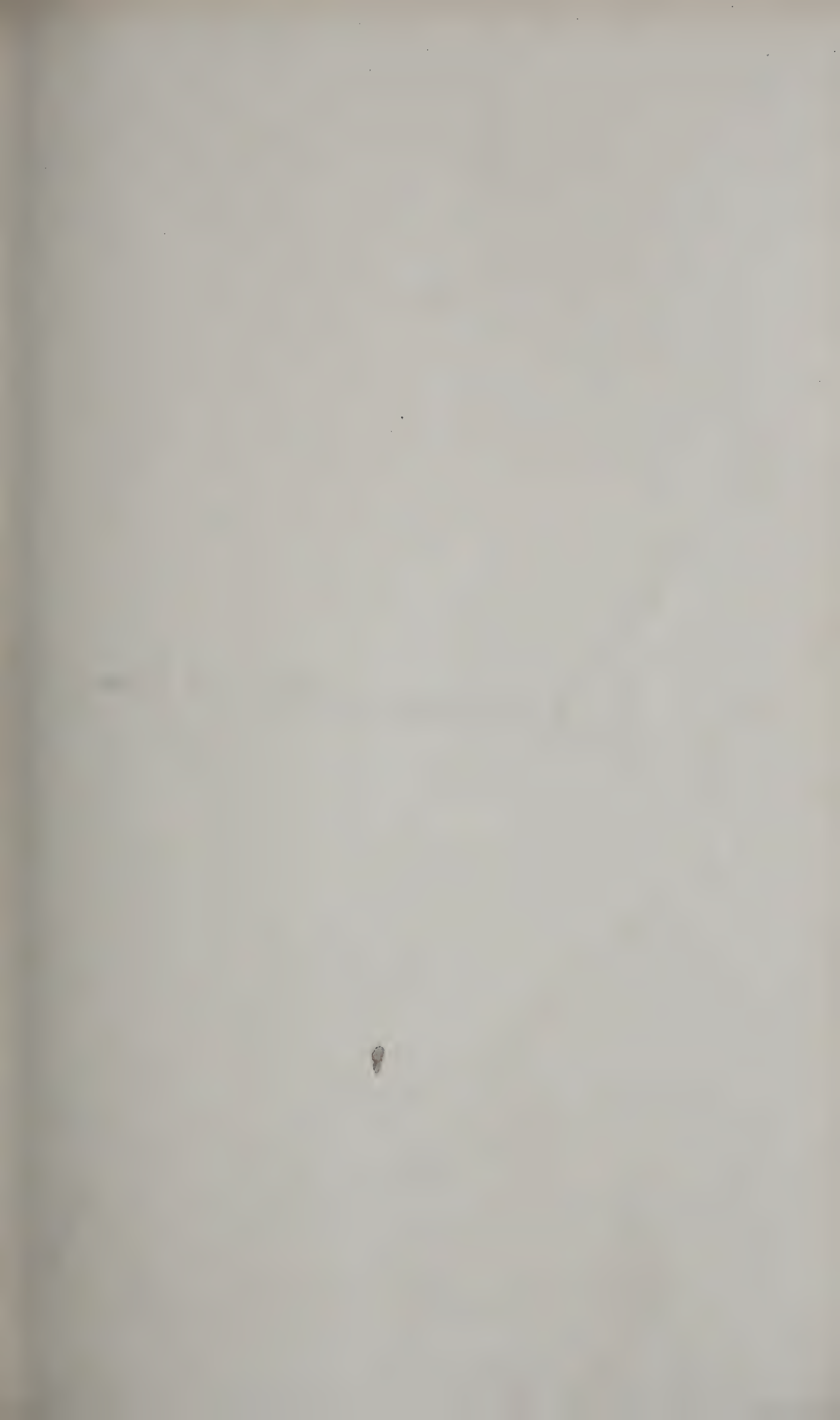
**The St. Mary's Arch**, Dumbarton, has been removed, at the instance of the Town Council, from its site in Church Street and re-erected within the municipal grounds. The structure is one of the tower arches of St. Mary's Collegiate Church, founded in 1450 by Isabella, Duchess of Albany and Countess of Lennox. At the Reformation this church suffered the fate of many others in Scotland, and became a ruin. It was, in fact, a quarry for the townspeople for several centuries, until in 1850 the arch became "the sole remnant of a once extensive pile." In its new site it has been removed as nearly as possible to its original site, where it had stood for 400 years, before its removal was first necessitated by the advent of the railway to the town.

**The Cambridge University** authorities propose that a grant of 25*l.* be made from the Worts fund to Professor Ridgeway towards defraying the expense of making a systematic examination of one or more tumuli in Ireland, on condition that he report to the Vice-Chancellor the result of his investigations in a form that may hereafter be published by the University.

**The Late Mrs. Annie Fulton**, of Penarth, has bequeathed to Cardiff for the purpose of placing in the City Hall a large painting, a view of the "Holy Loch," Scotland, by Mr. Greenlees. Another clause in the will affecting Cardiff is as follows:—"As to one other fourth part or share of my residuary estate, I direct my trustees to stand possessed thereof upon trust, to be held and applied by my trustees in their discretion, subject to the approval of the Lord Mayor, aldermen and citizens of Cardiff, for or towards the completion and decoration of the interior of the City Hall and the purchase of paintings, statuary and other works of art."

**Mr. Edgar Dudley** held a Local Government Board inquiry on Saturday in Manchester into the application of the Manchester City Council for leave to borrow 60,500*l.* for the purchase of the Platt Hall Estate, "for the purposes of public walks and pleasure grounds."











## HELENSBURGH:

PERSPECTIVE VIEW:



CLYDE STREET SCHOOL, HELENSBURGH:

ERECTED 1902-04, ALDOUS H. BENTON, ARCHT.

INK-5 5 AM-P. DET. JULY 1904.

"INK-PHOTO" SPRAGUE &amp; CO. LTD. 4 &amp; 5, EAST HARDING STREET, FETTER LANE, E.C.

RGH. N.B.

Architect.







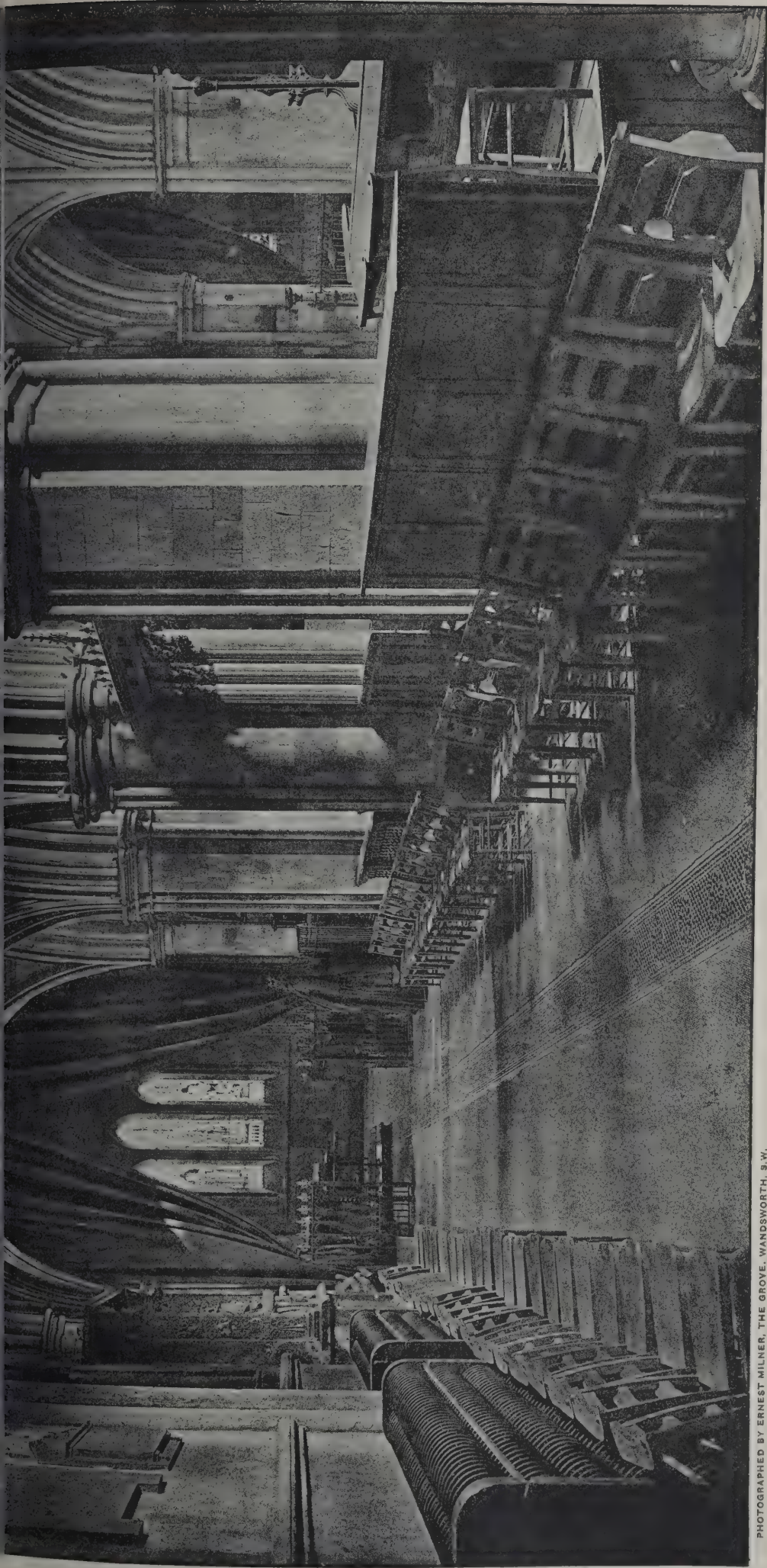




The Architect, Nov. 29<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

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CATHEDRAL SERIES, No. 616.—SOUTHWARK: NORTH CHOIR AMBULATORY.



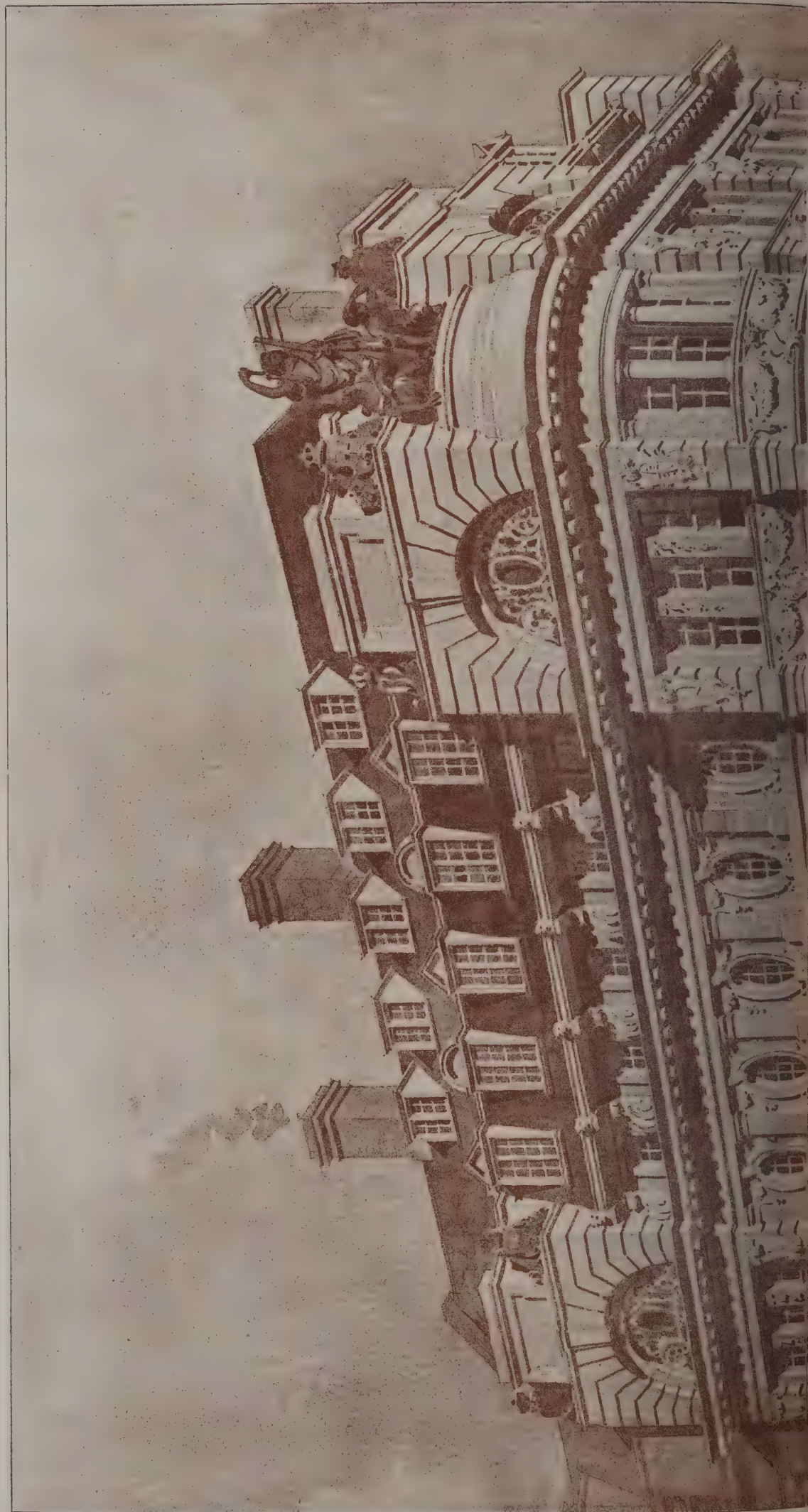








The Architect, Nov. 29<sup>th</sup> 1907.







INK PHOTO SPRAGUE & CO. 11-4 & 5 EAST HAMMING STREET FETTER LANE E.C.

NEW PREMISES FOR THE NORWICH UNION LIFE INSURANCE SOCIETY,  
CORNER OF PICCADILLY AND ST. JAMES'S STREET, S.W.

Messrs. ERNEST RUNTZ & FORD, Architects.



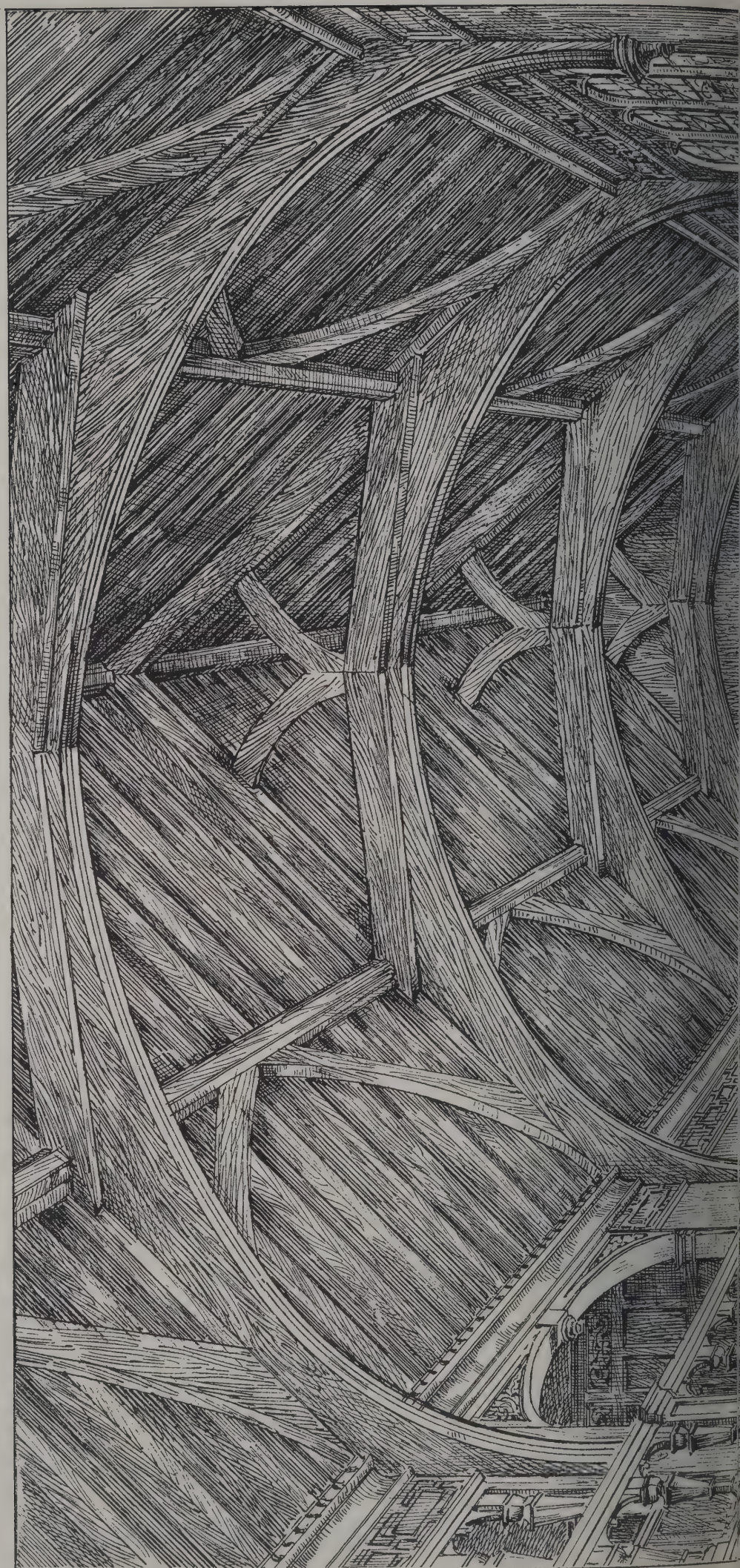








The Architect, Nov. 29<sup>th</sup> 1907.





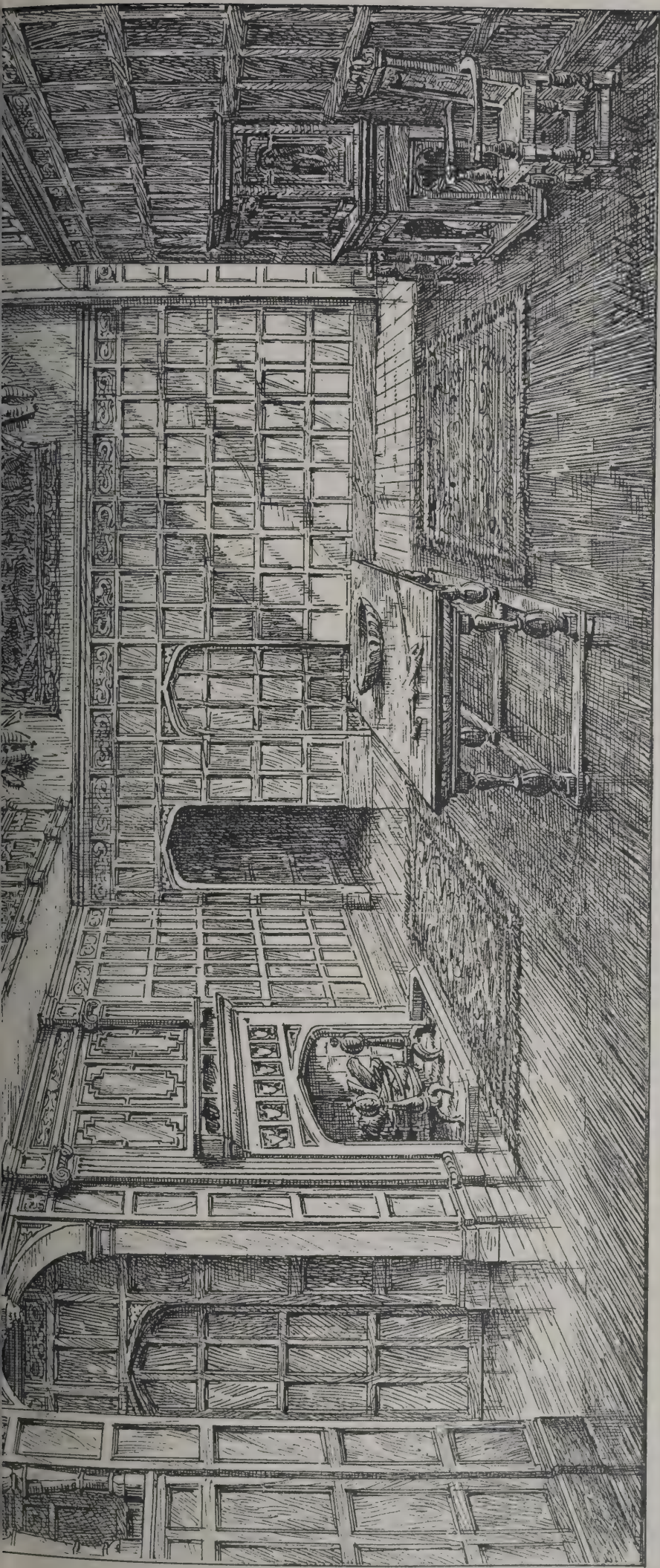


PHOTO-LITHO. SPRAGUE & CO. LONDON. 43, EAST, HARDING STREET, FETTER LANE, E.C.

**"NEWDIGATE PLACE," SURREY: THE HALL.**

J. HATCHARD SMITH, F.R.I.B.A., Architect.







# The Architect.

## THE WEEK.

ident at Blackfriars Bridge becomes the more ble from the confined space in which the opera- ere carried on. With high bridges like the ridge or the Quebec Bridge it is easy to realise ssters would follow from an apparently slight or even the slipping of a part from its posi- ut at Blackfriars Bridge height seems to be of count, and the work is being executed under s which might be supposed to render the all the workmen secure. Up to the present anation has been forthcoming which is suffi- explain why a great caisson in the form el cylinder, which had been lowered without for 16 or 17 feet, should suddenly escape atrol at the moment when it had almost the water. Sir WILLIAM ARROL, the prin- ontractor, had taken the precaution to his resident engineer to examine everything e caisson was placed on the jacks. The jacks orted by four cross-girders, and it was found e of them gave way, and the fourth, although maged, had moved. It was not the mere f the caisson which injured the girders; there e been some slight motion. It has not been ther the girders were tied or braced, and the vement of one of them if they were independent e sufficient to derange the supports. Indeed, e appear from the evidence that in similar works ers should be of special sections to sustain under extraordinary conditions. There might e of material in building them, but the cons- of accidents would be diminished if not r avoided.

TE having been obtained by Sir WILLIAM at the south-east corner of Kingsway and ueen Street, he proposed to use brick in the s, but the committee of the County Council to approve of it. The subject was referred to ration of Mr. JACKSON, R.A. His award is to t that, on the question of design, the Council bject to the proposed elevation as shown on ings, but that, on the question of material, the s entitled to require that stone shall be used elevation to Kingsway, so as to secure uni- of material in the elevations of the buildings at thoroughfare. Mr. JACKSON, however, in adum to his award, deprecates the strict appli- of this restriction. The main elevations of all dings, thirteen in number, which have been on land belonging to the Council in South- Row, Kingsway, Aldwych and the Strand have are being, constructed in granite or Portland d similar materials have been, or are being, the elevations of buildings on ten sites, be- o other freeholders, in these roads. The com- mment "That Sir WILLIAM FARRER be re- use stone of a quality to be approved by the for the elevation to Kingsway of the buildings to be erected by him on a site at the south- ner of Kingsway and Great Queen Street."

INGHAM has a right to be proud of the success o Cox, who was born there in 1783. As a boy delicate; but it was expected that he would be assist in some of the local trades, and accord- was apprenticed to a painter of lockets. Then initiated into the mysteries of scene-painting, travelled with strolling companies until in his h year he was engaged at Astley's. It was to ARLEY that he was indebted for instruction in

water-colours, and in course of time gained a reputa- tion. Cox undoubtedly possessed a style of his own. His experience in theatres made him neglectful of detail, and he therefore preferred subjects to which his breadth of handling was suited. It never could be said, however, that he sought after theatrical effects. Nature under his hand appears simple and yet grand. Another characteristic is the correspondence which exists between his skies and the scenes below. Birming- ham possesses several of his drawings, and they always seem to have votaries in front of them. It is satisfactory to be able to record that some local amateurs have subscribed and purchased 105 drawings and studies in water-colour, charcoal and pencil by DAVID Cox, and have presented them to the art gallery in Birmingham. It was explained that although Cox is already well represented in the gallery as regards his paintings, only a few of his drawings have found a place there, and those presented have been ac- quired in the hope that they may be an acceptable addition to the permanent collection, and may lead to the formation of such a large and thoroughly represen- tative collection of Cox drawings as the public gallery of his native city ought to possess. It is needless to say the drawings were accepted with pleasure, and that a vote of thanks by the Council was offered to the generous donors.

THE meeting of the National Trust for the Pre- servation of Places of Historic Interest or Natural Beauty, which was held on Friday last, was the first demonstration that the Act of the last Session had been acted on. The Society has now a partly public character, and can acquire by purchase or otherwise, and maintain or manage, open spaces, buildings and other property. But although a statutory body the Trust has not yet sufficient power to prevent the destruction of such a building as Crosby Hall. The Council has acquired Barrington Court, a fine Somerset house, although all the purchase-money has not been paid. Another property is the fifteenth-century gatehouse at Westbury College. If funds were forth- coming the Trust could have also a Roman villa in Gloucestershire and the Roman pavement at a farm- house at Bognor, which is the finest example of its class in England. Land has also been presented by Mr. CHARLES ROTHSCHILD and Mrs. RICHARDSON-EVANS. H.R.H. the Princess LOUISE has accepted the presi- dency of the Trust, and under the new conditions much may be done. But whatever may be the success in the future the services rendered by the members during the last twelve years should not be forgotten.

THE execution of work by the employés of a Corporation does not find much favour in the eyes of Mr. F. H. TULLOCH, the inspector of the Local Govern- ment Board. He held an inquiry at Sheffield on Tuesday in which authority to raise a loan was sought for replacing some of the old rubble sewers in the city, of which some 40 miles still exist. When he was informed that it was proposed to carry out the work by the Corporation staff the inspector urged that it would be preferable to have the work done by a contractor. Much, of course, depended on the contractor as well as on the supervision and specification. But on the part of the Council it was asserted that their experience of contracts did not warrant them to try the system again. The inspector maintained that with a contractor the joints would have to be properly made underneath, and moreover it was not a good practice to follow only one method of executing works. The representatives of the Council and their officers did not appear to be con- vinced, especially as in one experiment it was found that 16,000*l.* or 17,000*l.* had to be paid after it was supposed the contract was finished.



## THE INFLUENCE OF SIR WALTER SCOTT.

IN the course of the eloquent address which the ex-Cabinet Minister, Mr. GEORGE WYNDHAM, M.P., delivered on Friday at the annual dinner of the Edinburgh Sir Walter Scott Club, he said:—"He (SCOTT) produced a pure stream of literary energy, and that stream flowed for fifty years and more, turning the mills of many movements even outside literature; of the Oxford Movement in religion; the young England movement in politics and the MORRIS-ROSSETTI movement in art. The words do not directly suggest that SCOTT exercised any influence on architecture. As a lover of the belles-lettres, Mr. WYNDHAM, we suppose, was indifferent to that art, and did not care to make any special mention of it. But the Oxford Movement was closely connected with Gothic architecture. MORRIS was trained in a Gothic architect's office, and ROSSETTI possessed as much of the Gothic spirit as was possible with an Italian. It is easy for a rhetorician to go through a great variety of evolutions and to make them attractive because he is not possessed of a clue. Mr. WYNDHAM would have improved the quality of his discourse, if not its interest, if he had definitely recognised that SCOTT was a Gothicism, and that those who were most successful in imitating him were Gothicismists also.

SCOTT was born in 1771. It was his pride to have belonged to the family of the SCOTTS of Harden, who were typical Borderers. He was fascinated with feudalism, and the cause of the terrible mental sufferings which he heroically endured for sixteen years—or over a quarter of his life—arose simply from his desire to make himself a great representative of feudalism under modern conditions. In his youth he was very delicate, and he was sent to a farmhouse in the hope that he might attain ordinary strength. There he acquired a knowledge of ancient legends and ballads which determined the character of his life. When he became strong enough he was sent to the High School of Edinburgh and then to the University. In an academical sense he was not successful. In his fifteenth year he became an apprentice in his father's office, and after six years' clerkship he was called to the Bar. He was too shrewd a man to believe he would become prominent as an advocate, and when he was twenty-eight he accepted the appointment of Sheriff Depute, and in course of time he was advanced to the more important office of Clerk to the Court of Session.

The condition of SCOTT's childhood made him an archæologist, although at first it was displayed only in collecting old ballads and other poems. His predilections were with the past, and neither then nor afterwards did he assume, like the majority of scholars, any passion for the classics either in literature or in art. He stood therefore somewhat apart in the society of the Modern Athens. It is also remarkable that his first experiments in literary composition which he thought worth publishing were ballads from the German. He had tried as a schoolboy to write like others. But he felt mortified at the inferiority of his compositions. Once he met with a little approval, but he never forgave the apothecary's wife who detected his verses as copies from an old magazine. He found something akin to his own thoughts in the ballads of BURGER and GOETHE. Germany was then endeavouring to emancipate itself from the French and Classic influence, and it might be said that SCOTT's ambition was of a similar kind. He next attempted a translation of GOETHE's drama, "Goetz of the Iron Hand," and a few years afterwards he had the courage to issue the first volume of his "Border Minstrelsy." When that collection was completed he published an edition of the old poem "Sir Tristram." Then in 1805, when he was in his thirty-fourth year, he startled the world by his "Lay of the Last Minstrel," which, as he said, was intended to illustrate the manners and customs which anciently prevailed on the borders of

England and Scotland. Although appreciated by the public it compelled solicitors and others to look upon SCOTT as not adapted for legal work, and in consequence to trust to literature for a part of his income. PITT took interest in him and was desirous to aid him, but he died before he could render substantial service to SCOTT. "Marmion" and "Lady of the Lake," the two poems which were accordingly adapted to the requirements of the market, while preserving old world characters.

The facts we have related are no doubt familiar to our readers. We mention them because the evidence that at one time of his life SCOTT ran great risks by his devotion to the past. That past was to him something indefinite, like a hazy atmosphere, which by contrast gave more effect to his descriptions of Buildings were considered a necessary part of his pictures. It was in the "The Lay" that a description of Melrose by the pale moonlight first appeared. The verses did more to revive an interest in the past than many a learned treatise. But in that and other poems castles, and abbeys were introduced with a boldness which must have horrified all those who believed in the supremacy of classical rules. The serious blots in MILTON's great poem were supplied by the introduction of technical terms. A great deal of the charm of SCOTT arises from the use of the words of architects and masons. By that means he gains a precision which was afterwards imitated by writers in prose as well as poetry. Purists must have been horrified when they found SCOTT expressing himself in the following words when addressing Castle:—

Oft have I trac'd, within thy fort,  
Of mouldering shields the mystic sense.  
Scutcheons of honour, or pretence,  
Quarter'd in old armorial sort,  
Remains of rude magnificence;  
Nor wholly yet had time defaced  
Thy lordly gallery fair;  
Nor yet the stony cord unbrac'd,  
Whose twisted knots, with roses lac'd,  
Adorn thy ruined stair.  
Still rises unimpair'd below,  
The courtyard's graceful portico;  
Above its cornice, row and row  
Of fair hewn facets richly show  
Their pointed diamond form.

The Gothic of SCOTT, although it was in some respects amateurism, was very different to the Gothic as described by WALPOLE and BECKFORD, or which arose from the mental vision of poets like GRAY, WARTON and others. If SCOTT imagined he was erecting a Gothic building when he undertook to raise Abbotsford, he was in error. But he was not the first writer who realised his aspirations in building.

There can, however, be no doubt that he was the impulse which afterwards covered England with many churches and mansions which were all supposed to be Gothic, however much they might differ. Let anyone look at the proceedings of the ecclesiastical societies during a great number of years, and he will find the one subject is the Gothic church. The man who represented the philosophy of the Oxford Movement, considered that Gothic was endowed with a profound and commanding beauty that probably the Church will never see it surpassed until the City is reached. He testifies to the influence of SCOTT exercised on the movement.

It would be difficult to estimate how much the French Romantics owed to Sir WALTER SCOTT. At a time when classic subjects held possession of the theatre in Paris, a revolt began with Victor Hugo's "Hernani." It could be described as belonging to the Renaissance rather than to the Gothic period. His "Notre-Dame de Paris" the principal Gothic building of France not only supplied the title, but was closely connected with the incidents that it



ered one of the characters. HUGO was a poet of moods, and could not be expected to be always one style; but his able henchman, THEOPHILE, continued for years to display mannerisms he took to be characteristic of SCOTT. That fine "Captain Fracasse," abounds in descriptions of gowns, furniture, tapestry and other properties. When he went GAUTIER was attracted by a love of and in employing technical terms he went beyond for those which originated centuries ago, which no longer used by workmen, were introduced as the everyday language of the nineteenth century. He imagined that GAUTIER was a pedant; but he was simply faithful to the old belief of the Romantics, words which were accepted at an earlier time, even when used by the Academy, could be fittingly employed in describing the life of a past age. Other writers of the school adopted a similar practice, although their vocabulary was not so rich in antique terms as that of the "Les Grotesques." But the greatest tribute to SCOTT was rendered by AUGUSTINE THIERRY, who declared that the more real history in the Waverley novels than in the compilations which bore that name; and his efforts were endeavours to represent English life in some of the animation of SCOTT, but without the effort to utilise imagination where documentary evidence was not forthcoming.

The Romantic spirit revived the admiration for architecture in France. The Renaissance style, which was strengthened by the classicism of Louis XIV., for a time was eclipsed. Queen AMELIA had won to give her patronage to the Mediæval style, and in consequence many Gothic churches were restored. A special department was created for the protection of ancient monuments; but for several years the Government should have signified the protection of Mediæval architecture. In course of time the Romantic spirit died and then died out, and it was succeeded by one of a very different character, in which there is so much evidence it would be hard to fix a definite name. Mr. WYNDHAM would call it Realism, and would have SCOTT recognised as partly inspiring it, but there is a difference between SCOTT's realism and that of the Frenchmen. The orator told the story of the Venetian tradesman who pointed out the bust of "le grand maître" as the portrait of "l'homme le plus célèbre en l'Europe," and there can be no question that the words were at one time applicable. He helped to create a fashion in architecture which produced some of the most successful results in England and on the Continent. The extraordinary fact remains that his "own town," to which he attracted men from many other cities, was less fascinated by his spirit than other cities. The image of SCOTT appears in a Gothic shrine, and the most important buildings of the city are examples of Classic with which he could have no connection and could not take pleasure in any of its forms.

## CLASSIC ARCHITECTURE.\*

COMPLAINT was lately made by Dr. WILHELM BODE, who is supreme in the museum world of Germany, about the devotion of his countrymen to Classic architecture. Modern theories respecting it, according to him, are based on German conclusions, and during half a century at least no civilised country has fostered that element of knowledge with as much care as the Germans. Classicism naturally led to Italian art, and the way Northern art was neglected. It is, of course, easy to read between the lines. Dr. BODE is proud of what has been done by explorers and architects, and he would soon find room for noble

examples of Classic or Renaissance art among his collections. His own handbooks are evidence of his appreciation of ancient work. But as a patriot he considers that examples of all varieties of the old German arts should be highly prized.

Students of architecture throughout the world have reason to be grateful to the Germans, who in their turn might sing, "All honour be paid to the lowly spade." SCHLIEMANN and DÖRPFELD by its aid were able to revolutionise our ideas about Greek planning. When FERGUSSON made a plan of the Erechtheum which corresponded with the description of PAUSANIAS, clever men despised it because, as they said, it was not a Greek plan. What was supposed to be a Greek plan was simply one of a rectangular temple. But so firm a hold had it gained on the minds of architects and archaeologists, they concluded that the Greeks were always rectangular in their planning as in their elevations. The plan of the palace at Tiryns was enough to reveal that, when occasion demanded it, the Greeks adopted a most complicated arrangement for their buildings. What is true of Tiryns is no less applicable apparently to the Palace of Knossos, if one can judge from the portion revealed by Dr. ARTHUR EVANS. When the first edition of "The Architecture of Greece and Rome" was brought out, Dr. EVANS's name was not mentioned in it. In the second edition just issued an abstract is given of his discoveries in Crete.

The German people are made acquainted with the progress of explorations by their countrymen with as much regularity as they learn about Court news, or the vacancies in public departments, or the movements of troops. In this country, unfortunately, similar work is carried out at the expense of subscribers, and in general they prefer to keep any knowledge which is gained to themselves. It is only on the occasions when further aid is sought that specimens are exhibited or paragraphs issued to show that the explorers have not been idle. With such a volume as that by Messrs. ANDERSON and PHENÈ SPIERS to serve as a ground, it would be comparatively easy to give the bearings of any discoveries which may be made. What has been done in the second edition by Mr. PHENÈ SPIERS is enough to prove the feasibility of having an English book which as respects Classic architecture embodies the latest researches.

As we have said, an abstract is included of the important work which Dr. ARTHUR EVANS is carrying out single-handed in Crete. One of the most important revelations was that a staircase existed which led through two storeys and which, so far as is known, is unique. Concerning other remains Mr. PHENÈ SPIERS writes:—

Among other valuable architectural discoveries are the bases of columns of cypress wood found in various parts of the palace. Still more important is the fact that from the charred ends in the council chamber, and impressed moulds in other places, Dr. Evans has been able to reproduce some of the columns themselves. For the echinus of the capital, which was probably of stucco; he has had to depend on what is called the *Temple fresco*, a painting found on one of the walls. It represents three temples, the middle one distyle in-antis, and raised above the others, which have but one column in-antis. The latter peculiarity is proved to be no mere convention by the single base found in the entrance portico in the propylæa, and in the portico to the throne-room, besides similar instances found at Phæstus. The column thus restored tapers downwards, the diminution being about one-seventh. The abacus had great projection; and in the staircase court, where it had to carry the superstructure and the cross beams of the upper floor, it was 3 feet 5 inches square. It would seem that the Cretan architects had recognised that the trunk of a tree was equally capable of carrying weight, whether in its natural position or inverted, and that when employed in the latter position the rain would more readily fall off it, and thus tend to its better preservation. It has the further advantage that, with its greater diameter at the top, an increased support was given to the abacus. Other paintings and porcelain mosaic slabs found in the ruins suggest that the upper part of the walls was built of unburnt brick

\* *The Architecture of Greece and Rome. A Sketch of its Development for the Use of Students and Others.* By J. Anderson and R. Phenè Spiers. Second Edition, and much enlarged. (London: B. T. Batsford.)



or rubble masonry with clay mortar, and enclosed in timber framing, above which appeared circular discs, which may have been the ends of logs of wood supporting a floor or roof. Two other decorative fragments were found—a triglyph frieze, and portions of the architrave of the doorway of the propylæa, the former similar to examples found at Mycenæ, and the latter, with its rosaces and the undulating lines enclosing them, being identical with those on the architecture and lintel of a door in one of the tombs there.

The tapering column was long thought to be a peculiarity of the Lions' Gate at Mycenæ. But evidently it was used elsewhere. In the former edition the restoration of the tomb of AGAMEMNON was adopted from the restoration by PERROT and CHIEPIEZ. The gift of the two half-columns by the Marquis of SLIGO, which are now in the British Museum, has enabled Mr. PHENÉ SPIERS to produce a restoration of the entrance to the tomb which is of a different character, and one that seems more probable. The lions and the tapered column are introduced above in a triangular enclosure, as if they formed the armorial bearings of the king.

It is not to be supposed that the portion relating to Knossos and Mycenæ is the only alteration. Other parts of the chapters relating to the archaic period have been likewise revised and altered wherever necessary. The introduction of plans of the early temples is also advantageous. In other parts of the book the same care is taken, although it may not be apparent at first sight. The remodelling is so extensive it would be difficult to give an account of it in our limited space. For instance, in the description of the Parthenon there are additions relating to the subtle curves which were employed in the building, although elsewhere segmental and others easily obtained were made to serve.

The frontispiece in the second edition is a reproduction of a drawing by DEERING-GANDY which is now in the Soane Museum, and is supposed to suggest the sanctuary at Eleusis. There are no actual remains of the building, but it probably resembled the Temple of Apollo at Bassæ, from which COCKERELL derived the type of Ionic capital which he preferred.

With works of the kind few authors care to undertake a revision which will necessitate any sacrifice of the labours of a former time, and the composition of new matter is commonly overlooked. Mr. PHENÉ SPIERS has not shirked operating in both ways. The new volume on "The Architecture of Greece and Rome" is accordingly an improvement on its predecessor, and can be recommended to those who are studying ancient architecture as the basis of modern styles, or from its connection with Greek and Roman life. There are other styles, but none have so long held their ground or are likely to be more influential in the future. On that account this "sketch," as it is modestly called, deserves to be more carefully studied than works on the other styles, owing not only to the inherent interest of the subject but also on account of its manifold relations.

#### THE HOUSING PROBLEM.\*

**A**MONG all the sanitary problems there is not one which is more difficult to solve than the housing of the humbler classes. In the first place, the respect for property is sufficiently strong to prevent the taking of extraordinary measures for the demolition of houses which are unfit for habitation, or for compulsory purchase of them at prices below their market value. A still greater obstacle, perhaps, is to be found in the power of selfishness, which prevents one class of people from expending money for the benefit of

another class. It is easy to believe that a number of those who live in slums could, if the industrious and sober, afford to rent rooms in the better class. Their misery is looked on by the wealthy as if it should be a spur to exertion. It is not sufficiently realised that insalubrious quarters enable diseases to increase in intensity at last the occupants of the most costly houses become victims to them. But fear of contagion unquestionably exercised sufficient influence to bring about a great change. The extent of it can be seen by comparing Alderman THOMPSON'S "Handbook" which was issued in 1903, and the supplement which has now appeared.

In the first paragraph he is able to admit that although much remains to be done, yet "overcrowding has decreased; a smaller number of persons are found in one-room dwellings; the number of persons per house is slowly but surely growing less; some of the most insanitary of the old slums have been cleared or improved, with liberal provision of better and cheaper transit, especially by electric tramways and electric trains, has encouraged the dispersion of the population from some of the crowded centres." Much more would have been accomplished if the Legislature as well as individuals were able to realise that the lives of human beings are at stake, and that arrangements for their present needs need not necessarily be uniform with those which prevail in ordinary trading. Many owners of land make no difference between the offers of sanitary authorities and those of railway companies. There is no fund existing from which money can be obtained on terms suited to the circumstances of the case, and by-laws generally insist on methods which are costly. Benevolence finds other channels for its efforts, and improvements in house-building are easily taken up by individuals to return a profit on the outlay which will compare with interest on railway shares. It is not therefore surprising that improvements, as shown in some of the illustrations to Mr. Alderman THOMPSON'S book, as in Birmingham, are not always suggestive of a transformation of the removal of a few houses or other obstacles, although it may appear of little account to lovers of the picturesque, has an important meaning to people who have to live in such districts. The difficulty of acquiring property is suggested by an experiment in Notting Dale, Kensington. The general death rate was 49.5. It could not be announced that an improvement was contemplated, or the value of the hovels would ascend. A fund was advanced on the personal responsibility of the Mayor. Leasehold ground rent was purchased at 200*l.* per house. But when it was found that a public work was about to be undertaken, the others rose to 300*l.* The alterations were carried out in some cases for 60*l.* per room, and in other cases cost 129*l.* In one respect the scheme was a success. Out of 350 tenants who were rehoused in comfortable flats, 84 had lived in the houses in their primitive state, which shows that some people prefer to vegetate in unsatisfactory surroundings.

In England 5,900 block dwellings have been erected since 1903; more than three-fourths belong to London, and four-fifths of the rooms. Very few additional block dwellings, says Mr. THOMPSON, have been erected in English towns. He calculates "that a week's wages are required to pay a month's rent in municipal block dwellings, except in Scotland, where the workman spends a smaller part of his income for house room than the English workman, by the simple expedient of acquiring a smaller number of rooms in his dwelling." Old-fashioned flats and cottages appear of late years to find favour with the working classes. Of the last those costing 150*l.* and under are, we learn, fast becoming a respectable total.

It is shown that the effects of the County Council housing experiments in London are that the death rate has fallen 30 per cent. in seventeen years, and that

\* *Housing Up-to-Date* (companion volume to *The Housing Handbook*). By Alderman W. Thompson, chairman National Housing Reform Council. A practical manual giving the latest facts and figures. (Published by the National Housing Reform Council, 432 West Strand; W. Thompson, Richmond; and P. S. King & Son, Westminster.)



100 extra lives were saved in 1905 as compared with 1900. The interest on sinking fund of all the billings amounts to 47.86 per cent. of the gross bill, and the working expenses to 40.23 per cent. In 1894 to March 1906 "a sum of 56,882*l.* has been temporarily defrayed out of the rates, of which a sum of 7,798*l.* has already been repaid out of revenue, leaving a net contribution from the rates of 39,084*l.*, owing mainly to the fact that during the time the houses are being erected, and before any rent can be received from them, the expenditure is bearing interest and brings back no return."

Liverpool is making most creditable efforts to overcome the housing difficulty, which used to be exhibited in some of its worst forms in that city. Nearly 5,000 houses have been provided by the Corporation. No less than 8,000 houses had to be removed; the clearance or purchase of land cost about 500,000*l.* and building cost 1,000*l.* In the Hornbury Street area the cost of building has averaged about 65*l.* per room, which is equivalent to 10*s.* per square foot of floor area, or 56*l.* per cubic foot of room space. The floors are constructed of small steel joists and coke-breeze concrete, and the flooring-boards are nailed direct. The Corporation buildings do not appear to have interfered with ordinary enterprise, especially in the suburbs. Descriptions are also given of what has been done by private effort and co-operative societies throughout the city. When another supplement is published by ALDERMAN THOMPSON, it will no doubt be possible to include details of the Sutton Housing Trust. Apparently, the testator desired was to provide houses for the best class that can contrive to pay a rent, however

examples are given from some of the cottage exhibitions. In several towns municipal cottages have been erected, some for less than 150*l.* each, while others are slightly in excess. Alderman THOMPSON has something to say concerning town development, a subject that may be discussed in the next Parliamentary session. He considers that new styles of streets are required, and he refers as an instance to Earswick village, where the macadamised roadway, only 12 feet wide, is bordered by strips of grass 6 feet wide on each side, leaving a simple path. There is consequently a width of 24 feet between the cottages. As they are let at 18*l.* a year, the outlay on an ordinary 40-foot road could never be recouped.

In addition to the information concerning the English housing problem, the volume contains a very interesting part of the volume devoted to foreign practice, which is carried out sometimes by the municipalities, sometimes by the police department. It cannot be said that more facilities exist than in England. Where there is compulsory purchase the cost is fixed by tribunals or experts. In Paris no street is to be less than 12 metres wide. In Italy the works for working-class houses are carried out by the municipality. The advances by the State, it is difficult to say, are small when compared with England. London at present is apparently more crowded than any other city at its worst; 43 per cent. of the population live in dwellings of one room, or a room and a kitchen. For every fifth to one-sixth of the population one or two rooms have to accommodate from six to more than ten persons. The greater number of the working classes live a nomadic life, for a fourth of the people are liable to be turned out at a fortnight's notice.

Buildings which have to be erected on the cheapest sites do not afford opportunities for the display of architectural art. In the smaller houses and cottages efforts are occasionally made to avoid the monotony which for so long has been the characteristic of expensive houses in the crowded and unlovely streets of London. It may not be profitable for an architect to devote so much labour to humble work, and what is seen in some cottage settlements is a public recognition for skill in producing pleasing results under difficult conditions.

"Housing Up-to-Date" truly suggests the character

of Alderman THOMPSON's supplementary volume. As a pioneer he has become acquainted with all the difficulties of the subject, and there is no official publication from which a tithe of the information to be found in his pages can be obtained. It is difficult to estimate the utility of such a guide-book to those who desire to initiate or to aid in improvement schemes.

## WHITEHALL PALACE.

A LECTURE was given at the Royal United Service Institution by Canon Edgar Sheppard, sub-dean of His Majesty's Chapels Royal, on "Whitehall Palace and the Site of the Execution of Charles I." Whitehall, he said, was a term still associated with all the Royal palaces in England, as well as with many old castles, and, historically, with the place of assembly for peers in Parliament. In the case, however, of the Royal Palace of Whitehall, the title had been, so to speak, specialised. What was once York House had since the days of Henry VIII. enjoyed the proud distinction of being the Whitehall of all the palaces. The palace was erected on a site originally occupied by a large mansion built in the year 1240 by Hubert, or Hugo de Burgh, Earl of Kent, and it came into the possession of the Preaching or Black Friars. In 1248 they sold the palace to Walter de Grey, Archbishop of York, who died in 1255, and from that time until the fall of Cardinal Wolsey—a period of nearly three centuries—it was the London residence of the occupants of the see of York, thirty of whom dwelt there in their official capacity. The building was accordingly known during that period as York House. It was during the residence of Cardinal Wolsey that York Place began to be invested with that splendour which was usually associated in our minds with the word palace. Wolsey was the last archbishop who occupied York House. Upon his disgrace in 1529 it was delivered to the king by charter, and in the summer of 1536 another Act was passed which annexed it to the ancient Palace of Westminster, whereupon, according to Brayley, the king changed the name and called it the King's Manor of Westminster and no more York Place. The acquisition was a very convenient one, for not only had the old palace of the king—in the Palace Yard at Westminster—fallen into decay and ruin, but the Court was without any residence in that quarter at that time, where its seat was usually held. In Whitehall then—after various alterations and buildings had been completed—the king fixed his Royal residence, and it was the dwelling-place of his successors till the disastrous fire in 1698. The Royal mansion extended, so we were told, from Scotland Yard on the north to Cannon Row and the top of Downing Street on the south, and east and west from the Thames to St. James's Park. Very little was done to improve it in the reigns of Edward VI., Mary I. and Elizabeth. It had fallen into a dilapidated condition in the time of James I., and the king thought it desirable to rebuild it on a magnificent scale. For this purpose he secured the services of Inigo Jones, but the only part of the plan that was carried out was the Banqueting House, a circumstance owing, it was stated, to the immense extravagance of the Court. With the fall of the House of Stuart the old Palace of Whitehall ceased practically to exist. The Banqueting House, or Hall, was the only important portion of this famous palace that now existed. There was no building in London more sentimentally and historically connected with the life of the nation, and it was strange to reflect upon the various uses to which it had been put in the course of its existence. Installations, masques and other ceremonies had from time to time taken place within its walls. In the reign of Charles II. it was the scene of a sale of the famous collection of pictures of the Duke of Mantua. Upon the accession of George I. it was converted into a Chapel Royal, though never consecrated, and was used as such for the performance of Divine service till the autumn of the year 1890, when it was lent by Queen Victoria to the Royal United Service Institution. The Banqueting House was completed within the space of three years at a cost of 14,940*l.* 4*s.* It was part of a design intended to cover a space of 1,152 feet by 874 feet, and it was the only portion of King James's vast scheme for rebuilding Whitehall Palace which was ever carried out. The chief point of interest in the interior of the building was the ceiling, for which Charles I. at the beginning of his reign in 1630 invoked the services of Rubens, who had been sent to England by



the Infanta Isabella as ambassador from Flanders. Rubens was paid 3,000*l.* for the work, in which, according to Sir Godfrey Kneller, he was assisted by Jordaens. The sketches were made in England, probably upon the spot, but the actual painting was executed and completed in Antwerp in the year 1635. It was a fact, as interesting to learn as it was tantalising to reflect upon, that Charles I. was in treaty with Vandyke to paint on the walls of this chapel the history of the Order of the Garter, but death prevented that artist from entering on his task, as the outbreak of the Civil War would have prevented him from completing it or being paid for it had he lived. After describing the gateways of the palace and other features, Canon Sheppard quoted the views held by various authorities on the subject of the site of the execution of Charles I., also Lord Beaconsfield's advice to a lad, "Never ask who wrote the 'Letters of Junius' or on which side of Whitehall Charles I. was beheaded, or you will be considered a bore." The lecturer examined in detail points in dispute as to the position of the scaffold and the access to it. Summing up the results towards which conflicting views tended, and supporting himself by the evidence set forth by the late Sir Reginald Palgrave in his letter to the *Times*, May 17, 1890, he inclined to the view that the king was executed under the second or third window in the open street facing the Horse Guards, and that the window from which he stepped on to the scaffold was in a small building abutting on the north side of the present Banqueting House. Herbert in his "Memoirs" said:—"The king was led along all the galleries and Banqueting House, and there was a passage broken through the wall by which the king passed to the scaffold." Mr. B. E. Sargeaunt had found that at the north end of the hall the brickwork was only a foot thick, and his idea was that access to the scaffold was at that point.

#### EDINBURGH ARTS AND CRAFTS CLUB.

AFTER a lapse of three years, another exhibition of the Edinburgh Arts and Crafts Club in the Lower Dean Studio, Belford Road, was opened by Sir Rowand Anderson. Having declared the exhibition open, he said:—"Since the establishment of the Club in 1898 their work had been progressing in character and scope. It was carried on on true lines, and would in time bring about a wider and more catholic view of what art was, because the more it was known the better it would be appreciated. While they were doing good work, they had much still to accomplish, and they had one or two serious obstacles in their path. One of these was the blighting influence of machinery, and capitalists using it to produce the false and the untrue for no love of art, but for the sole purpose of personal profit. He was not going to condemn machinery as an unmixed evil—far from it. Without machinery and exact science we never could subdue nature and ameliorate life as we were now doing. What he objected to was capital using machinery to supply the uneducated masses, high and low, with the spurious and the false. That phase of commercialism was like a great octopus; as soon as the cultured few showed their appreciation of anything that was really good, its long tentacles would seize on it, and the market would be flooded with cheap and spurious imitations. In doing that the public taste was warped and degraded, until it had culminated in the falsification and the adulteration of almost everything that was made. Another obstacle to their progress was the overpowering influence of the picture painter. He alone was talked of and written about as an artist, and art literature was almost exclusively confined to picture painting. Painting and sculpture had been too much dissociated from the constructive arts. A sculptor was only recognised as such if he could make white marble busts or figures, a material unfit for our climate, and generally out of harmony with its surroundings. Sculpture could never flourish as it once did until it was intimately associated with architecture and executed in the stone of the building, and not in marble. The same might be said of some of the other arts—for example, stained glass. The custom of calling in a picture painter as an arbiter and adviser was responsible for most of the bad glass we saw about us, and all but a few windows were merely transparent pictures. Even architecture had suffered from the same cause. When plans of buildings had to be submitted to the Town Council, it was always a picture painter who was called in to guide and advise them, and as the only thing he could speak about was the sky-line and the so-called grouping of the masses,

the essentials and fitness of a building were overlooked, and in one case that he knew of the plans had, from defect in these essentials, to be withdrawn, although the sky-line had been blessed by the picture painter and the Council had meekly accepted his verdict. But he must not unmagnify these obstacles. There were now signs of better times, and a truer and sounder knowledge and appreciation of art prevailing everywhere. They must always let material and the purpose dominate the design, and the personality of the designer should always be seen in it, as was in a workshop like that, where the arts and the crafts were combined in one individual, as it should be, that the traditions of true art could be recovered. In his opinion the admirable work which they had produced in many departments had vindicated their title to be looked upon and recognised as artists in the fullest sense of the word.

#### ARCHITECTURE IN CARLISLE.

THE opening lecture of the session of the Cumberland and Westmorland Society of Arts and Crafts, on "The Rise and Progress of Architecture in the Diocese of Carlisle," was given by Mr. J. H. Martindale, F.R.I.B.A., in the gallery of Tullie House. The Bishop of Barrow presided, and there was a fair attendance.

The Chairman, in opening the proceedings, said that the architecture of Cumberland was a very interesting subject, for in many respects it had different qualities from the architecture of other counties. Cumberland stood by itself as a border county, and in many respects that fact had modified its architecture. The manor-house which was met with in more peaceful counties in Cumberland took the form of the pele tower or fortified tower more or less; even in church architecture they found that it had been modified also in that way, many of the churches having really the little fortresses of the village in which the parishioners might take refuge in time of danger. They had many interesting churches close to them. The architecture of Warwick, for instance, was a puzzle. The end of it really looked off the line, but if they looked at it they would see that it seemed to have been fortified as if it had been the stronghold of the village, the windows were so narrow and the walls sloping just like the lower wall of a tower. Then there was that interesting church at Bolton which looked as if it had been taken up out of Touraine and dropped down in the middle of Cumberland. It looked as if some Cumberland squire during the time of the French wars had followed his sovereign to that country and brought some builder from France to build that church at Bolton.

Mr. Martindale in the course of his lecture, which was illustrated with numerous slides of old churches, abbeys, castles, &c., according to the *Carlisle Journal*, said that except for the excellent work done by the Cumberland and Westmorland Antiquarian Society very little had been written about the architecture of the two counties. He mentioned in his "Styles of Architecture" enumerated a few of their ancient churches and fewer domestic buildings. Geographical position and geological formation had always influenced architecture, therefore in Cumberland and Westmorland, being Border counties with extended seaboard and on the more ancient rock strata, they found the influences at play. Roman, Saxon, Dane, together with the "canny Scot," had for the last 2,000 years contended for their beautiful hills and lakes and had made them a battlefield of clans, with the inevitable result that traces of the strife were left on the people of the two counties in their architecture. In dealing with the buildings in the northern counties they had two very important considerations to make. First, that all architecture in the North was some twenty, thirty or even fifty years later in date than in the South, and therefore the changes in style or new features required some years before they were published in the architectural journals of Cumberland and Westmorland; and secondly, that the native sturdy independence and contempt for rule and fashion were shown by the archaic-looking certain features in almost all periods. The ecclesiastical architecture of the diocese had a distinctive type and style of its own. Owing in a great measure to the hard and unyielding nature of their building stone generally the churches were small and unassuming, consisting of a nave, chancel and bellcot in place of a tower, or with a very small tower. They had comparatively few large towers and fewer Mediæval spires. They saw none of the magnificent west end types of Somerset towers and East Anglian spires in the district, but had a unique example of a central tower



rtmel. On the other hand, if they had none of the s mentioned they had a number of small whitewashed hes in the diocese which were beautiful objects in the cape. They had very few striking examples of the rated and Perpendicular periods, with the exception he choir in the cathedral, Cartmel, Greystoke, portions of Kirkby Stephen, Brigham and Kendal. eature of all others which struck every observer and even the name to the style of the fourteenth century, ie geometrical tracery in the windows, was superbly sented in the east window of Carlisle Cathedral, rsally acknowledged the most beautiful window of its n England. Old churches were seldom taken down, llarged, and the builders always tried to arrange for e during the alterations, and to that principle they the historical interest and much of the beauty of their hes. In all their churches most striking details might und, and many of them had been ably treated by i Bower in his papers on piscine and effigies, brasses nural decorations in the diocese. There was an ous fund of interesting information in most of churches. Of the 164 churches in Cumberland alone fifty-six were ancient buildings, retaining main walls iginal divisions of plan, and between forty and ore were rebuildings on ancient sites, and had ents in the shape of old details, stones and fittings orated in the present structures. The lecturer also with military and domestic architecture from the time : Saxons, and especially with the period succeeding nquest. He exhibited slides of Carlisle, Naworth and castles, including Highhead before it underwent ion by Judge Hills, and described their leading es. The castles of about the period of the Conquest of two types, those with the shell keep and those with ctangular keep. The best kind of shell keep was at rmouth, and Carlisle, Brougham and Appleby were xamples of the rectangular type. He quoted an sting account of the state of the defences of the h border written in the time of Queen Elizabeth. astles mentioned in the account were Bewcastle, a of great defence; Rowcliff, Carlisle, "a place of respect"; Drumburgh, "neither castle nor tower, ouse of convenient strength and defence"; Bowness :or Tower belonging to the parsonage, "adjoining to a crick which divideth the English and Scotch s"; and "Woulstre Castle," which was described as t about "four houres boting over the sea crick to nd."

### CROSBY HALL.

E local government, records and museums com- mittee of the London County Council have prepared following report:—

e regret to report that we have ascertained that the ations of the Crosby Hall Preservation Committee been unsuccessful, and that there is danger of ition commencing almost immediately. In these cir- ances we have considered whether, all other ours having failed, it would be possible for the il, as a last resort, to make an effort to preserve Crosby Hall. After much consideration we are prepared mit to the Council a scheme which appears to us well ted to bring about the desired result. It will be remembered that a sum of about 60,000*l.* has y been subscribed towards the preservation of the nd there are indications that this amount would be sed if there were a real chance of success. If the eferred to were transferred to the Council, the Council be enabled to purchase the whole site, including Crosby Hall, at its fair market value, and would at the same e in a position to offer great inducement to a tenant : the surplus site and use the hall for such purposes would be available for under agreement with the il. The consideration to be paid need only be suf- to cover the cost to the Council involved in the pay- of interest on, and repayment of, the purchase money 0,000*l.*, and the amount of interest and repayment decrease yearly until it was extinguished in sixty time. Under such an arrangement no charge would on the county rate.

e cannot help feeling that the bank would not wish to in the way of the Council acquiring the site on these it being understood that the first proposal for the use hall should be made to the bank. The bank would, the terms rendered possible by the Council's inter-

vention, be able to secure the surplus site at no higher price than they have paid for it, and to rent the hall at a consid- erable reduction on the commercial value of the site, this reduction enabling them to secure any further accommoda- tion they may require without any extra charge to them- selves.

The disinclination of the bank to retain Crosby Hall under their present scheme is, we understand, due to the fact that they have been advised that, having regard to the area which the hall occupies, sufficient use could not be made of it as it stands to justify the expenditure incurred. With the assistance, however, of the 60,000*l.* subscribed by the public the Council would be in a position to make an arrangement with the bank which would get over this diffi- culty.

If, however, the bank did not see their way to negotiate for the site on these lines, although they might be prepared to allow the Council to purchase it, there would still remain other business means of letting the site, and at the same time preserving the hall. We believe that the bank would assist the Council in its efforts to satisfy the public demand for the preservation of this historic building. For this purpose it is essential that two conditions should be observed—(1) That the bank agree to the acquisition of the property by the Council; and (2) that the Crosby Hall Preservation Committee undertake to transfer to the Council the sum which the public has subscribed towards the preservation of the hall. It would be useless for the Council to take any steps unless both these conditions were secured. With them in hand we believe that arrangements can be made suitable to the desires of the bank and of the Council; without them the present proposal falls to the ground.

It will be seen therefore that if such a scheme as is outlined above were carried through, at the end of sixty years the Council would have in its possession, on behalf of the public, the hall free of any encumbrance. During the intervening period it seems possible that the use of the hall by the public would be restricted, but in any case the building would have been saved.

We are informing the finance committee of our inten- tion to submit this report to the Council, and, in view of the very great urgency of the matter, we have asked them to consider the financial proposals of the scheme as it may be settled by us so that it may be considered by the Council on December 10. Our present recommendation is limited to power to negotiate, it being necessary for the Council to direct us to take these initial steps, so that if they are successful we may at a later stage present our completed scheme for consideration. These negotiations would not commit the Council to approval of any scheme, but would indicate the earnest desire of the Council to take into consideration the question of completing, on behalf of the public, an effort which we believe has only failed to succeed owing to the short time at the disposal of those who conducted the negotiations. We recommend:—"That in view of the imminent risk of Crosby Hall being destroyed unless immediate action is taken, the local government, records and museums committee be authorised to ascertain whether the Chartered Bank of India, Australia and China would sell to the Council the site they have purchased, which includes Crosby Hall, and whether the Crosby Hall Preser- vation Committee would be prepared to hand over to the Council the amount subscribed or promised by the public; and that the local government, records and museums committee do report whether on these lines suitable arrangements can be made to meet the requirements of the bank and at the same time avoid the destruction of the hall."

At the meeting of the London County Council on Tuesday, an amendment was carried to the effect that the committee should be empowered to confer with the City Corporation, the bank authorities, the Crosby Hall Preser- vation Committee, and the National Trust for the Preser- vation of Historical Buildings, with a view to ascertaining whether it was possible to make arrangements either to preserve the hall on its present site or to take it down and re-erect it or any part of it on another site to which the public could have access, but upon the understanding that there should be no charge upon the county rate.

The Parks Committee of the Edinburgh Town Council have accepted an offer of a statue of the late Dr. Guthrie, and recommend the Council to grant a site in West Princes Street Gardens, opposite Castle Street. The sculptor is Mr. F. W. Pomeroy, A.R.A.



## NOTES AND COMMENTS.

A MEETING of the Royal Institute of British Architects was held on Monday. It was resolved that, in view of the fact that early application will be made to the Privy Council for the general alteration of charter and by-laws, to postpone the question of closure until such time. The proposals for the revision, and by-laws by which a new class of Licentiate will be created, was adopted by a large majority. The Fellows and Associates proposed were elected.

It was an ingenious idea to employ the undercroft chapel of St. Mary's for the marriage of Lord Chancellor LOREBURN on Tuesday. At the beginning of the nineteenth century, according to JOHN CARTER, it was probably in a more desecrated condition than any other part of the Westminster Palace. It consisted of five bays separated by clusters of columns supporting the groynes. The first division was a public thoroughfare from Old Palace Yard to Westminster Hall; the second division was made the store-room for the rubbish of a low mechanic and in it the Westminster pillory and ducking-stool were placed; the third division was boarded off into compartments for the accommodation of the mechanic; while the fourth and fifth divisions served as a dining-room. "Could I," cried CARTER, "but convey one glimpse of the excellence of this little spot to the eyes of him who could preserve it, those hovering phalanges of architectural innovation would soon be driven into the distance of disappointment; their hopes of demolition would then be no more." It required, however, several years before the undercroft and St. Stephen's Chapel were made to appear as if they were respected by the Legislature. This week's event has demonstrated that the lower chapel, although it is only small, for it measures 90 feet by 28 feet, can be utilised for ceremonial purposes. The painstaking JOHN STOWE informs us that the chapel was dedicated to Our Lady of the Pew. It contained an image of the Blessed Virgin, which, he said, was richly decked with pearls, precious stones and rings, the value of which no jeweller was able to estimate. Great offerings were presented there, among others by RICHARD II. after the overthrow of WAT TYLER. On February 17, 1252, an altar boy in extinguishing the lights in some way set fire to the ornaments, and not only the image but a portion of the chapel was destroyed. It was afterwards restored by Earl RIVERS.

It suggested the influence of Classic art in Edinburgh when it was proposed to erect a copy of the Parthenon as a memorial of the Scottish troops who took part in the Napoleonic wars. The building seemed to be of an economical kind, and as stone abounded in Scotland the promoters of the project were sanguine of success. The expenses were found to be more than had been anticipated, and the structure has remained as a fragment. Various proposals for its completion have been expressed from time to time. But however liberal may be Scotsmen, money could never be found for the building on Calton Hill. In a lecture delivered by Professor GOURLAY before the Philosophical Society of Glasgow on Monday another suggestion was offered. The Professor said that the committee of the Edinburgh Corporation had recently reported that Lady STAIR's house was in many respects unsuitable for a museum, and that the completed structure on the Calton Hill might be used to house the treasures of the Scottish capital. Apparently the financial aspect of the case was not considered, and it is likely that the ruins will remain as they are until some enthusiastic millionaire will, regardless of cost, endow Edinburgh with a severely Greek temple.

A STUDENT of the South Kensington School in old days must be amazed when he sees the large number of professors, instructors, teachers, assistant teachers and demonstrators who now hold office and recalls the

few masters who formerly conducted all the class. Economy was then rigidly carried out, for it was proposed that students in other schools in the Metropolis and the provinces would grow jealous if they found that any special favour was shown to their rivals at South Kensington. Whether the later students of the school became more proficient than their predecessors is a question which it is difficult, if not impossible to answer. The new prospectus shows that there are classes for modelling, architecture, design, painting, etching, stained glass, tile painting and pottery, sculpture and marble cutting, relief ornament and design, tapestry weaving and embroidery, writing and illumination, metalwork and enamelling. The architectural course continues for five years, the sculptor's and designer's no less extensive, and in that time an industrious student should be able to turn his knowledge to account in practical work.

## ILLUSTRATIONS.

NATIONAL BANK OF SCOTLAND, NICHOLAS LANE, E.C.  
CATHEDRAL SERIES.—SOUTHWARK: NAVE, LOOKING WEST.  
DESIGN FOR NEW COUNTY HALL, LONDON.

THIS design was submitted in the recent preliminary competition for the new County Hall by Mr. W. ERNEST HAZELL, F.R.I.B.A., and Mr. WILLOUGHBY, architects. The Council chamber, its lobbies, committee-rooms and the rooms set aside for the use of the councillors, together with the offices of the heads of the various departments, occupy the ground floor. The main public entrance in the Westminster Bridge approach gives access to all parts of the building by way of the central and east and west corridors and six cross corridors. Another important entrance is on the lower ground-floor level in the centre of the Belvedere Road front. The Council chamber is reached from this entrance by a grand staircase and hall. Other entrances are provided to serve particular departments, and separate entrances, staircases and corridors are planned to allow the public to reach their respective galleries in the Council chamber. The public hall to seat 800 occupies a portion of the large internal area on the north of the site, and is reached from the Belvedere Road. Entrances, crush hall, cloak-rooms, &c., are arranged in such a way that they can be shut off from the rest of the building without interfering with internal means of communication. Facing the river is a terrace for the use of members of the Council, planned on the ground-floor level. Below the terrace is a spacious library for councillors' use. The ground and upper floors are devoted to general offices, private offices for the use of the twenty departments with their waiting-rooms, telephone-rooms, store-rooms, &c. Large dining and common rooms for the staff are provided on the fifth floor. Residences for the caretaker and hallkeeper and accommodation for servants occupy the sixth floor on the river front. The main entrance is in the Belvedere Road adjoining the external works department. Cloak-rooms for the staff and cycle stores are reached from the goods entrance.

The heating and ventilation of the Council chamber and public hall are arranged for on the Plenum system, having air-washing and warming apparatus and blowers in the inlet chambers on the roofs, and using shafts for vitiated air fitted with extracting fans. The remainder of the building is designed to be warmed by steam-heated radiators, the ventilation being effected by means of fresh air inlets both to the rooms and to the false ceilings of the corridors. The boiler-house in the basement is designed to accommodate four boilers each 30 feet long. The fronts are designed to be executed in Portland stone, with the roofs covered with green slates. Fire-resisting construction is arranged for throughout. The embankment is designed for execution in granite. The estimated cost is 848,814.



## PROFESSIONAL TRAINING OF THE SANITARY ENGINEER.\*

very essential that both practical and theoretical knowledge should run conjointly. Neither one can have ultimate value without the other. We suggest the course of professional training to fit a youth to the contracts on his own initiative:—

He should serve a period of, say, three years as an apprentice in the office of a recognised sanitist, during which he would learn the main principles of this work engaged upon the plotting and designing portion of it. He should attend a laboratory for at least three months of this period, and at least three technical classes throughout the sessions.

The last year at actual supervision. This year may be divided, so that for three months he should be engaged in plotting the actual work, for six months should act as an assistant inspector on some works, and the last three months should be devoted to measuring up and pricing and drawing accounts from the actual work. At this stage he should still something further wanted to crystallise and systematise the knowledge which has been gained. This should be achieved by

a course of one year at a recognised institute or school specially devoted to the higher branches of hygiene. The course should consist of at least 275 full working days of study of superintended studies and research.

At least one year as chief assistant to a sanitist of equal position. This brings us to a total of six years of training, and he should then be in a position to show that he is fully entitled to the degree of sanitist.

At the end of this time examinations should be held to test his knowledge at the end of the second course. This should be in the use of the term "student." At the end of the third course a final examination should be held for the diploma, and until the diploma for the final is obtained it is illegal to use the term sanitist. The examinations should be held and diplomas issued by the two institutes able to confer such degrees.

The subjects which these examinations should cover are largely varied. The following are but a few:—*Sanitary Engineering and Mechanics*.—These should be strictly within practical bounds.

*Sanitary Engineering*.—A knowledge of famous plagues and their cause and ultimate cure, and of the history of sanitary engineering and science.

*Sanitary Materials*.—Their geological or organic formation, their physical properties, their durable qualities; their common forms, shapes and sizes; their strengths, weights, and market prices.

*Sanitary Laws*.—Sewers and drains; Public Health, Building and Local Acts and by-laws; contracts, legal position of employers and contractors.

Also with the various sub-headings:—Meteorology, hydrostatics, planning and construction of buildings, drainage and sewerage and water supply, electricity, steam-power, heating and ventilation, lighting, kinetics, food and drink, biology, diseases and infection, refuse disposal, chemistry, sociology.

Though the foregoing list will have a formidable sound prospective sanitist, there is practically no subject of those named which should present difficulties to an intelligent student.

to resume. During the whole period of training it is utterly necessary to instil system into the student's mind, to be perfectly efficient one must have exact order in his knowledge as well as in one's papers. It is not enough for an architect, civil engineer, doctor, lawyer, or what not, to also undertake the duties of a sanitist.

By all means let each have as much knowledge as possible; but let them not lightly undertake such vast responsibilities unless they are prepared to make a life's study of this profession. Why do these people take up sanitary engineering? For the simple reason that there is no present no defined and separate profession dealing with this work to whom they can apply for expert advice. This Institute be the pioneers of this great step and endeavour by arranging the examinations so that they aim at a definite purpose and end of launching forth a limited number of trained and recognised sanitists to form the nucleus of an honourable profession? Many jobbing sanitists and men in similar positions would be sorry to see the end attained, as at present their smattering in

sanitary work is financially an excellent thing. We must, therefore, not forget that whilst the sanitist's work would be noble in its object, there would also be an excellent field for energy and talent for the sanitist in our otherwise somewhat crowded professional ranks.

During the whole of the training it is most necessary to understand the position between the client, professional adviser and the contractor. Much litigation and trouble would be saved if the professional advisers more fully comprehended their moral and legal obligations. The aim should be to give the full and complete benefit to the client of the whole of one's knowledge, in order to attain the result required without unnecessary expenditure.

A work cannot be called completely successful if the object is obtained at a cost greater than is absolutely essential. The code for all work should be honesty to all parties, and must not favour the contractor at the expense of the client, or *vice versa*. The sanitist should maintain a position and act in all things so that every step and action can be justified before the highest tribunal.

Never have work of an experimental nature executed with other people's money without first informing them that it is experimental and obtaining their written sanction.

If you are called upon to do work with which you do not feel competent to deal it is not necessary to refuse that work; but it should never be considered *infra dig.* to call in and consult a specialist who is competent to act for or with you.

The question of system has already been mentioned under training. System is one of the most necessary things to the man in practice. To be successful in his work his office and staff must be perfectly organised. Should he require information, correspondence or plans dated twenty years back, he should be able to get it at a moment's notice. It is also very necessary to have perfect sympathy and harmony between the principal and his staff.

If an assistant does not fulfil all requirements, it is not sufficient to retain him and have constantly to find fault. If he is not equal to his work he should be employed otherwise at a lesser salary, or dismissed. Friction in any office is demoralising.

It is necessary, in dealing with forms of contract, to thoroughly appreciate what a contract is, and what documents generally form the contract, as for instance:—The agreement to do certain work for a certain consideration. The schedule of conditions of contract which are generally attached to the agreement. The specifications describing the work and materials, and the drawings. He should, except in special cases, advise against the quantities being made part of the contract.

In drawing up the contract documents it should be always remembered that it is only those which are signed by the parties (or referred to in a signed document) which, from a legal point of view, can be considered as showing the work to be undertaken; no verbal or written documents exchanged before the date of contract will have any bearing upon same. It is therefore very necessary for a professional adviser to be able to, and actually to, draw up proper and full specifications, plans and conditions.

Lawyers should never handle the specifications and plans, but in the case of conditions perhaps it is better that they should peruse them and make suggestions, although this entirely depends upon the professional adviser's experience of and connection with conditions and contracts. If he is not well acquainted with all important legal decisions on contracts, he should certainly trust to the lawyer rather than himself. Carefully-worded conditions have many times saved much unpleasantness on points which, if not provided for, would be serious for all parties. In the preparation of the contract documents, plans and specifications, it is very desirable to see that every possible information is clearly given, and, wherever possible, figured dimensions. One is often called upon to give technical evidence in the courts; this is one of the most trying and difficult positions to be placed in. There are very many points to be considered. It must not be forgotten that the judge, counsel and jury (if any), and your client are all ignorant of the work in question from a technical point of view. You are, therefore, called upon because you are an expert to enlighten them, but it will be found most difficult in giving evidence to explain your meaning clearly and truthfully. Counsel have a knack of trying to so twist one's statements to mean something quite contrary to one's intentions. But firmly adhere to your point and insist on making your meaning clear. The first point to be careful of is to prepare a report, so that you can, if called upon, substantiate

\*From the paper by Messrs. A. A. Scott and P. M. Triggs read at the meeting of the Institute of Sanitary Engineers.



and give reasons for every statement. These statements should be either known facts or express your professional opinion, formed after taking into consideration all the pros and cons. The second point is to have your statement of evidence taken down and carefully read over and checked by your solicitor before same is handed to counsel.

In all cases of dispute it is much to the benefit of all parties concerned to settle amicably. Should you be fortunate enough to win your case, you will generally lose financially far more than by any amicable arrangement. The question of fees for professional work we do not propose to discuss this evening, but, none the less, consideration should be given to fixing a standard scale of charges and forms of agreement with clients.

Let us say, in conclusion, that these notes have not been prepared with any hope of covering the whole ground, nor any intention to deal with any part in detail. They are presented to you with a view of opening up certain points for full discussion, and in the hope that they may form an incentive for detailed papers on different sections at some future date.

### EARLY ART IN SCOTLAND.

AT the opening meeting of the Glasgow Archæological Society, Professor Sir William M. Ramsay, Aberdeen, gave an account of recent research and investigations he had made among the ruins of an ancient, almost forgotten Byzantine city in the south-west region of the great Central Asian plain, and discussed some of the problems suggested by the city's former greatness and the present-day desolate and decaying condition of the region and its people. In leading up to his subject, he made an interesting reference to the prehistoric art of Scotland, which seemed to him never to have received justice. There was, he said, in the country, at least in the north-east regions of it, how far more he could not say, an early art of a singularly high and singularly interesting character—one of the arts of the world, one of the special kinds of art which stood out distinguished from all others. He confessed he found that it was extremely difficult to bring that art into relation with any other of the known early arts of the world. It seemed, so far as one could judge, to have arisen spontaneously in the country. It was distinctly Oriental in its analogies, and was marked off clearly from Western art—from the art of Greece, or Rome, or Europe generally. There was an Oriental feeling about it, and it opened up to them a vista of history that had still to be traced.

### ROMANS IN THE MANCHESTER DISTRICT.

A LECTURE was given on Monday by Professor F. J. Haverfield on "The Roman Occupation of North-western England." He said he confined himself in the main to that piece of Roman Britain which covered what he might call the Manchester plain and its adjacent hills. This was in modern terms South Lancashire and Cheshire with their borders. It was a small area, hardly fifty miles square, and a good part of it was sea or estuary. It was also, as he desired to say frankly, an area which possessed no special or individual importance as a portion of the Roman Empire or Roman Britain, but was just a chance fragment. If, however, it was not important, it was typical of the military organisation of the Romans and of the conditions and ideas of the ancient world, which contrasted strongly, and almost violently, with the spectacle which it offered to-day. The plain possessed importance as a convenient base for operations, offensive or defensive, against the hill tribes of North Wales. By the aid of a plan of Roman Chester as nearly as it could be traced, he explained the difference between the quarters of a legion, such as it represented, and a fort like that of Mancunium or Melandra or Castleshaw. The fortress for a legion was of an area of about 50 acres, that of an auxiliary regiment of an area of 5 to 10 acres. There were no other forms of fort but these two, except small block-houses, used occasionally. As to the fort at Manchester, he said that a great deal of information was wanting, in spite of the efforts of Mr. Roeder and Mr. Bruton. There was perhaps not very much more to find, and yet not very much could be said to be known of it. The very greatness of the modern city had stamped out the vestiges of its birth and childhood. Melandra was still only partly excavated; Ribchester might yield a little more; Wigan, he thought, might yield results to a careful investigator, and at Chester the parts of the Roman wall remaining still held probably

Roman sculpture and inscribed tombstones. In conclusion, Dr. Haverfield commended the work of the new societies in its attention to archæology. Liverpool had examined the Roman remains of Wales; Sheffield and Manchester had formed a Yorkshire committee for a similar purpose; Manchester had its own appropriate portion in the neighbourhood, as Professor Ramsay had already fully recognised. He would urge that Ribchester might make up for having obliterated Roman remains by exploring the sites that lay so close around it.

### IMPERIAL VISITS.

LAST week the German Emperor visited the churches of Christchurch Priory and Romsey. The *Hampshire Advertiser* gives the following account of what occurred:—

At Christchurch the Vicar was absent, and the service once commenced with an explanation of the beautiful nave, which is of Norman architecture; whilst the lower arches is a fine example of what is known as Saxon work, an enrichment of the Saxon period. The Emperor was keenly interested in this, and said he had never seen architectural work of this kind before in any church. He remarked also that he was more interested in the Saxon than in any other style of church architecture. He passed a high encomium on the beautiful work of the screen dividing the nave from the choir.

Passing through to the choir the Emperor spent some time in examining the splendid miserere oak carved monks' stalls, which, notwithstanding the age, are in still a perfect state. When the Emperor saw the carved head of Richard III. and the one showing his Satanic Majesty on the woolsock, the Emperor was highly amused, and when it was explained that the latter was intended as a caricature of the Chancellor, at that time, he turned to his Chancellor and laughingly remarked, "Of course, that is not intended for you." On the east side of the choir the Kaiser's attention was directed to a carving on one of the stalls of the Fox preaching to Geese, at which he laughed heartily.

Just as they were passing through the end of the choir the Vicar (to whom a message had been sent) arrived, after being introduced to the Emperor by Colonel Wortley, proceeded with His Majesty round other interesting portions of the historic fabric.

The Kaiser expressed great admiration at the work of the splendid reredos of the fourteenth century, which still retains much of its original work. He stayed a little time examining the beautiful tracery and masonry of the famous chantry of the Countess of Salisbury, which was beheaded in the time of Henry VIII., the chantry having been built by the countess for the interment of herself and her son, Cardinal Pole. "The carving of the tracery," remarked the Emperor, "is simply lovely."

One of the next objects of interest visited was the tomb of Sir John and Lady Chydieke, on which are placed recumbent figures of Sir John and his wife, the former in the mail and armour of the time (1455). The Emperor remained a long time examining this ancient piece of sculpture, and went most minutely into every little detail, and remarked on the curious manner in which the tomb of that far-off day was buckled on. The way in which the tomb was fastened together was, he said, most interesting.

The beautiful lady chapel, some 70 feet in length, was next explored, and the Emperor was much interested in the two tattered flags suspended from the ceiling, which were in existence before the time of the union of Ireland. The remains of the splendid reredos, which suffered so much destruction during "Reformation" times, was also greatly admired by His Majesty.

Before leaving the Kaiser, who expressed himself delighted with his visit, signed the visitors' book, the Emperor's inscription reading:—

WILLIAM,  
26 XI., 1907.

The visit lasted the best part of an hour.

At Romsey Abbey, the Rev. M. E. West, one of the curates, acted as guide. Mr. T. Iremonger, the sexton, did his part in pointing out certain interesting features. From the critical and careful inspection of some parts of the building by the Kaiser, one would take him to be an archaeologist of no mean order.

His Majesty was especially struck with the Norman architecture, and did not hesitate to say he liked it.



he had seen at Christchurch. He inspected the on some of the pillars, and compared them with he cathedral carvings in Germany. Another point ested his attention was the apses at the east end rth and south aisles, these being round inside and tside. Passing through the nuns' door, His Majesty dmired outside the building several courses of which, although grievously mutilated, still show ine piece of work it was. The great row of also came under his purview, and he wished to meaning and history of some of them. Even the which the abbey is built did not escape his notice, ked for information as to where it came from, and himself as more pleased in its natural state and ed, as in some other buildings. As he left the the N.W. door it was pointed out to him that it was to replace a porch over this entrance, and he was o say that he wished them every success in restor- obey. The visit and inspection evidently gave the very great pleasure. The autographs left in the ook were:—"William, F.M., 27-11-07"; "M. G. urg," "Count P. Wolf Metternich," (one unde- e), "Edward Stuart Wortley," and "Dr. Ilberg."

### THE FRANCO-BRITISH EXHIBITION.\*

ERN exhibitions may be regarded as the stock- ing of the resources of civilisation; they present cal summing-up of the achievements of a progres- and mark, as it were, the milestones by which we e of the advance made in Science, Art and Indus- m the universal adoption of exhibitions as a means unctuating our progress, they may be regarded as ial feature of the age in which we live. It was in at the exhibition idea originated. An exhibition in that country in 1798, and the tenth National n took place in Paris in 1849. The success attended this, and the intervening displays, d a desire for a similar exhibition in London. ety of Arts had long advocated industrial exhibi- England, and had actually held them in the Adelphi d following years. In 1849 His Royal Highness ice Consort—who was then President of the -took the matter in hand, with the well-known at the world's first international exhibition was held on in 1851. It was within these walls, therefore, idea of the international exhibition was conceived, Society of Arts may accordingly be termed the f international exhibitions.

In 1851 the world has witnessed many exhibitions ternational character which rival one another in alace to palace and land to land until the mind bewildered and reels at the magnitude of the vast presented to it, and from the very immensity of me fails to derive those advantages which a more display would afford. In the case of the Franco- Exhibition this perplexing profusion will be ; it will not overtax the powers of assimilation of ary visitor. It seems probable that in many of itions of the future the international element will rather than plural in its application, and what could e fitting than that the two great nations, joint of the exhibition era, should set an example in this and should join hands in happy union for the pur- setting before the world their combined resources? ce and Great Britain possess distinguishing charac- which admirably blend together. Each abounds qualities which form the complement of the other. olidity, adorned with French grace, yields a result other combination of nations can approach. In the of the world, the greatest achievements in the art of on have been the product of two races, just as the wers are obtained by hybridisation. It was through gling of the Pelasgian and Aryan races that Greece d those masterpieces of plastic art which form at e delight and despair of the modern world. It was ombination that the Classic orders of architecture, ound their consummation in Athens at the time of owed their birth. The other great school of architec- : Gothic, which attained perfection in England during is of the Edwards in the fourteenth century, derived me inspiration from the genius and fire of the Celt ng upon the matter-of-fact and business-like habits

of the Anglo-Saxon. It may be confidently anticipated that the world will be blessed with a propitious fruition when the ample achievements of the Anglo-Saxon and Latin races intertwine and reinforce each other.

In the Franco-British Exhibition not only France and the United Kingdom will be engaged, but the colonial possessions of these two great Powers will play an important part. Here again we have a significant conjunction. France, in addition to being a great colonising empire at the present day, can boast of a record in colonisation second to that of no other nation. The success of the French colonies in Africa, Indo-China and elsewhere recalls the former achievements of France in Canada and India. In no country do the theory and practice of colonisation receive more careful and systematic attention than in France. Two colonial conferences were held in Paris during the exhibition of 1900, and it is from French authors that some of the most interesting and instructive descriptions even of the British colonies emanate. The French colonies, dependencies and spheres of influence, second in number only to those of Great Britain, have an area of over 4,000,000 square miles and a population of about 60,000,000.

A wide difference exists between the methods of colonisation of the two great Powers—Great Britain tending toward empirical and France toward systematic and scientific measures, so that an interesting comparison may be drawn between them. Success in colonisation is sometimes determined by a faculty of assimilation to the customs of the countries colonised, and sometimes by the power of enforcing novel usages on the aboriginal inhabitants. Nations vary in their capacity in these two directions, but it may be confidently affirmed of France that she has a genius for both; for example, it is related that De Fontenac, for the purpose of recommending his administration to the American Indians in the West, went so far as to take part in their mysterious rites; while, on the other hand, Dupleix in the East Indies succeeded in superimposing on the population the system of European military discipline.

It is instructive in passing to compare the Colonial Empire of Great Britain, as existing at the time of the International Exhibition, 1851, with His Majesty's possessions of the present time. India was then under the government of a chartered company. Canada consisted merely of Ontario and Quebec, Nova Scotia and New Brunswick sending independent exhibits. Tasmania was officially described as Van Diemen's Land. It is interesting also to note that the illustrious colonial statesman and empire builder, Lord Elgin, father of the present Secretary of State for the Colonies, was at that time Governor-General of Canada.

But it is not only on the grounds above stated that the apposition of France and Great Britain in the friendly arena of an exhibition is to be welcomed. The history of the two races has for nearly a thousand years been closely intertwined. It is in Normandy that we find the home of our Plantagenet kings. The tomb of Richard the Lion-hearted is to be seen in the abbey of Fontevrault. Our language is saturated with words of French origin, and the monarch of the British empire still gives or withholds his royal assent to the Acts of the British Legislature in the French tongue. Repeated interchanges of visits between Edward the Peacemaker and the President of the French Republic have taken place. What more natural, therefore, than that the King should write from Paris to "wish the exhibition every success, and sincerely hope that it may be the means of strengthening the friendship which so happily exists between the two countries," or that M. Fallières should state in a message to the Lord Mayor of London that the French Government would not fail to give its cordial support to the exhibition.

As most of you are aware, a site of 140 acres has been secured for the exhibition at Shepherd's Bush. The principal entrance will be immediately adjoining the station of the Central London Railway (popularly known as "The Tube"), and within four miles of Charing Cross. It is also close to the Uxbridge Road station of the West London and North-Western and Great Western railways, and Metropolitan, Hammersmith and City Railway stations. It is in close proximity to the Shepherd's Bush station of the London and South-Western Railway, and in direct connection with the District, North London, Metropolitan, London, Brighton and South Coast, South Eastern and Chatham, and Great Central railways. It is, moreover, at the centre of a network of tramways and omnibuses affording means of communication with all parts of London and the suburbs.

\* From a paper by the Hon. Sir John A. Cockburn, K.C.M.G., for the Society of Arts.



The various methods of transport are capable of conveying to the spot 75,000 persons per hour, or nearly a million visitors during the hours per diem in which an exhibition is usually kept open.

On the ground adjoining the exhibition the quadrennial Olympic games are to be held. This also is an auspicious conjunction, for it was at the instance of France that this great festival of ancient Greece was revived in Athens in 1896. The Olympiad was celebrated in Paris in 1900 and in St. Louis in 1904; generations will pass away before it is again held in England, and as at least twenty-two nations are taking part in the contests, the occasion will be unique in the annals of British sports. To accommodate the vast concourse of spectators, there is in course of erection a colossal stadium, oval in form and capable of comfortably seating 68,000, and on occasion of holding 150,000 people. Some idea of the vast proportions of this theatre may be gathered from the fact that it encloses a cycle track with  $2\frac{1}{4}$  laps to the mile and a running track of  $\frac{1}{2}$  mile in circumference. There is in the arena of the stadium a tank 240 feet in length and 14 feet in depth for the swimming and high diving competitions.

Those who have visited this site cannot fail to be struck with the fair palaces, which, as under the wand of some magician, have risen like an exhalation from the soil. At the commencement of this year, when the first sod was turned by the Count de Manneville on behalf of the French ambassador, the surface of the land presented the bare appearance of an ordinary farm. When the first stanchion of the Olympic stadium was placed in position in August, huge skeleton buildings were beginning to appear upon the ground. These are now rapidly being converted into resplendent palaces as if the architect were the possessor of an Aladdin's lamp. The whole of the framework of the buildings is of steel, filled in with concrete slabs, thus forming a structure at once light, strong and fireproof, and capable of marvellous rapidity in erection.

Among the many beneficial influences exercised by exhibitions may be included the complete transformation of the anatomical structure of important buildings. Up to a few years ago all considerable edifices depended entirely for their support and stability on stone or brick, and it is chiefly due to the example set by exhibitions that steel, the characteristic of the present age, has become the main source of strength in buildings as in all other structures. Primitive man dwelt in caves, either natural or artificial. In the dim dawn of humanity some troglodyte was inspired with the happy idea of erecting a cave on the surface instead of digging it underground. At first cyclopean stones and huge slabs of rock were used in the construction of these newly-invented dwellings, and although in course of time lighter and more shapely blocks were substituted, still stone and earth continued to furnish the main supply of architectural material. All this is now changed; buildings depend for their stability, both as regards tie and thrusts on steel, and although stone is still largely used in architecture, it is introduced chiefly for purposes of ornament, and merely forms as it were a panelling to fill up the spaces between huge pillars and girders of steel.

As might be expected from greater experience in exhibitions, as well as from the national inclination to system, the organisation of the French for the purpose of exhibitions is much more complete and effective than anything which exists on this side of the Channel. When the United Kingdom takes part in an exhibition, machinery is hastily improvised which performs its work as efficiently as such an extemporised contrivance will permit, and falls to pieces so soon as the occasion is over. In France a permanent body recognised by the Government under the name of the Comité Français des Expositions à l'Etranger, undertakes on behalf of the exhibitors all that which in this country is performed by isolated effort, so that the experience derived from successive exhibitions is accumulative, and is for the future made available for each individual exhibitor.

Notwithstanding the importance attached to exhibitions by other nations as the best, and in the long run the cheapest mode of advertising, a good deal of apathy in regard to them has always existed in this country. The departmental committee of the Board of Trade which recently reported on the participation of Great Britain in international exhibitions states that there can be no doubt, from the personal point of view, they are not universally regarded with favour by manufacturers in this country. This reluctance to exhibit is traced to a variety of causes. It is asserted that exhibitions have, owing to increasing

frequency, lost much of their novelty, and from the size attained by universal exhibitions, individuals are apt to pass unnoticed by the majority of visitors. In addition to the trouble and expense many manufacturers are of opinion that they are liable to suffer serious disadvantage on account of goods being copied at exhibitions by foreign rivals. A similar objection was made to the project of the Exhibition of 1851, and, seeing that Great Britain at that time possessed almost a monopoly of industrial processes, it has been some ground for the charge. These conditions, however, no longer exist. Other nations have now attained a position equal and in some respects superior to our own. If "in some instances exhibitors have experienced advantages through having their goods copied, they do not fail to benefit by themselves inspecting the goods of their competitors." So far as the finished product is concerned, an equal danger of imitation is incurred by the fulfilment of a single order. Be this as it may, it is borne in mind that the French are bent on making their play at this exhibition superior to anything that has been seen out of Paris. Great Britain is their best customer, and they will lose no opportunity of placing their products in an attractive form before the buyer. It is to be noted that the most important exhibits will be made by both the French and the British colonies, the latter expending approximately the same in their display, and from their distant parts many visitors will flock to the exhibition. In addition to the Olympic games will attract a vast concourse of spectators from every quarter of the globe. From the information derived from the applications already received, every assurance is given that the British exhibits will be of the highest quality on the occasion, and indeed it would have been a national calamity if these visitors were confronted with a meagre representation of the industrial capacity of the United Kingdom. As compared with that of our neighbours, the departmental committee places the matter in a nutshell when it remarks that "to a large extent the question we have to decide is not whether it pays to exhibit, but whether under modern conditions we can afford to exhibit. And is of opinion that the evidence which is afforded affords convincing proof that the answer to this question is in the negative."

The proposal of the exhibition emanated from the French Chamber of Commerce in London and received the warm support of the French Minister of Commerce. A large representative meeting was held at the Mansions on July 11, 1906, with the Lord Mayor in the chair, and a resolution in favour of the exhibition and approving the action already taken was unanimously passed. It was resolved that all profits resulting from the exhibition should be devoted to some public purpose, to be jointly determined by the representatives of the two countries concerned.

The exhibits will be classified and arranged in the following groups:—Education; science; fine arts; paintings, cartoons, drawings, etchings, engravings, sculpture; architecture; liberal arts; engineering and shipping; branches of engineering will be illustrated; transport; agriculture and viticulture; horticulture, arboriculture, forestry and fisheries—appliances and processes of horticulture and arboriculture; alimentation; decoration—furnishing—decoration and fixed furniture, plumbing, sanitary appliances, wall-papers and paper-hangings; household, art and office furniture, carpets, tapestries and hangings for upholstery, upholstery and upholsterer's decorations; ceramics (pottery and porcelain), glass, crystal and cut glass, apparatuses and processes for heating and lighting, apparatus and methods (not electrical) for lighting; textiles; chemical industries; various industries of science, economy, sanitation, public relief; women's work; and colonisation; sports and physical culture.

In order that the British section shall on this occasion have the advantage of the experience not only of the French but of other nations who have made elaborate and successful displays at former great international exhibitions, the executive committee have decided that they will re-arrange the undermentioned arrangements in their own hands, and at a small charge to assist in providing for the expenses of such services.

Steps will be taken to provide that the whole of the various sections shall be decorated in a harmonious, artistic and tasteful way so that the courts or decorated divisions of each group shall practically form a scheme complete in itself.

In order that every possible facility shall be given to exhibitors, the committee will take charge of the re-



goods at the respective exhibition buildings for which exhibits are destined, so that workmen employed by exhibition authorities will place them in their packing (if any), on the space allotted to the respective exhibitors, who will forthwith unpack them. The cases can be removed by the workmen of the authorities ordered and finally brought back for repacking the goods exhibited at the close of the exhibition.

It has been found that a great deal of business has been lost in other exhibitions on account of insufficient information being available of the various exhibits through lack of proper knowledge on the part of the exhibition authorities, the committee have decided to employ a sufficient staff of well-informed men, who will be capable of giving full information concerning any of the exhibits in any particular group or class.

One of the most important features on which the commercial success of any exhibition greatly depends is the establishment of a commercial bureau, from which the intending exhibitor will be able to receive the fullest possible information concerning all goods displayed in the exhibition, and in particular as to the place where each exhibit can be seen, together with the literature concerning it. This has never before been attempted in any exhibitions held in this Kingdom, though it was successfully done at the Paris Exhibition 1900, and the St. Louis and Chicago Exhibitions. The commercial bureau will practically be of great advantage to all exhibitors, as well as of the public, and will greatly facilitate business transactions.

As a view to contributing towards the above expenses the committee have decided to make a nominal charge of 2s. 6d. per superficial foot of the space occupied by each exhibitor, and to arrange a graduated scale of charges so that the exhibitors, who, by the nature of their exhibits, are obliged to take up a large space, *e.g.* furniture, machinery, carriages, &c., sanitary installations, &c., will be at the advantage of a lower price than those who only occupy a small space.

The tariff for space, and the contribution towards the handling of goods, information attendants, general lighting of halls, police, and fees of commercial agents will be as follows:—

Exhibit space in the interior of buildings.	Price per superficial foot square including one frontage.	Decoration of section; handling of goods, of cases up to 250 lbs. each; information attendants; general lighting of halls; police; and commercial bureau fees.
	s. d.	s. d.
50 sq. ft.	10 0	2 6
100 "	9 0	2 6
150 "	8 0	2 6
200 "	7 0	2 0
300 "	6 0	2 0
500 "	5 6	2 0
750 "	5 0	1 6
1000 "	4 6	1 6
500 " or over	4 0	1 6

Minimum charge for individual exhibits . . .	£20
Minimum charge for collective or groups of exhibits . . . . .	£5 each exhibitor.
Charge for more than one frontage will be as follows:—	
	Per foot additional frontage.
Central avenues . . . . .	10s.
Main avenues . . . . .	8s.
Side avenues . . . . .	6s.
Other frontages . . . . .	5s.

It might be expected from the dual nature of the exhibition, one-half of the space will be devoted to French, the other half to British exhibits. For example, the Palace of French Industries is on one side of the Court of Honour, and the British Industries on the other. The British Colonies occupy the left of the plan, while the French Colonies are on the right. But in this bilateral arrangement there will be no attempt to secure a rigid symmetry. The corresponding buildings will not be counterparts the one of the other; while bearing mutually a harmonious relation, they will have its distinguishing features of outline and decoration. There will be that diversity in agreement which is the soul of harmony. It will not be as in the famous exhibition of a mechanically balanced garden, where

Grove nods at grove, each alley has a brother,  
And half the platform just reflects the other.

There are palaces of applied art, of women's work, of decorative work, of music and of fine art; in the latter the French and British exhibits will occupy opposite sides of the same building. There is an Education Hall and a Hall of Electricity. The Machinery Halls contain about 300,000 square feet of space and form three sides of a huge quadrangle, within which, together with other municipal edifices, will be situated the pavilion of the Ville de Paris, on which the Municipality of Paris is expending a sum of £12,000. The foundation-stone of this structure was laid by Monsieur Le Fevre, the president, in the presence of the French ambassador and a delegation of the Municipal Council.

Embosomed in delightful gardens there is a graceful structure which will be used as a royal pavilion. There will also be a Garden Club and a Sports Club. Standing on an island with three causeways, in a central lake, rises, with slender aspiring lines, the Imperial Tower.

The palaces of the exhibition, some twenty in number, are surrounded by gardens laid out by the best French and English landscape gardeners. The space in the centre of the exhibition area, lying between the Imperial Tower, the Franco-British Pavilion, the Palace Restaurant and the Garden Club, will be known as the Elite Gardens; adjoining this is the Court of Arts, encircled by lagoons, on which boats and launches will ply with passengers, the total navigable distance, including the lake in the Court of Honour, being nearly five-eighths of a mile.

In a galaxy of enchanting scenes, the Court of Honour will glitter like the queen jewel in a cluster of gems. Here is a spacious lake, spanned by a bridge strong enough to bear the tramp of an army, but with tracery, airy and gossamer as a strand of coral. At the head of the lake a cascade leaps in musical cadence down a terraced fall. On the bridge and at intervals jutting into the water from the sides of the lake are stationed dainty pavilions, in which visitors can sit and enjoy to the full the surrounding delights. The scene will be surpassingly brilliant by day, but at night, when a thousand dazzling lights make dim the stars, and are multiplied myriad-fold in the broken reflection of the waters, whose surface is stirred by a procession of gaily-decorated craft; when by an ingenious arrangement of electric beams the hues of the rainbow are refracted through the cataract in a scheme of bright and ever-changing colours, the sight will be one to bewitch the beholder, and the *chef-d'œuvre* of Mr. Imre Kiralfy, one of the greatest living masters of form and colour, will long dwell in the memory as a beautiful dream.

A special committee has been appointed to provide for the comfort of visitors from the country and abroad. Not only the classes, but the masses of the French people will be attracted to the exhibition, and it is safe to predict that numerous and lasting ties of personal friendship will be the result. There is no room for doubt that the exhibition will advance industry, extend trade and still more strongly cement the bonds of amity which now so happily exist between the neighbour nations. But there is yet a deeper significance and a wider scope in a movement so well calculated to bring the respective peoples of two great Powers into intimate acquaintance. No nation can live for itself alone. The first International Exhibition in 1851 was called the Congress of Peace. May we not look upon the Franco-British Exhibition as one of the most potent influences in placing on an assured basis the peace of the world?

### SCOTTISH SOCIETY OF ANTIQUARIES.

THE annual general meeting of the Society of Antiquaries of Scotland was held in the National Museum of Antiquities, Queen Street, Edinburgh, on Saturday, Dr. David Christison, vice-president, in the chair.

In the annual report by the secretaries it was stated that the number of members added during the past year had been 41, and the number of removals from the roll by death and otherwise 36, making a gain of 5, so that the Society begins the present year with a total membership of 704, and the ballot at that meeting had added 17, making the number now on the roll 721. The excavation of the Roman military station at Newstead, Melrose, begun in February, 1905, under the supervision of Mr. James Curle, has been continued throughout the year, and has been extraordinarily successful both in regard to the elucidation of the structural remains and the recovery of such a large quantity of interesting and valuable relics, some of which are of types not previously found in Britain. For the



complete investigation of the story of the station in its different periods of occupation, more funds than the Society has at present at its disposal will be required; but, so far as its main features and their details have been disclosed, the results will be made public by means of the Rhind Lectures, to be delivered by Mr. Curle probably in March next.

From the report to the Board of Trustees with reference to the National Museum of Antiquities under the charge of the Society, it appeared that owing to the very large increase in recent years of the section illustrative of the Roman occupation of Scotland, due to the donations of the collections obtained from the excavations undertaken by the Society at the Roman stations of Birrens, Ardoch, Lyne, Camelon, Inchtuthil, Castlecary and Rough Castle, the whole of the exhibition space in the existing cases had been fully occupied, and two new cases were being provided by the Board of Works for the reception of the Newstead collection. The number of objects of antiquity (exclusive of the Newstead collection) added to the museum during the year has been 300 by donation and sixty-eight by purchase, and the number of volumes added to the library has been 142 by donation and thirty-seven by purchase. Among the donations to the museum which receive special mention are the collection from the Broch of Jarlshof, Sumburg, Shetland, presented by Mr. John Bruce of Sumburg; a collection of over 100 specimens from Coll and Tiree, described in his book on Coll and Tiree and presented by Mr. Erskine Beveridge; and a collection of rare brooches and other ornaments from a Viking burial in Oronsay, presented by the Right Hon. Lord Strathcona, K.C.M.G.

The office-bearers for the ensuing year were elected as follows:—President, the Right Hon. Sir Herbert Maxwell, Bart.; vice-presidents, David Christison, M.D., LL.D.; the Right Rev. John Dowden, D.D., LL.D.; and Sir Arthur Mitchell, K.C.B., M.D., LL.D.; Councillors—Sir John Stirling Maxwell, Bart., and John R. Findlay, representing the Board of Trustees; Sir Kenneth Mackenzie, Bart., representing the Treasury; Messrs. Thomas Ross, J. D. G. Dalrymple, J. Graham Callander, Charles Edward White-law, Ludovic M'Lellan Mann, William Garson, W.S.; the Hon. Lord Guthrie, the Hon. Hew H. Dalrymple, and Sir James Balfour Paul; secretaries, W. K. Dickson, Advocates' Library, and Alexander O. Curle, W.S.; foreign secretaries, the Rev. Professor A. H. Sayce, D.D., LL.D., and J. Maitland Thomson, LL.D.; treasurer, John Notman; curators of the museum, the Rev. John Duns, D.D., and Alexander J. S. Brook; curator of the coins, George Macdonald, LL.D.; librarian, James Curle.

#### EDINBURGH LIFE ASSURANCE COMPANY.

THE Edinburgh Life Assurance Company, which was founded in 1823, has a peculiar interest, for Sir Walter Scott was not only one of the earliest policyholders, but was also one of the directors extraordinary. The offices of the company were among those erected after George Street was opened. Owing to the increase in the business it has become necessary to erect new offices, and an eligible site was secured adjoining the old offices.

The new offices have façades to George Street and Hanover Street of 66 feet 9 inches and 91 feet 6 inches respectively. The design is Renaissance, with some leaning to French work of the eighteenth century in its details, and the building had to be planned to suit the rounding off of the corner of the site at the junction of the two streets. The architect being strongly of opinion that the rounding at the angle would be detrimental to the appearance of the building unless vigorously treated, it was decided to introduce a dome of such diameter as to make it a marked feature of the elevations. The building has accordingly been designed with a dome rising to a height of 100 feet from the pavement, its diameter at street level being 34 feet. The base of the building is of grey unpolished granite, rising 5 feet 6 inches from the pavement level at the top of Hanover Street. Above the granite the ground floor is treated with plain rustication so as to give strength for the support of the columns which rest on it and are carried up through the two storeys above. The company's main office, which measures 54 feet by 45 feet, is dependent in great measure on the light from Hanover Street, and the height of the ground floor storey had to be made very considerable in order that windows of adequate size could be introduced. Above the columns there is

a large entablature and cornice and a balustrade. It is an attic floor, which it is intended shall be equipped with studios, and which is accordingly lit by roof lights. The company will occupy the whole of the ground floor, basement, and more than half of the first floor, the remaining part of the first floor and the floor above being available for letting. The entrance to the company's offices is in the centre of the George Street front, and the letting offices, with elevator attached, is in Hanover Street. The doorway to the company's office is surmounted by a pediment containing a representation of the company's seal. Owing to the difficulty of getting good stone of satisfactory colour, it was decided to use Portland stone, which is used in the best London work, and gets to a large extent in important buildings throughout England and Ireland. The stone is shipped direct from the quarry at Leith, and is worked here. The building is constructed throughout with steel stanchions and floors of reinforced concrete, and for the purposes for which it is used is regarded as indestructible by fire. The drum of the dome is to be made of lead, and the dome itself will be covered with copper. The architect of the building is Mr. Dick-Peddie, 8 Albyn Place, Edinburgh.

#### QUESTIONS IN CONSTRUCTION.

THE following were among the questions to be attempted by students at this year's examination of the College of Science, London, and which, with other questions, will be found in the new prospectus:—

A beam 20 feet long overhangs its supports 4 feet at each end and 6 feet at the other. A uniform load of 2 tons per foot run rests on the part between the supports, and of  $\frac{1}{2}$  ton at each end. Draw the bending moment diagram and measure the maximum bending moment.

A king-post truss supporting a roof has a span of 12 feet and a rise of 8 feet. The loading is 1,200 lbs. on each of the upper joints. Determine the forces in the members and distinguish ties from struts.

A tank 3 feet long, 2 feet 6 inches wide and 6 inches deep, weighing 80 lbs. when empty, is supported with water, and is supported on two cantilevers 30 inches long, half the load being spread uniformly over each. Find the maximum bending moment on one of the cantilevers.

If the cross section of the cantilevers is of the form of a rectangle 2 inches wide,  $2\frac{1}{4}$  inches deep, metal  $\frac{3}{8}$  inch thick, find the greatest direct stress in the flanges.

Discuss the general graphical relations between loads, shearing, bending moment, slope and deflection of any point of a beam, and point out how changes of slope and differences of height in the supports may be indicated. How does the elasticity of the supports affect the question?

A timber beam 30 feet long, 10 inches square at each end with  $W$  tons at the middle, is trussed at the centre by a strut being 40 inches deep and the iron tie rods 5 inches in section. (a) Assuming a joint in the middle of the thrust and the stress in the beam. (b) Taking account of the continuity of the beam, find the thrust, the bending moment in the middle and the maximum stress in the beam. Take  $E$  for the ties to be 20 times that for the timber and neglect the strain energy in the strut.

In an experiment made on wrought-iron struts, the struts were bedded at each end, the transverse dimensions were each case 1 inch by 3 inches, and the lengths were 30 inches, 60 inches, 90 inches, 120 inches long. They buckled under loads of 13.2, 8.1, 4.42 and 1.91 tons respectively. Discuss whether they agree with the usual formula for the critical loads of struts, and, if so, find the values of the empirical coefficients; and state whether they are approximately what would have been anticipated.

A girder, 80 feet span, carries a dead load of 1 ton per foot run. A uniformly distributed load, 10 feet long, 20 tons in weight, comes on to the bridge. Sketch roughly to scale the greatest positive and negative shearing force curves, and find the limits within which counter bracing is necessary. Show also that the bending moment is greatest at any section when the section divides the load and the span into segments having the same ratio.

Explain briefly how to draw a link polygon for a system of vertical loads, so that three specified links pass through three given points.

One pier of a suspension bridge, 128 feet span, is 10 feet higher than the other, and the chain at the middle of the bridge is 14 feet below the centre of the line joining the tops of the piers. The suspension rods are spaced 16 feet



ntally, and each is loaded with 6 tons, the third rod  
he lower pier carrying an additional load of 6 tons.  
the line of equilibrium of the chain, there being no  
ing girder to the bridge.

emicircular brick arch has a span of 8 feet, the depth  
ring being 9 inches. Ascertain whether there is a  
le line of resistance which lies entirely within the  
half of the ring, the only load being that of the arch

a simple triangular roof truss of 12 feet span, the  
are inclined at 30 degs. and 40 degs. to the hori-  
and the load is 50 lbs. per foot run on each rafter.  
diagrams of bending moment, shearing force and  
for the shorter rafter. Measure the maximum values  
quantities.

a derrick crane the vertical post is supported by two  
each inclined at 45 degs., whose planes include an  
of 90 degs. The jib is inclined at 30 degs. and the  
45 degs. to the post. Determine the forces in the  
ers of the frame when the plane of the jib and tie is  
20 degs. from its mean position.

at is our latest knowledge as to the strength of a  
nt-iron shaft subjected to bending and torsion?

te the conditions of stability at a plane joint in  
ry.

e internal and external diameters of a circular section  
ollow column being  $d$  and  $D$ , find the region to which  
tre of pressure must be confined at this section, if  
s to be no tension at the joint.

plain how you would calculate the horizontal thrust  
arched rib of given form, hinged at the springings  
ntinuous at the crown, and subject to known vertical

two points  $A$  and  $B$  on the expansion curve of an  
or diagram from a steam-engine, the pressures are  
d 40 lbs. per square inch, and the volumes of the  
n the cylinder, per lb., measure 3.12 and 9.54 cubic  
respectively. The volumes of 1 lb. of dry steam  
se pressures are 4.81 and 10.29 cubic feet respectively.  
ow that any system of forces acting on a rigid body  
e replaced by a single resultant force acting at an  
ary origin, the magnitude and direction of this force  
e same for all origins, and a single resultant couple,  
agnitude and direction of whose axis are both  
dent on the origin chosen.

rces of 6 lbs. and 8 lbs. act at points  $A$ ,  $B$ , respectively,  
gid body, their directions being perpendicular to each  
and to the line  $AB$ . Find the position of the central  
f the system.

## A CHEADLE MANSION.

interesting discovery has been made at Cheadle, where  
a splendid specimen of a half-timbered building of  
iddle sixteenth century, the character of which  
itherto been unsuspected, has been restored to its  
al state. During repairs to the roof of a saddler's  
n High Street, says the *Staffordshire Advertiser*, two  
rooms were discovered which had been closed and  
ed for a great number of years. On further investiga-  
f the walls some very ancient interlaced lath and  
r division walls were seen, and the attics were found  
ssess oak mullioned windows fronting the street and  
side lights, all of which had been plastered up and  
n, probably to avoid the payment of the window tax.  
ain front of the house was found to be of fine old  
timberwork, with white plaster panels of good work-  
hip and in a good state of preservation. This old  
was also found to extend to the adjoining gabled  
e and greengrocer's shop. The attention of Mr. J. R.  
sefield was called to what had been discovered, and  
otained permission from the owners to have all the  
r stripped from the street fronts of the houses, and,  
the help of several gentlemen interested, funds were  
l, and these interesting old houses have now been  
ed to their original design, with the exception of the  
recent shop and other windows, of which the original  
ns have been lost. In the closed-up attic rooms  
hich the only entrance appeared to be through a  
vay from the next house, which had been bricked  
ere found an old shoe of very ancient date with a long  
ed toe, and several tobacco pipe bowls of the same type,  
ere made when tobacco was an expensive luxury.  
old, half-timbered houses formerly existed in Cheadle,  
shown by a water-colour sketch of the old parish church

(unfortunately pulled down in 1837) and a portion of the  
town near the Rectory, made by T. P. Wood about 1836,  
and now in the William Salt Library at Stafford. All these  
old buildings have been modernised, with the utilitarian  
shop fronts of modern times, and it is gratifying that the  
old houses in High Street have now been rescued as speci-  
mens of the fine architecture of bygone times. They furnish  
a striking ornament to the town as restored. Photographs  
taken by Mr. J. Lowndes, of Cheadle, were exhibited at the  
meeting of the North Staffordshire Field Club at Newcastle.  
They show the building as it was before the restoration and its  
present appearance, the transformation being quite astonish-  
ing. It may be added that a staircase has been constructed  
to give access to the newly-discovered rooms. It is probable  
that the building was quite a palatial residence 350 years  
ago; and it is a pity that one gabled end, which no doubt  
corresponded with the portion now used as a greengrocer's  
shop and residence, has been taken down to make way for  
the modern house and shop now occupying the position.  
However, that so much of the original house remains, and  
in so excellent a state of preservation, is matter for con-  
gratulation.

## LONDON BY-LAWS.

A WORK which will be useful to architects and others  
announced for forthcoming publication is entitled  
"London Laws and By-laws," by Messrs. Charles William  
Tagg, town clerk of Camberwell (president of the London  
Borough Officers' Association), and Louis Oliver Glenister,  
solicitor of the Supreme Court. The volume, we under-  
stand, will include all the Acts or portions of Acts of  
Parliament concerned in the government of London,  
together with the by-laws of the London County Council,  
the metropolitan borough councils, and other documents  
bearing upon London government. The indications of  
repealed or superseded sections of the statutes given include  
those dealt with under the private Acts of the Metropolitan  
Board of Works and the London County Council. A special  
feature of the work is that it will be the first book published  
embodying in a single volume the by-laws both of the  
London County Council and the borough councils, upon the  
observance and enforcement of which the preservation of  
law and order in the Metropolis so largely depends. The  
volume, which will have a comprehensive index, aims at  
being a handy compendium of London law, and from its  
contents and arrangement should prove an indispensable  
*vade mecum* for all public and professional men in London.  
Messrs. Tagg and Glenister's book will contain a preface  
from the accomplished pen of Mr. G. Laurence Gomme, M.A.,  
clerk to the London County Council, author of "The  
Governance of London," &c. Messrs. Fredk. Tarrant & Co.  
will be the publishers.

## THE IRISH COLLEGE OF SCIENCE.

THE following letter from Mr. William Field, M.P., has  
been addressed to the Chief Secretary for Ireland;—

Blackrock: November 27, 1907.

Dear Sir,—I understand that the tender for the new  
College of Science building, amounting to 110,000*l.*, has  
been almost accepted, although of this amount 40,000*l.* is  
for imported Portland stone. If this be a correct statement  
it means labour taken away from native quarrymen and  
stone cutters. There is plenty of more suitable durable  
Irish stone available, as proved by the Kingsbridge Ter-  
minus, St. Paul's Church, Arran Quay, the New Museum,  
Kildare Street, whereas the Portland stone which was intro-  
duced for carved work in the front of T.C.D. is partially  
crumbling away. In view of repeated questions, replies  
and implied promises in the House, correspondence between  
the Board of Works and the Dublin Industrial Develop-  
ment Association and with the Lord Mayor, I have also  
written to the Board. Pending their answers, I have to ask  
that you will inquire into the terms of this contract. The  
Irish taxpayers claim that a fair ratio of expenditure  
should be retained in this country.

In reply to Mr. Field, the Commissioners refer him to  
the Board's letter to the Lord Mayor of Dublin, stating that  
Portland stone will be employed only in the ornamental  
facings of the building, and that the Irish materials to be  
used will represent not less than four-fifths of the brick  
and stonework to be carried out.





#### How Architects get Work.

SIR,—I and my friend Mr. Robert Williams, of Abercwmheli, came together to your brilliant Metropolis for a few days, but he did not tell me he was writing you on the subject of "How Architects should get Work." Had he done so I should have suggested to him that he and I should have "paired," and neither of us would then have asked your indulgence to take up valuable space in your columns, for his views and mine are utterly opposed upon the subject. I agree with your original correspondent in contemning those architects who seek to obtain commissions through working upon the weaknesses of social intercourse. I will not obtrude my views further, but I would like to congratulate Mr. Robert Williams, of Alexandria, upon the forcible way in which he gave expression to opinions so fully in accord with my own.—I am, Sir, &c.,

THOMAS THOMAS.

The Manse Chambers, Glenwynydd,  
N. Wales: November 30, 1907.

#### GENERAL.

**The Distribution of Prizes** to the students of the Royal Academy is arranged for Tuesday next. The chair will be taken at 9 P.M. The competition works can be seen by the public on Wednesday and Thursday from 11 A.M. to 4 P.M.

**The Address** of the Institute of Sanitary Engineers will be 120 and 122 Victoria Street, Westminster, S.W., on and after the 16th inst.

**The Right Hon. Sir Edward H. Carson** will distribute the prizes and certificates on the 12th inst. at the Borough Polytechnic Institute at 8 P.M.

**Mr. A. Stewart Appleton**, the American publisher, is promoting an international congress of musicians, painters and poets, which should re-establish the primary claims of literature and art, and thus prepare the way for a new and better order of things. He is at present touring Europe, arranging reception committees for a mammoth excursion which he will bring from America next year to visit the art and literary centres of Europe. The expedition will leave New York about the middle of February for Rome, Berlin, Paris, London and other great cities.

**Mr. A. C. Wallingford**, second assistant at the County Surveyor's Office, Lewes, has been appointed out of 130 applicants to the post of district surveyor of Hassocks, in succession to Mr. A. E. Bowen, now county surveyor for West Sussex.

**Messrs. Crosby Lockwood & Son** announce that they are about to open at 121A Victoria Street, Westminster, a west-end branch of their business, where a selection of new and standard technical publications will be kept on show.

**The Finance Committee** of the Battersea Borough Council will recommend the expenditure of 25,000*l.* for various works to be carried out during the winter.

**Lady Stair's** house in the Lawnmarket of Edinburgh, which was recently presented to the Corporation by Lord Rosebery, was visited last week by the plans and works committee of the Council. The idea was that the Corporation would use the house as a Corporation museum, transferring to it the articles now in the museum in the Council Chambers, but it is understood that the building was judged to be not suitable for a museum. The rooms are small, and as several would have to be made use of to house the growing collection in the possession of the Corporation, it is feared that this would necessitate the employment of several caretakers in the interests of the safety of the collection. To effect any alteration in the buildings, which were restored within the last few years, would be a costly process.

**Negotiations** between the Oswaldtwistle District Council and the owner of The Rhyddings, a local mansion to which is attached eleven acres of ground, have resulted in the house and land being secured for the town. The owner first offered The Rhyddings to the Council for 5,000*l.*, but has now agreed to accept 3,700*l.* The hall has been untenanted for some years. It might serve as a free library or public baths. The grounds will require comparatively little laying out to make them an admirable public park. They are within easy reach of the centre of the town.

**Messrs. Allen & Sons, Ltd.**, billposters, brought a case in the Edinburgh sheriff court against the refusal of the Corporation to grant licenses for twenty-three sites. The Corporation examined the sites and refused the licenses on the ground that they would be detrimental to the appearance of the city. The Corporation opposed the appeal of Sheriff-Substitute Guy and, on further appeal, Maconochie granted licenses for the sites in question. The licenses are, with a single exception, for a period of five years. The sites are gable and other hoardings in Haugh Street, Dalry Road, Gorgie, West Bryson, Polwarth Gardens and in other parts of the city.

**The Chancellor of the Diocese** has decreed a fast for the rector and churchwardens for the rearrangement of sittings, &c., in Hexham Abbey, necessitated by the building of the new nave. The proposed alterations include the restoration of the existing choir stalls and the sedilia. The completion fund now amounts to 4,502*l.*

**The Sale** of the art treasures of the late Stanford White, of New York, of the firm of Messrs. McKim, Mead & White, the victim of the Madison Square Roof Collapse tragedy, has been completed. It is announced that the amount for which the collection has been sold is 82,000*l.*

**Lady Baker**, of Ranston, is compiling a list of clay pits and brickyards in Dorset, in order to have the clays analysed with the object of tabulating their varieties and capacities. Her ladyship has set on foot a movement for the encouragement of modelling among Dorset peasantry, in order to counteract the attraction of the towns. She thinks that more general use might be made of the many beautifully tinted clays of the county for domestic and other work, in which the peasantry might profitably be employed in their spare time.

**The Council** of the Royal Institute of British Architects are prepared to receive applications for the appointment of a secretary. Applicants, who need not necessarily be architects, should possess some literary capacity, a thorough knowledge of French and a working acquaintance with other modern languages. Age not less than about 25 or more than about forty-five years. The secretary will be required to devote his whole time to his official duties. Salary 500*l.* per annum. Any canvassing will be disapproved. Particulars may be obtained by writing to the Secretary, 9 Conduit Street, W., not later than the 21st inst. and applications must be received by December 31.

**It is Proposed** to hold an electrical exhibition in Manchester in October, 1908. The Corporations of Manchester and Salford and many other towns in Lancashire and Cheshire have given their support to the scheme. It is thought that the influence of a more comprehensive exhibition than that held at Olympia, London, in 1905, will have a beneficial effect on the industry in the area of which Manchester is the centre, and it is desired that those interested in electrical manufacturing and contracting should have the opportunity of discussing the final details of the scheme. A meeting of the electrical trade will be held to-day (Friday) at the room of the Manchester Chamber of Commerce. Another meeting, convened by Sir William Preece, will be held in London on Thursday next at the Hôtel Cecil, with Sir William Preece in the chair.

**The Executive Committee** of the promoters of the proposed technical college for Aberdeen and the North of Scotland have issued an appeal for 100,000*l.* for the combined purposes of buildings, maintenance and bursaries, being felt that such a sum—in addition to the donations already promised—is necessary to place the college on a sound financial footing. Architecture and the associated trades will be suitably provided for. It is proposed to arrange for an intimate co-operation with the art schools with a view to full attention being given to the application of art to industrial products and the artistic crafts.

**Mr. Banister Fletcher** will lecture on Rheims, Rouen, Amiens and Beauvais Cathedrals at the University of London, South Kensington, on Monday, December 8 at 8 P.M.

**The Bishop of Kensington** on Saturday, November 28, unveiled a stained-glass window which had been fixed in the chapel of the Ealing and Old Brentford Cemetery to the memory of the Rev. H. F. Nixon, M.A., late vicar of St. Paul's, Old Brentford, and chairman of the burial board. The subject of the window is "The Raising of Lazarus." The work was designed and executed by Mr. E. Staunton Watkins, of Ealing.



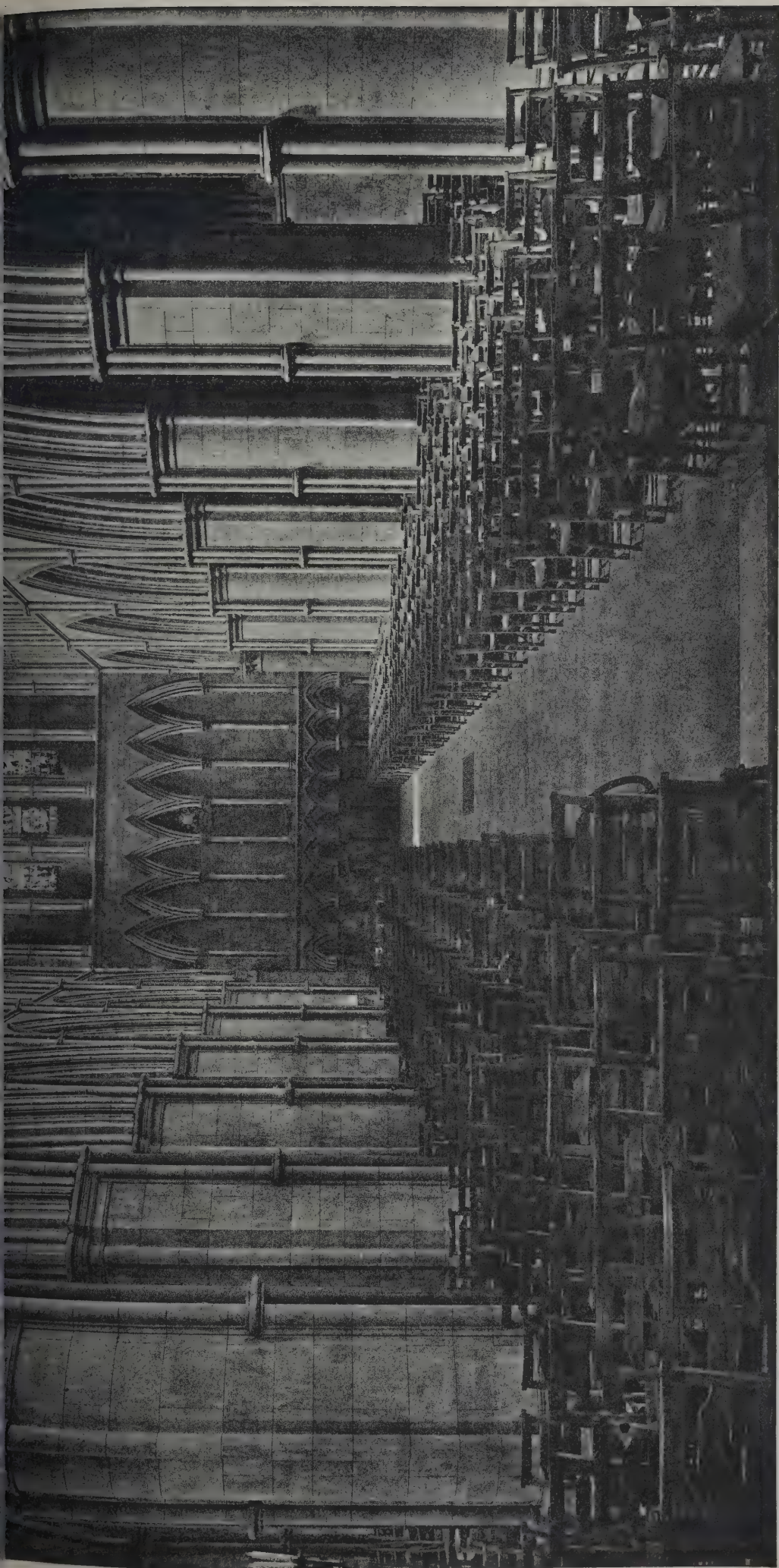




The Architect, Dec'r 6<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

\*INK PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 617.—SOUTHWARK: NAVE, LOOKING WEST.

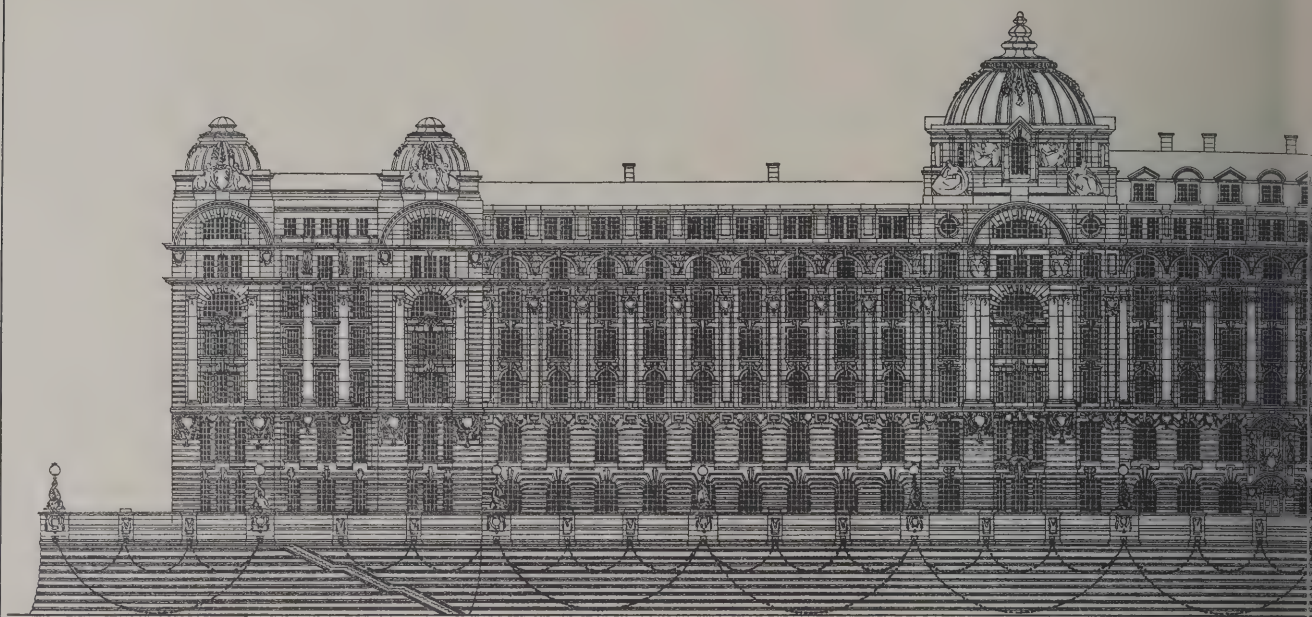




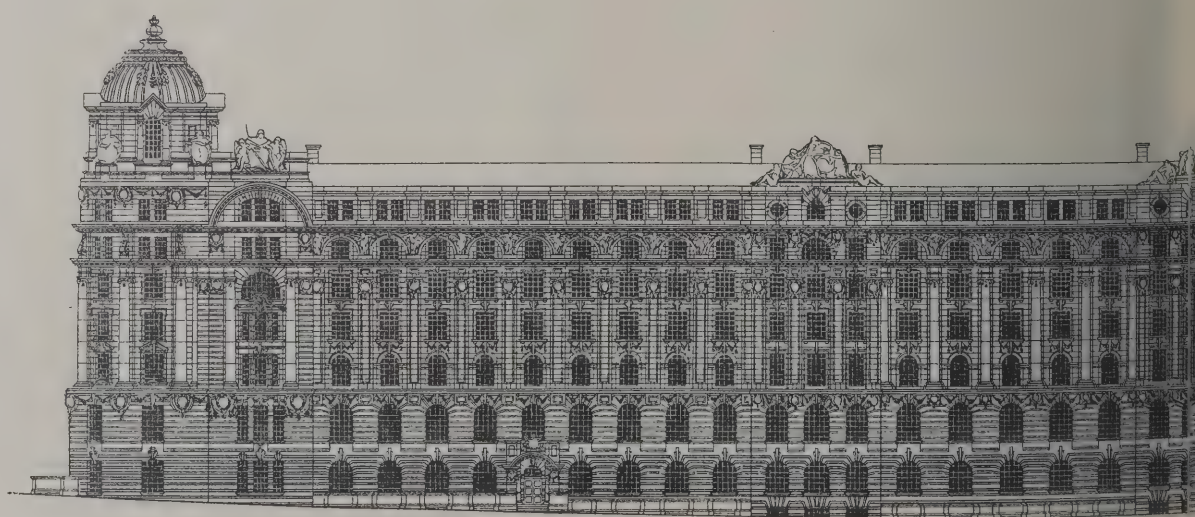








ELEVATION

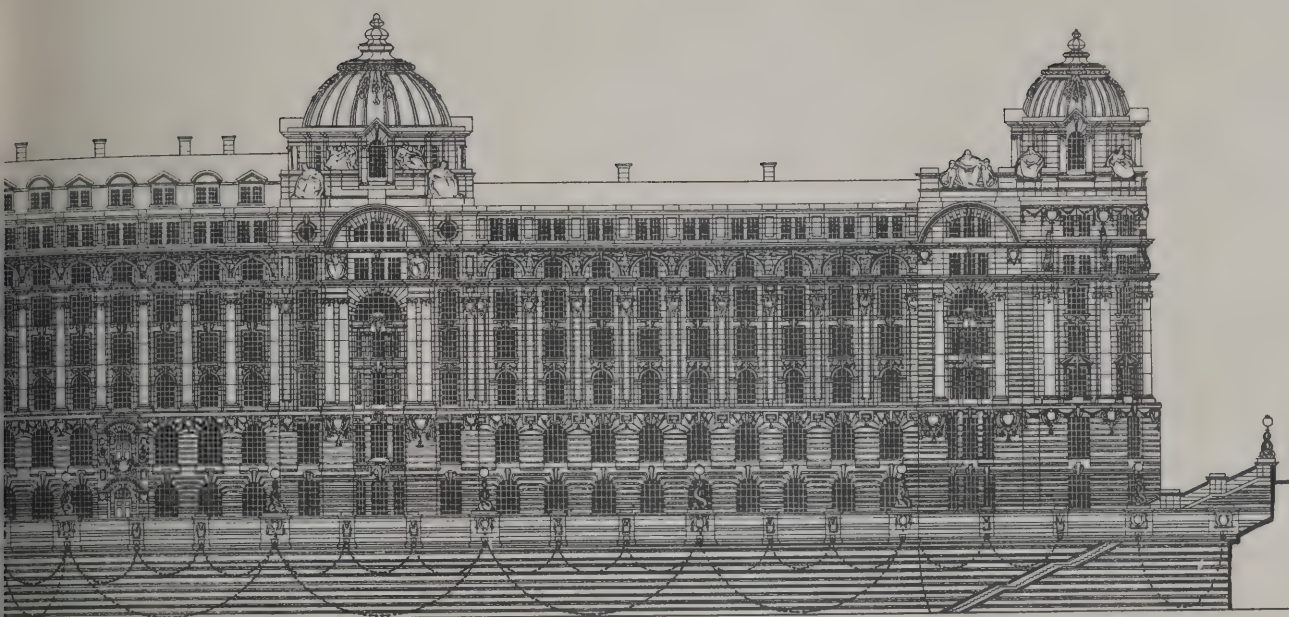


ELEVATION

DESIGN FOR

By Messrs. W. & A.





R.



ROAD

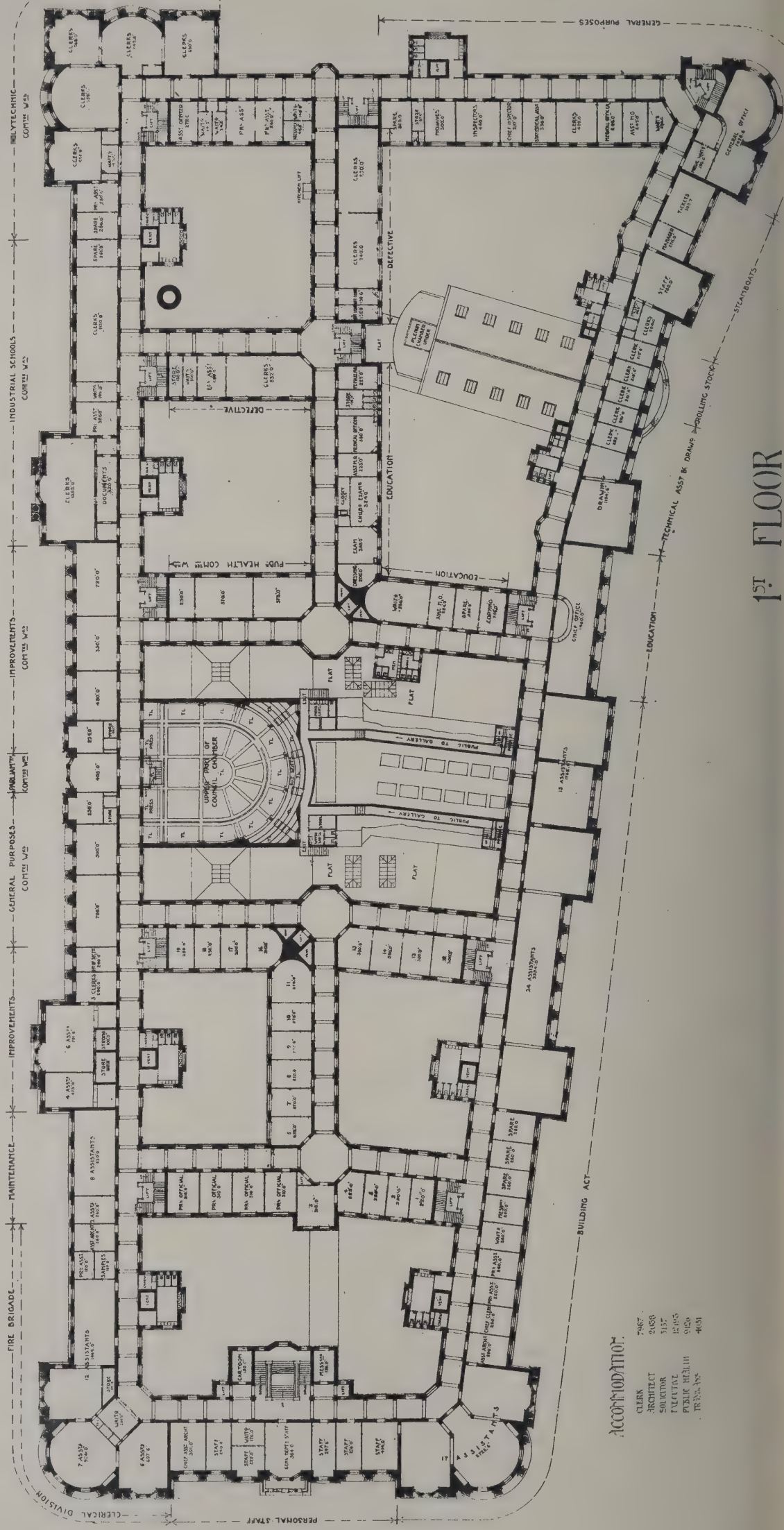








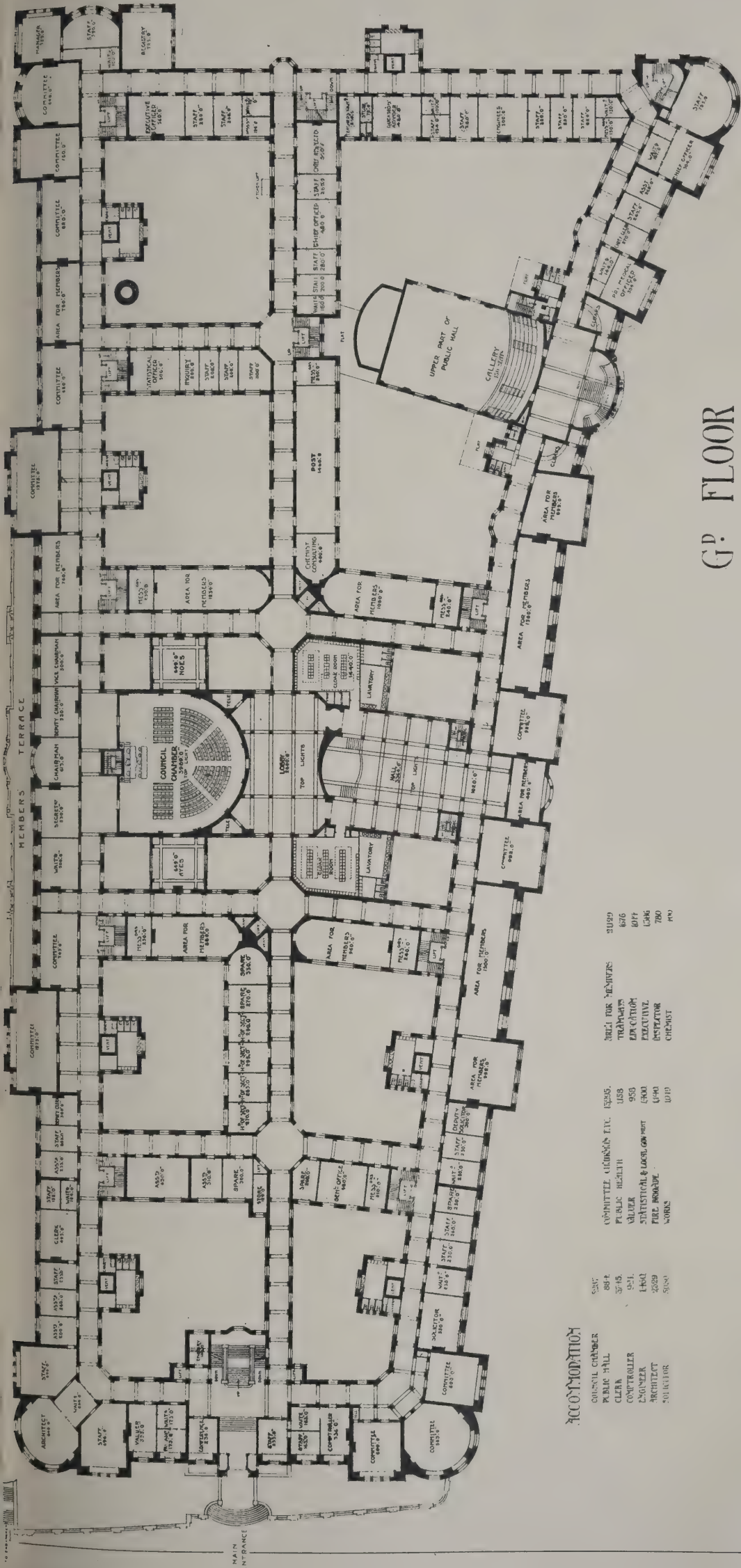




## ACCOMMODATION

CLERK	7987
ARCHITECT	2058
SOLICITOR	3157
EVALUATOR	12195
PUBLIC HEALTH	9120
TRUCKING	4051





# G<sup>D</sup> FLOOR

## ACCOMMODATION

COUNCIL CHAMBER	3207	COMMITTEE MEMBERS T.C.	1325.	AREA FOR MEMBERS	3109
PUBLIC HALL	884	PUBLIC MEETING	1158	TELEPHONE	676
CLERK	3745	VALUERS	953	EXHIBITION	1074
CONTROLLER	951	STATISTICAL & LOCAL GOVERNMENT	1400	EXHIBITION	1306
ENGINEER	1450	PURE SCIENCE	1140	INSPECTION	780
ARCHITECT	2029	WORKS	1010	CHEMIST	770
COLLECTOR	5084				

DESIGN FOR NEW COUNTY HALL, LONDON.  
By Messrs. W. ERNEST HAZELL and H. PAUL WILLOUGHBY.

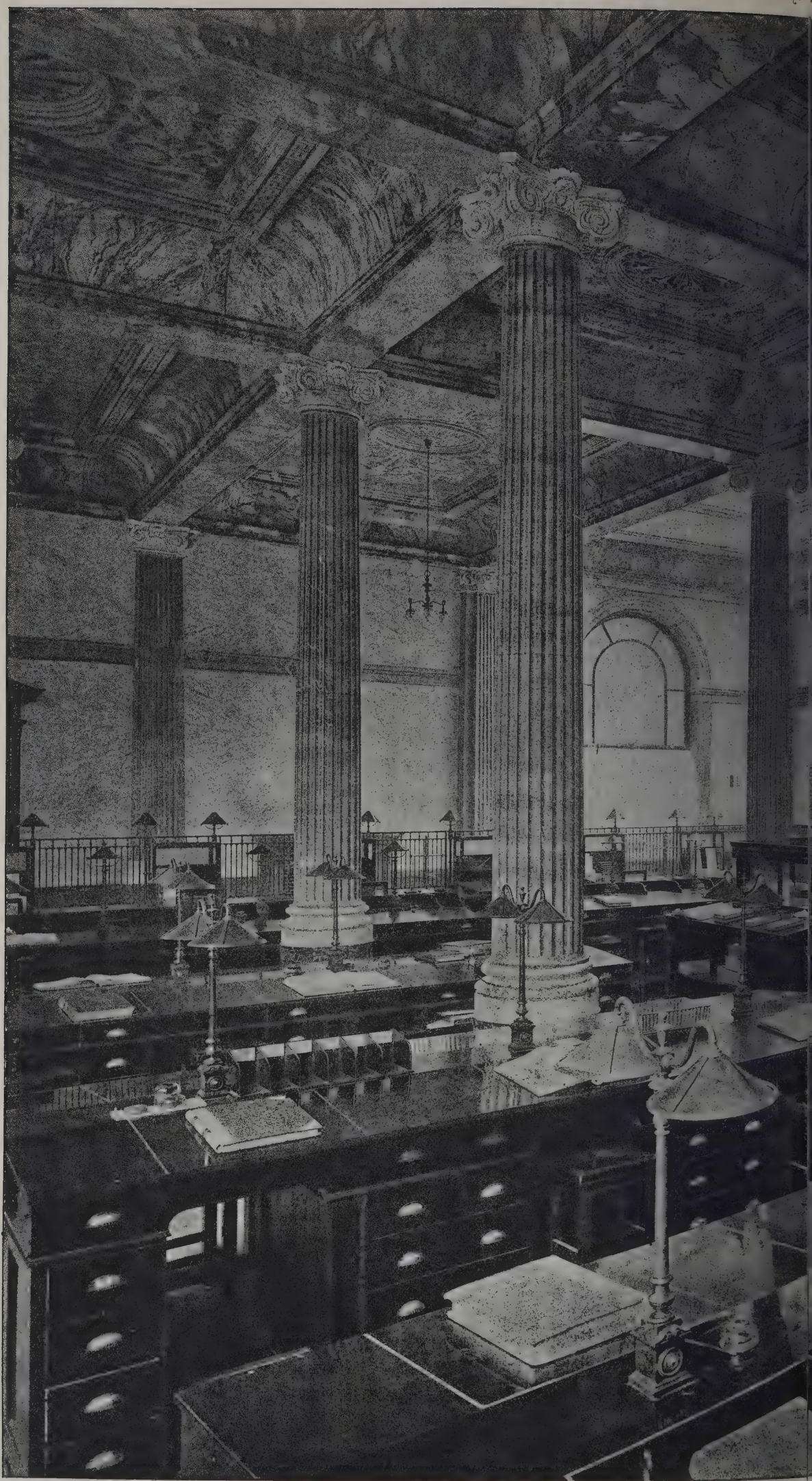












PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND, W.C.





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# The Architect.

## THE WEEK.

THOMAS GUTHRIE was a distinguished Scottish man who died in 1872. He was admired for his services towards the amelioration of the poorer classes. It has been a surprise to his admirers that his statue is not to be seen in the former notabilities of Edinburgh. His son, GUTHRIE, of Liverpool, has arranged with Mr. POMEROY for a marble statue of his father. Marble is preferred, although bronze is generally considered better adapted for a figure in the open air. The statue, including a granite base and foundation, will probably amount to 2,000*l*. The site will be in the street opposite the foot of the Castle, and in line with the other statues. Dr. GUTHRIE has a pleasing countenance, and there is no doubt Mr. POMEROY will do justice to it. Marble stands well in the Edinburgh atmosphere, although several of the street statues are in bronze. Mr. GUTHRIE proposes to give a sum of money in order to provide for the cleaning of the statue in perpetuity. That is a plan which deserves imitation in similar cases.

A SUB-COMMITTEE of the Rhyl Town Council recommended that the plans of Messrs. LITTLEWOOD & SONS be adopted for the new pavilion which it is proposed to erect. At the last meeting of the Council one of the members objected to the plans on the ground that a tower which formed part of the design would only be useful for storing scenery and machinery required for stage purposes. They contemplated providing for dramatic entertainments. It was stated that Messrs. SMITH & MAXWELL's plan should be referred to. It was stated that a contractor would put Messrs. LITTLEWOOD's scheme for 8,100*l*., while Messrs. SMITH & MAXWELL's would cost 8,800*l*. There were twelve members who, when the two designs were put to voting, were in favour of Messrs. SMITH & MAXWELL's plans, while only three supported Messrs. LITTLEWOOD's. It is necessary for the ratepayers to secure the approval of the majority. It cannot be estimated that for 8,800*l*. a great work will be erected, apparently Rhyl cannot afford a larger outlay.

On Monday the Court of Appeal delivered judgment in the case of CHAPMAN v. SPENCER. The action arose out of the unhappy circumstances which were connected with the collapse bodily and mentally of Mr. GOODACRE, the architect. The plaintiff was a son of the late Mr. SPENCER, and the defendant was the son of Mr. GOODACRE. The plaintiff was the owner of the estate of J. BURLEY. Mr. SPENCER obtained the contract for the erection of five houses in Leicester for Mr. BURLEY. His tender was accepted only for the brickwork, but he subsequently obtained a contract which included work by other tradesmen amounting in all to 4,370*l*. Mr. BURLEY, it was alleged, had paid the whole of the amount due under the contract. Unfortunately for himself, although the houses were drawn out for the plaintiff, they were handed over to Mr. GOODACRE. It was alleged that Mr. SPENCER, instead of passing the cheques on to the plaintiff, had them cashed. But owing to the condition of the architect the transaction could not be fully investigated. It is not customary for an architect to come an intermediary, and an effort was made to prove that Mr. GOODACRE must have been the agent of the plaintiff, or that the plaintiff had so acted that he was estopped from saying that the architect was not his son. Mr. GOODACRE undoubtedly paid certain sums to the plaintiff, but there was 150*l*. due to him for which he held a bill, and there was also money due to subcontractors for which the plaintiff was more or less responsible. The claim was therefore for 465*l*. 13*s*. 9*d*.

Mr. Justice WALTON, who heard the case, decided in favour of the plaintiff, and the Receiver therefore appealed. Lord HALSBURY delivered the judgment of the Court, and said the case was one of those in which two persons had been placed in a false position through the frauds of a third party. The architect was not the plaintiff's agent, and therefore the case had been properly decided. So the appeal was dismissed with costs. The action exemplifies the varied responsibilities which may come upon an architect and the trouble which ensues when he ceases to be competent to conduct his affairs even for a short time.

It is remarkable how touchy some of the members of the London County Council become whenever anything is said concerning the Works Department. No part of the Council's business was less adapted to be directed by amateurs. They may have had most virtuous intentions, but they were not infallible, and serious losses occurred not from dishonesty but from a deficiency in ability to deal with affairs of construction. It is said that improvements have been introduced in the working of the system, and it was therefore right to ask an able accountant like Mr. EDWIN WATERHOUSE to report upon the accounts and generally upon the position of the department from a commercial point of view. The report has been completed. According to the finance committee, "in it Mr. WATERHOUSE makes several suggestions on matters of detail connected with the working of the department, and we are in communication with the works committee upon these suggestions. As, however, it appears to us desirable that the report should be in the hands of members of the Council without delay, we are sending a copy to each member of the Council, and we think that the report should be placed on sale." The simple remark about selling copies of the report was interpreted as an effort to have it suppressed, and much time was occupied by the meeting on Tuesday in exhuming old charges against the Works Department and treating them as calumnies. Mr. WATERHOUSE's report is only a preliminary one, and yet it recommends alterations in the working of the department. He was not able to contrast the cost of work executed by the Council's workmen and the cost when executed by outside contractors. Until that information is obtained, the public will not be in a position to decide whether the Works Department is an economical institution or the reverse. A large majority, however, approved the recommendation of the finance committee. The report will be obtainable. But it is well to have it made known that the most important part has yet to be prepared.

"BREAKING STRAIN" is a phrase commonly used in describing the ultimate effect of loads on girders. But according to Professor ARNOLD, of the Sheffield University, it is an absurdity. Breaking strain really means the total elongation, and yet in test sheets it is usually expressed in tons per square inch. The correct phrase is "maximum stress." The Professor objects to the number of test sheets which are issued, and on which the erroneous idea is conveyed. He divides stress strains into four classes—first, the range of proportionality; secondly, the yield-point range; thirdly, the range from the yield-point to the maximum stress; and fourthly, the range from the maximum stress to the breaking stress. In the course of his lecture Professor ARNOLD contrasted the results obtained about thirty years ago by Professor WOHLER and those derived from the testing machine which is now employed in the Sheffield University. The difference was so large as to create doubts about the earlier experiments. He proposed to abandon the maximum stress as the base for the factor of safety, and to take instead the yield-point as a datum line, deduct from this four tons, and on the remainder to use a factor of safety of at least three to one.



## FAILURE TO DISCOVER DEFECTS.

ALTHOUGH the liability of architects to their clients is unquestionable, it is remarkable how few are the cases in which damages have been awarded for negligence in any form. This is suggested when it is found that the misdeeds of engineers, surveyors, brokers, road inspectors and others have to be referred to in law books in order to exemplify what might be done by architects. The result of the action brought by Mr. C. E. KEYSER, F.S.A., against Messrs. CHARLES TRASK & SONS, builders, of Norton-sub-Hamdon, Somerset, and Mr. EDWARD DORAN WEBB, architect, of Salisbury, for damages for alleged breach of contract and negligence in regard to the building of the chapel at the Masonic School for Boys, at Bushey, Herts, has in consequence, unusual interest.

Apart from the legal aspects of the case, *i.e.* if in legal matters a process of abstraction can be admitted, must be considered the enthusiasm of the plaintiff and the disappointment he suffered. This imparts a personal note to the transaction, which, if it did not affect the proceedings in court, is closely connected with them.

Our readers are aware that Mr. KEYSER is the author of the standard inventory of mural and other painted decorations which were produced in this country prior to the latter half of the sixteenth century, and of which portions have survived. It represents many years' devotion to the subject, besides visits to buildings in all parts of the country. The author in a most generous way handed over his notes to the Government, by whom they were printed for the benefit of schools of art. When investigating the remains of wall-painting in so many hundreds of churches, Mr. KEYSER could not help considering the cause of decay and destruction. He found that the preparation of the wall surface originally had much to do with the endurance of the paintings, and that colours vanished owing to the decay of plaster. In fact, a novice in mural work should not begin operations without a careful study of Mr. KEYSER's valuable discoveries.

When, therefore, Mr. KEYSER resolved to build a chapel at the Royal Masonic Institution, Bushey, he was only consistent when he decided that it was to exemplify mural painting. Mr. PHILIP H. NEWMAN, an artist who has had a long experience in all kinds of decorative work, and whose *Zenobia, a Prisoner in a Triumphal Procession*, was reproduced in *The Architect*, was selected. The plans of the building were prepared by Mr. E. DORAN WEBB, and the contract was given to Messrs. TRASK & SONS. The cost was stated to be 5,906*l.* The foundation-stone was laid by the Duke of CONNAUGHT, and work was commenced in May or June 1900.

According to the specification, the walls were to be of solid brick with a flint facing, and the plastering was to be executed in good chalk lime. It is well to remember that Mr. KEYSER in his book does not recognise a single example of old work in England as "fresco," and therefore a surface with plastering of the kind would be likely to obtain his approval. Mr. NEWMAN considered that chalk lime, if dry, was a suitable surface for his figures. A great deal of information has been obtained concerning Italian practice in such matters, but there is nothing to show what time was allowed in a building before one of the English Mediæval artists began to paint on the walls of churches. We are without precedents for guidance. Mr. NEWMAN assumed that after two years the walls would be ready, and moreover he employed a drying mixture.

He completed his paintings on that theory. Mr. DORAN WEBB, however, said that when the contract was signed he was not aware of the commission to Mr. NEWMAN, nor did he tell the painter that the walls would be ready for him in 1901. What he told Mr. NEWMAN was that at least two years must elapse before any decorative painting could be done, and he was

surprised when he heard that the painter was, in the summer of 1902. The paintings early exhibited blotches which were ascribed to moisture, and flakes of colour fell off. The minimum damage, according to the painter, estimated at 200*l.* We mention here that the jury gave a verdict against the architect for 68*l.*, and against the contractors on account of the repainting, or 20*l.* more than NEWMAN's estimate.

An examination of the walls became necessary in order to discover the cause of the dampness. KEYSER entrusted Mr. A. W. ANDERSON, architect, with the task. According to the evidence Mr. ANDERSON found chippings of flint, broken brick, bits of wall, and ashes, apparently without any connecting material between the outer facing of the walls, and he maintained that the space should have been filled with flint chippings and mortar only. The brickwork was not of uniform thickness as specified. The finding was confirmed by a foreman.

As a final certificate had been given, containing the contractors contended that there was no fault against them, as they had satisfied the specification. But Mr. Justice DARLING would not attend to the point, nor to one relating to the length of time which was allowed to elapse before action was taken. Witnesses on behalf of Messrs. TRASK testified that rubbish was not used. The foreman said he had no complaints from the clerk of works; he said that some soft bricks might have been used on the interior, but they were safe so long as they were not exposed to frost. Another witness said that the painting should not have been attempted earlier than four years after the walls were completed. Mr. Justice DARLING considered it was for the jury to decide whether Mr. DORAN WEBB had been negligent in not having the painting executed in two years. The Lordship also left the jury to decide whether Mr. ANDERSON's evidence the specification was not complied with, and suggested that it cost 117*l.* to repair the walls, and that the reparation of the wall-paintings would probably cost 200*l.* The jury decided in favour of the architects, and assessed the amount to be paid by the architects 100*l.* and by the contractors at 217*l.* We have mentioned the apportionment for the paintings; the remaining 97*l.* was payable on account of the walls.

It seems to us that the case should have been decided out of court. By the exercise of a little tact on the whole cost of litigation would have been saved. Charges against architects and contractors which are likely to be magnified by the public would not have been heard. Let it be granted that Mr. KEYSER was a "faddist"—a kind of client which is not always welcomed by architects or contractors. But in his enthusiasm was guided by knowledge, and in his arrangements he was a man of business and a gentleman. Unquestionably the mural painting, as a sort of hygrometer, and dampness, in ordinary cases would not receive much attention, but it became distressing to him, for it injured the work in which Mr. KEYSER took a special interest. Did the dampness arise? A foreman of the jury admitted that he wrote a letter in which he stated that he was well watched, but he was up to the eyes in people. He could not explain to the Court what was in his mind, but it is allowable to suppose that at the Chapel the workmen imagined they were not doing good work. If a few soft bricks and flint chippings were put in a place from which they should be excluded, it would be considered a "lark," and one which might be played for the first time in walling. The fact that the paintings might not be anticipated nor the action of a playful mood.

Mr. KEYSER ought in courtesy to have put the matter fully before his architect. But we cannot expect an enthusiast for wall-painting will remain content with a series of his own devising appears to be



a similar fate to the mural paintings executed years ago. He therefore decided on calling in an architect. But he invited Messrs. TRASK to be at the examination and through them he invited Mr. WEBB to attend also. Having received the certificate the contractors supposed their liability at an end and they declined to communicate with the architect on the subject. Whether in the independent examination defects were magnified, as is not known, we need not inquire. The statement bore the sanction of the Court and the jury acted on it. But variations which became necessary could as well have been carried out by Messrs. TRASK and supervised by Mr. DORAN WEBB without making the public case will, however, be useful if it should show everyone connected with building that they do not possess peculiar privileges and have not immunity from the consequences either of carelessness or of ill-

There is a peculiar danger in the creation of such a precedent as is involved in the case. England has been unusually unsuccessful in attempts at figure-painting competitions. Many causes have been assigned to explain the phenomena. At one time it is the quality of the ground, at another the ground, at a third the peculiarities of the atmosphere. The builder has hitherto been responsible for the failures. He may be in less fortunate. In the Bushey case not the least was attached to the painter. The careless work of the builder was considered to be unquestionably the cause. With that prepossession in their minds they were indifferent not only to any doubts about the process employed, but they attached no value to the possibility of any weakness arising from eagerness in the commencement of the work. We cannot expect that in the future builders will be as indifferent to the past to the building of walls on which paintings are to be executed. *KEYSER v. TRASKER, SONS & CO.* will, therefore, possess an interest which will be memorable.

## THE CONVENTION OF AMERICAN ARCHITECTS.

The conditions under which architecture is practised so nearly correspond in all civilised countries that any alteration which may be proposed in one country has interest in the others. Great Britain and the United States have so much in common there is, in fact, even more resemblance between the conditions of practice in both countries than can be found elsewhere. The proceedings of the Convention of the American Institute of Architects, which has just been held, for that reason almost seem as if they took place in an English or Scottish town instead of in Chicago. One of the first subjects to be considered was the question of the committee on competitions. It is recommended that, wherever possible, an architect should be employed without competition. If, however, competition is unavoidable, three kinds can be recognised, viz. limited, open and mixed, the third comprising those where certain subjects are invited, but all are at liberty to take part. It is not deemed advisable at present to impose any code. But it is urged that an architectural committee should draw up the programme and that an architect, or preferably a jury of practising architects, should assist the employer in making the award. As to the cost, the amount to be expended should either be sufficient for the purpose or there should be no cost stipulated. The programme should be in the form of a contract relating to the award of the work to other payments. Whenever practicable the architect and the adviser should confer with the employer and agree upon terms which are to be binding on all. In limited competitions there should be a premium sufficient to cover the preparation of the designs demanded. In open competitions the pre-

miums should be adequate to cover the expense of at least five schemes. In mixed competitions there should be premiums to the invited competitors as well as additional amounts representing the cost of at least five sets of drawings, the money to be distributed among the authors of the best five schemes and not to be confined to the uninvited competitors. It is also proposed to have it declared unprofessional for any member to knowingly submit designs in competition with another member unless under conditions approved by a disinterested professional adviser.

The recommendations have to be approved by a special committee. They differ in some respects from the conditions adopted in this country. Mixed competitions are almost unknown among us, and until a decision is given in the competition for the London County Hall, it cannot be said whether the form is advantageous. The ownership of the designs does not appear to be referred to. That, however, is an important point, especially when we remember the numerous trusts and companies for contracting to be found in America, and who could easily find opportunities to use premiated designs in another State. But American architects may be relied upon to look after their own interests.

We have stated when describing the proceedings of other Conventions that the inscription of architects' names on buildings was under discussion. The committee in their report say that the Institute should recommend its members to place their names with the Institute initials upon their buildings, "leaving to the individual member to select his best work in design and execution, to be signed, and bearing in mind that this is a privilege which, if sparingly and judiciously used, will be a credit to the Institute and will do much towards raising the standard of the practice of architecture in this country." An allied subject was the use of the "Institute initials, A.A.I.A. and F.A.I.A., by the members upon their cards and in the signing of buildings and plans, as eminently proper and tending to the wider recognition of the Institute." That recommendation was also adopted.

The American contract system has obtained proportions which are in keeping with the magnitude of the United States. There is an apprehension that a power which is so great may not care on all occasions to be subject to the control of architects. A committee was appointed to consider the subject in relation to architects, but the members appear to have been overwhelmed by the vastness of their enterprise. In the report they say that they have given the subject thoughtful consideration, and have discussed the matter in its various phases with members of the Institute and with a number of those engaged in contract work. It has also been discussed with officers of corporations who are actively interested as owners of buildings, so as to get the point of view of those experienced from the standpoint of the owner.

They feel that the subject is one which requires an amount of time and correspondence, and, in short, what might be called an educational campaign, from which results cannot be expected within a short time. The consideration of the subject has been postponed until next year. The expression "an educational campaign" is by itself sufficient to indicate the growth of the new power, for generally a contractor's circumstances are not supposed to be a mystery to an architect.

Another case which suggests a decline in authority is the report on building laws. The committee would like to see greater uniformity in the conditions. But they realised that local conditions must be recognised. It is not only from authorities opposition is to be expected. The National Association of Fire Underwriters has issued a code regardless of the existence of the American Institute of Architects. The committee say that it has been carefully prepared, but that some of its regulations are unnecessary and burdensome. If the Institute were to draw up a standard code it would be in conflict with



the underwriters. What is proposed is that the Association, the builders and the Institute should each appoint a committee, and that a conference between them should be held. The result will be watched with interest. The position is remarkable and suggests some of the opposing elements which are at work, each endeavouring to become supreme.

Under the title of "The National Advisory Board on Fuels and Structural Materials," the United States Government has appointed several specialists to make experiments. At St. Louis investigations as to concrete and reinforced concrete are in progress, and already about 40,000*l.* have been expended. The report on the subject has not been completed.

To the majority of the members the report of the committee on revision of schedule of charges was, we suppose, the most important subject brought before the Convention. The expenses of architects, as in other professions, are increasing, while the fees, which were based on a condition of things which were more moderate, remain unchanged. It has been found that in many of the larger cities, especially in New York, the fees are too low. In cities of the intermediate class they are considered adequate except in work for residences. In the smaller towns and in the South the fees are considered sufficient for all classes of work; indeed, in many instances clients consider them to be excessive. The chapters of New York and Cleveland recommend a rate of 6 per cent., the San Francisco chapter would charge theatres on a  $7\frac{1}{2}$  per cent. basis, the remaining chapters are satisfied with the present 5 per cent. rate except for residential work. An increase on residential work is very generally conceded as imperative. The rates proposed vary from 6 per cent. to  $7\frac{1}{2}$  per cent., or a sliding scale beginning with 10 per cent. on the first 10,000 dollars of cost, and averaging in one instance as high as 8 per cent. on an operation of the value of 100,000 dollars.

The New York chapter would give a client the option of a percentage basis or of an honorarium plus expenses. It is only in the largest cities of the East that experts are employed. But the architect's duties are not diminished by their aid, rather they are increased. It is therefore claimed that the architect should be paid his usual fee in addition to whatever has to be paid for the specialist's services. The committee, however, advise changes to be undertaken with caution. The existing schedule may be said to have established itself and has attained value in the Courts. It is the expression of a professional body in contrast to that of a trade union.

The recommendations were considered by a commission of the Convention, who came to the conclusion that the minimum charge, based on the total cost to the owner, should be as follows:—

On the first 10,000 dols. of cost, or any part thereof	10 per cent.
On the second 10,000 dols. of cost, or any part thereof	7 "
On the next 30,000 dols. of cost, or any part thereof	6 "
On any balance of cost	5 "

The fees are to comprise services in preliminary conferences, studies, working drawings, specifications, full-sized details, direction and supervision of work. It was proper to make an additional charge for residential work; for landscape architecture, furniture, monuments, decorative and cabinetwork and alterations the minimum charge is to be 10 per cent. There is also to be an extra charge where the building is conducted under more than one contract. Consultation fees are to be paid in proportion to the services rendered. Where the same set of drawings and specifications is used for more than one building erected at one time under one contract, the usual charge is made for the first building and a modified charge for repetitions. But this does not apply to recurrent parts on a single building, for

which the full commission is charged in the total. The above fees are not to cover alterations and additions to contracts nor negotiations for site, disputed walls, right of light, measurement of work or fair contractors. Should a specialist be required there is to pay for his assistance. Travelling expenses are to be defrayed by the owner. Drawings and specifications as instruments of service are to be the property of the owner.

The payment of the architect, they suggest, is as follows:—Upon completion of the preliminary studies, one-fifth of the entire fee; upon completion of working drawings and specifications, two-fifths; the remaining two-fifths being due from time to time in proportion to the amount of work done by the architect in his office and at the building. The architect is to be entitled to payment for furniture or other articles purchased in his direction, or any material or work already upon the ground or which may come into the owner's possession before the architect's commission is computed. In the event of the suspension of the works the basis of payment to be as follows:—Preliminary studies, a fee in accordance with the character and magnitude of the preliminary studies, working drawings and specifications, three-fifths of the fee for complete services.

The supervision of the architect is to mean such supervision by him or his deputies as he finds necessary to assure whether work is being executed in general conformity with his drawings and specifications or directions. He is to act in constructive emergencies, to order necessary changes and to define the true intent and meaning of the drawings and specifications, and he has authority to stop the progress of the work and order its resumption when not in accordance with them.

Such an alteration as has been approved is a step on the part of American architects, and arc in other countries, and more particularly in England, must desire that the end will be attained. If such a change is not likely that fees in England will be allowed to remain as they are. So many American clients pay to be amateurs they should know the difference between good and bad architecture, and if the architect has gained reputation will not give their services less than the Institute fees, we cannot suppose that substitutes would be found among men whose buildings would not be adapted to contain such paintings and statues as are now found among private owners in many parts of America.

## ROYAL ACADEMY SCHOOLS.

ON Tuesday evening the president of the Royal Academy, Sir Edward Poynter, who was accompanied by a number of the academicians, distributed the prizes to the students of the Royal Academy Schools. The following is a list of the prizes and prize-winners:—

*Historical painting*—David playing before Saul, gold medal and travelling studentship (200*l.*), Francis E. Fitzjohn Crisp; *proxime accessit* and extra prize of 50*l.*, Frederick Bird. *Landscape painting*—A Passing Storm, gold medal and scholarship (50*l.*), Marianne Harcourt. *Portrait painting*—W. Robilliard. *Painting of a figure from the life*—Silver medal, first, Francis E. Fitzjohn Crisp; silver medal, second, Christian Mary Wilbee. *Painting of a head from the life*—Silver medal, first, Christian Mary Wilbee; silver medal, second, Hilda Fraser Parker. *Design for the decoration of a portion of a public building*—Shipbuilding, prize of 50*l.*, Norman James Little. *Design in monochrome for a picture*—The Angel releasing St. Peter. The Acts, Charles Armitage prizes, first (30*l.*) and bronze medal, Lennard; second (10*l.*), Francis E. Fitzjohn Crisp. *Cartoon of a draped figure*—Polyhymnia, silver medal and prize (25*l.*), Margaret Isabel Dovaston. *Set of drawings of a figure from the life*—First prize (20*l.*) and bronze medal, Ronald Hamilton Greig; second prize (15*l.*), Francis E. Fitzjohn Crisp (disqualified owing to having received the same prize before); third prize (10*l.*), Christian Mary Wilbee. *Perspective drawing in outline* (open)



ers and sculptors only)—The Little Cloister, West-  
er Abbey, looking through an arch to the other side,  
medal, no competition. *Composition in Sculpture*—  
les and Antæus, gold medal and travelling student-  
2001.), Ferd. Victor Blundstone. *Model of a design*—  
ape of the Sabines, first prize (301.), Frank Gatter;  
prize (101.), Ferd. Victor Blundstone (disqualified  
to having received the same prize before). *Set of  
models of a figure from the life*—First prize (201.) and  
medal, Percy George Benthall; second prize (151.),  
Frazer Rock. *Design for a medal*—A design for a  
in honour of Diana, with a head of Diana on the  
e, silver medal and prize (101.), George Alexander.  
of a bust from the life—Silver medal, first, Millicent  
m; silver medal, second, Frank Gatter. *Design in  
cture*—Design for a College Chapel, gold medal  
ravelling studentship (2001.), William Harvey. *Set  
chitectural drawings*—The Vestry of St. Lawrence  
silver medal, first, David Wickham Ayre; silver  
second, Alan Binning. *Set of architectural designs*—  
(251.) not awarded. Set of drawings of an archi-  
tural design—first prize (151.), Alan Binning; second  
(101.), Frank Leslie Attwell. *Original composition in  
ent*—Prize (101.), no competition. *Perspective drawing  
line* (open to architects only)—The interior of the hall  
e Brewers' Company, silver medal, Sidney William  
e. *Architectural design with coloured decoration*—Part of  
ide wall of a chapel to be decorated with marble  
ing and majolica tiles, silver medal, Harry Herbert  
l. The Landseer scholarships in painting and sculp-  
of 401. a year each, tenable for one year, have been  
ed—in painting to Samuel Rahamin Samuel; in  
cture, to Ferdinand Victor Blundstone and John Angel.

#### The President's Address.

udents of this Royal Academy,—I undertook in my  
discourse to lead your minds in the direction of a higher  
of the possibilities of art than is prevalent among the  
rn schools of painting, whether in our own country or  
d. I endeavoured to emphasise my arguments by  
ing on the high standard which was ever before the  
the Greek artist in his treatment of the human form  
the embodiment of the divine idea, and to the high  
nit of perfection to which they raised it by investing it  
the noblest attributes of beauty and intellect; and  
by a reference to the culminating period of the  
n Renaissance, when a belief in the beauty of humanity  
means of enhancing the expression of the divine element  
erted itself after a long period of asceticism, during  
h the conception of the human body as an encum-  
be to be subdued by the sternest self-mortification  
ailed and spread, as has been said, like "an epidemic"  
ugh the Christian world—a view not only destructive of  
form of artistic expression, for that in itself was an  
gence to be eschewed, but carried to such excess as  
nately to become impracticable, and so lead to more  
al views of monastic life. This became in its turn the  
ery ground of a revival of art destined to take a place  
second in artistic excellence to the great art of the  
ks; in other respects occupying, indeed, a higher  
nd in that a more exalted view of the divine spirit and  
e destiny of man provided artists with loftier themes  
compelled them to the expression of deeper emotions.  
is only through the fortunate preservation of a few frag-  
ts of sculpture that we are able to judge of the com-  
mate perfection of which Greek art was capable in the  
ment of the human form; but there is no reason to  
ose that their greatest painters were in any way inferior  
their great sculptors, Polycletus, Phidias, Praxiteles or  
ppus in their several styles, or that painting failed to  
w its usual development from Polygnotus, the contem-  
ary of Phidias, but whose works were probably more  
aic in style, painting being slower of development than  
pture, through Zeuxis, whom we may perhaps con-  
r the Raphael of the Greek school, to its complete  
urity under Apelles and Protogenes, whom we  
tempted to couple with Titian and Correggio as  
ing carried the qualities of colour and modelling to the  
nest pitch of excellence. From the wonderful sense of  
uty and style to be observed in the decorative works  
ch have come down to us—I mean the wall-paintings  
n which the houses of the ancients were so profusely  
orated and known to us through their preservation at  
culaneum, Pompeii and Rome—we may infer that the  
nters, of whom these decorations give but a faint

reflection, at least equalled the most famous artists of the  
fifteenth and sixteenth centuries.

My consideration will now be of some points on which the  
works of the modern schools, as distinguished from the  
antique, bear on present practice, and happily the student has  
not far to go to make himself conversant with the whole  
practice and development of the art of painting from the  
revival at the beginning of the thirteenth century to the  
present day. The National Gallery contains examples of every  
painter of the first rank of every school to the beginning  
of the nineteenth century, with the one exception of  
Watteau, who, as treating the trivial and artificial subjects  
which were in vogue in France at the beginning of the  
eighteenth century, with sound taste and an exquisite  
refinement of execution and colouring, may, perhaps, be  
classed in the first rank. Besides this complete present-  
ment of the leading spirits of painting, no artist of any  
note is absent from this the most representative of the  
great European collections, with again the exception of some  
of the secondary French artists of the eighteenth century.  
There is therefore the fullest material for study in any direc-  
tion to which the proclivities of the student may lead him.

To the great masters I have constantly drawn your atten-  
tion in my addresses to the students on these occasions, and  
in so doing I am only following the example of my great  
predecessor, the first President of this Academy, who in his  
discourses continually holds them up as examples to the  
students of his time—not for imitation, he was careful to  
say, and I am careful to repeat, but for study—study of  
their methods of work, study of the qualities that make  
them great and distinguish them from each other and from  
inferior artists. No one had a greater admiration for those  
great men, and no one was further from any slavish imita-  
tion of them, but in the great qualities which distinguish  
Sir Joshua Reynolds's work may be traced the powerful  
influence which they had on his practice. The students of  
this Academy, indeed, have another advantage which the  
painters of Reynolds's day did not possess—I mean in the  
annual exhibition of the works of the old masters held in  
these galleries. The main object with which these exhibi-  
tions were instituted by my predecessor, Lord Leighton  
was to give the students of the Royal Academy the oppor-  
tunity of seeing pictures of celebrated masters of all schools, to  
which otherwise they were not likely to have access; and with  
few exceptions all the great private collections of England  
have passed, by the liberality of the owners, through  
these rooms. The collection of works of art to form such  
exhibitions becomes annually more and more difficult,  
for besides that it is becoming more rare to find examples  
hitherto unseen, a multiplicity of similar exhibitions has  
sprung up of recent years. It is not therefore surprising if  
owners of fine works have in some cases become tired of  
constant applications, and decline to part with the treasures  
which after all are the greatest adornment of their houses.  
Nevertheless, these exhibitions still remain of the highest  
interest to students of painting, and if I have entered on  
this slight digression from the more purely didactic nature  
of an address to you, it is to point out to you the prime  
object for which our winter exhibitions were instituted; to  
direct your special attention to them as a means of instruc-  
tion, and to hope that you will profit by them. Pictures  
which, like those of the National Gallery, are always  
within your reach may in time become too familiar to  
awaken enthusiasm, though to me the interest and pleasure  
which I take in them is as fresh as when I first knew them,  
and their unrivalled beauties appeal to me constantly with  
more and more force whenever I look at them. However  
this may be, there is undoubtedly an attraction in seeing  
works hitherto unknown or unfamiliar, which gives a fresh  
impulse to the artist and the student by exciting his spirit of  
emulation and presenting fresh aspects of his art, and in this  
way our Old Masters Exhibitions should gain your attention.

Nor is it only the inspiration that you may derive  
from the splendid results of such painters as Titian,  
Veronese or the earlier painters of the Venetian school,  
or from the severely beautiful productions of the Floren-  
tines, or from Raphael and his predecessors and fol-  
lowers, or from the great Correggio—more rarely to be  
seen in this country—or from the dignified realism of  
Velasquez and the painter-like qualities of Murillo—a  
master of the soft suffusion of gradations in flesh and  
drapery—or from the brilliant splendour of Rubens, and  
the elegance and character in the portraits of his pupil  
Vandyke, or again from that marvellous phenomenon  
Rembrandt—standing by himself on a pedestal of unattain-  
able achievement, without predecessors and with no



followers worthy of name, for he is inimitable—and from the whole school of Dutch artists, it is, I say, not only the inspiration you may derive from the contemplation of such works of genius which will benefit you. For although the desire which they create in the minds of all who are worthy of the name of artist to emulate their authors in their choice of noble and beautiful themes and a lofty and dignified treatment of them, and as a source of inspiration in this sense they are an indispensable adjunct to study from nature, although to feel such a desire is one of the most profitable effects to be derived from a constant reference to great works of art, there is a further, and to the student a more important use which such studies may subserve. If you search the National Gallery from one school of painting to another up to at least the middle of the eighteenth century, you will never find bad or incompetent work (I omit, of course, from this reflection a few painters of the third class whose claim to be represented is admitted on antiquarian or historical grounds). Every painter, whether he be painting saints on a gold background, or bacchanals dancing in Arcadian scenes, or even boors drinking in a tavern, has a complete mastery of his method and his material, and has no hesitation as to how he should begin, proceed with, or finish his work; he has learnt his trade; he is in fact an artist and not an amateur.

What I have always tried to impress upon you is that the artist is the man who knows how to do his work. The methods of work differ with different artists and in different schools. The method of Raphael differs from that of Titian, the method of Rubens from that of Rembrandt, and so on *ad infinitum*, but they agree in this, that they know what they want to do, and have acquired by early study and incessant practice a perfect mastery of the technical side of their art. This mastery once gained they were free and able to give full expression to their ideas in a technique which, while it excites our admiration by its perfection, is never used as a mere display of skill. With the masters of the great schools of painting technical skill was the means of expression, not an end in itself; they knew that an artist cannot express himself fully until he has acquired a complete mastery over his material; they brought their technical powers to a perfection which seems in many cases almost unattainable, and they took care that the pupil should have the skill of his craft at his fingers' ends before he was employed on any work of permanent importance.

This would appear to be incomprehensible to those who judge of the qualities of a picture by certain obvious evidences of a more or less competent dexterity of handling. That the great art consists in concealing the art is a very trite quotation, but it is none the less an eternal truth. The painting of Titian stands at least as high as that of any painter. It is so absolutely perfect and yet so unobtrusive, and produced apparently with so little effort, that it does not in itself attract attention. That of Velasquez is equally unattainable, but its very simplicity is deceptive. The way in which it is done is easy to see, and leads many artists to think they can do the same without going through that long and laborious study from nature of which the numerous early works of Velasquez give proof; with Rembrandt also, the third of the great trio, the method is discernible; but the simple and easy handling of these the greatest of painters was only acquired, with Rembrandt and Velasquez at least, after passing through a phase of almost uninteresting dryness and years of incessant and laborious study. With Titian the case is different; he was rather the culminating point of a school which for a century had been producing work of the highest beauty, than an isolated example, and his early work, though wanting in the boldness and facility which he acquired later, reflects the glorious traditions of a series of painters gifted with the most exquisite sense of colour, and ever aiming more and more at technical perfection. To this inheritance of tradition he added a deeper appreciation of the characteristics and aspects of nature, whether in man or in landscape, and in his earliest works, such as the beautiful picture at Antwerp of the Pope presenting one of the Pesaro family to St. Peter, he reveals himself as a master at once. Such is the value of tradition handed down through a succession of great artists from master to pupil. Some of the early productions of Rembrandt and Velasquez are, on the other hand, almost repulsive in their hardness and ugliness, and their development into the stupendous artists that we know was slow and extended over many years, probably because they had no great tradition behind them and had to make their way for themselves.

We have here in England no continuous school of

artists who have handed down an unbroken tradition and this to the student is an enormous disadvantage. He is drawn this way and that by opinion and example, listens to the flattering doctrine that he must be himself, must see nature in his own way, that the learner learns the better, that to know how to draw with precision and accuracy is to be academic (terrible word), and that to be trained in the methods of his art is to destroy originality. That such doctrines are bearing fruit is fear, only too evident in our exhibitions, and I fear in our own schools. A sudden degeneracy in the most important course of study in our schools, that of drawing from the living model, has set in within the last five years, and it is to be accounted for in no other way than the loose untidy method of work has taken the place of careful and sometimes beautiful studies of certain more than ten years ago, and its disastrous results are surely be, and indeed are, reflected in our exhibitions.

It is not too much to say that the most striking feature of the pictures in the National Gallery is, as I have already impressed on you, the perfection of workmanship where to be found. Take the Dutch school for instance. No one can pretend that the work of the Dutch painter is academic or that it is not founded on the closest and most intimate study of nature, and yet where will you find greater perfection of execution or more precision of drawing than in the works of this school?—a school where the practice of their best painters, finish in modelling, the most subtle gradations of colour and light and shade carried to the highest degree without apparent labour. You must have noticed among the works of the Dutch painter in our last winter exhibition two pictures by Jan van Goyen which especially illustrate my argument on this point. You will I believe find in the forthcoming one a further selection of Dutch pictures worthy of your study.

I do not ask you to attempt to rival the marvellous productions of Van Eyck, Memling or Gerard David. That when such patience was possible as is required to produce such miracles of minute completion in every detail appears to have passed away; the conditions of life are the same as in the fifteenth century; but the painter, Ostade or Teniers or Da Hooghe should be without the reach of any artist's ability if, but only if, in his student years he has learnt habits of neatness, accuracy and precision. I cannot but contrast with works such as those to which I have alluded an exhibition which I visited recently of a newer school, where not a picture had power to attract attention by the way in which it was done. That charm in a picture, the charm that arises from seeing the artist knows his craft and takes pleasure in it—what Ruskin calls "preciousness" of execution—was to be absent. A loose indefinite treatment with that effusive dexterity which is meant to conceal general ignorance was the leading note of the whole exhibition. I am far from saying that this is universal, but it is typical of the general indifference to good work, so prevalent in many quarters both at home and abroad at present, and to which carelessness of drawing as I have noticed to be one of the increase in these schools of recent years cannot but contribute. The tendency to shirk difficulties, to draw form in a careless and slovenly way, to cover want of close study by a display of clever sketching, is the worst that can afflict the student. Unless he can define his forms on paper with a clear outline and definite gradations of light and shadow, he can never define them in his own mind. My predecessor in this chair, Lord Leighton, used to say that unless a study can be modelled from it is of no use, and this applies more to the student than to the accomplished artist, and may be credited with the knowledge necessary for carrying it to its completion any correct indication of form. Indeed it was the method of the great artists of the Italian Renaissance, who, by long practice in highly-complex studies, combined with an intimate research into the anatomy of the human body, were so impregnated with knowledge of the figure in all its aspects that from a few sketches as can alone be made from a figure in motion they were enabled to produce a work complete and accurate in all its details.

In referring as I have done to the life drawings in our school, I am speaking of a general tendency to be observed not to the particular sets which have gained the prize, indeed, if they had not stood out from the others, showing more scholarlike qualities they would hardly have gained the rewards; but the tendency to substitute the best clever sketching for careful study is too prevalent, and in this our students appear unable to escape a



movement fostered from outside. To be told that is superfluous is advice which it is easy to follow. Advice is infectious, and the microbes spread with rapidity.

It is pleasant to turn to the subject of the gold medals. In sculpture it is, I think, generally admitted among members who judge your works that the competition is of a high average. Judging from the general excellence of the groups, in more than one of which the considerable difficulties which the subject involves have been very successfully overcome, the condition of the winning school leaves little to be desired. The architectural school also, under your visitors, who are devoting to it most energetic attention, is taking on a new life, and a number of drawings which has gained the medal shows the excellence of the instruction given. In the competition for the gold medal for painting, those two which I have already rewarded, and which ran each very close, stand out conspicuously from the rest. The painting which has gained the gold medal gives evidence of more thought in the treatment of the subject; its boldness and expression both of David and Saul are just, and well expressed in the contrast of their characters, by the simplicity of the one and the gloomy, dark spirit of the other. The composition is unnecessary crowded with figures, but it is a natural and comfortable spirit on the part of a young artist to make his work interesting by filling it with incident, though somewhat inappropriate in the present case. The second work, of brilliant qualities of painting, almost too brilliant for a beginner, unless there is solid knowledge behind it, has the defect of showing only the back of David, as an actor in the scene, is at least as important as the face, in fact, too much the study of a model with an attempt to give appropriate characteristics to the quality of the inspired youth. Truth to fact is not truth to nature. Truth lies in the true and adequate expression of the idea inherent in the subject; it is only to say that the painting may be an excellent one from a model without conveying the idea of David. Saul, on the other hand, is well conceived and well painted. I make these criticisms not to disparage the work in question, which, I consider, do great credit to their authors, but as remarks of a general character applicable to compositions of the kind. Both these competitors show hope, a great future before them.

I have made myself at all clear in these remarks you have understood that you can never rise to the height of a true artist unless you have the power which nature alone can give. Without this genius will but degenerate into eccentricity and fail to make good use of its natural faculties. The drudgery of the early stages of art is distasteful to those who cannot keep a steady purpose before their eyes and look forward to the result. No man can "be himself" unless he has the power to produce as in him, and how is this power to be gained in the painting, any more than in any other craft, but by the training which trains his mind, his eye and his hand?

#### MR. JOHN SWAN, R.A.

In a country where wild animals abound that the paintings and sculpture of Mr. Swan can be best appreciated. Mr. Edward Roworth, a local artist, contributes to the following account of the art and ideals of Mr. Swan who is engaged on the Rhodes memorial statue near his own home:—

It was on a stately Newlands lawn, beneath the eternal shadow of Table Mountain, that I first met John Swan, R.A., sculptor and painter. It was a memorable experience for me. Years ago I had seen Mr. Swan's work, and had fallen under the subtle spell of its consummate art, and I now found that I was meeting one of the greatest and most living artists in contemporary art. But the intensely sympathetic human personality of this great artist put me at ease at my ease, and I felt that I could talk freely and without hesitation, give expression to my own crude thoughts. John Swan has the simplicity which belongs to greatness and achievement. We talked of South Africa and the beginnings of her art. The directness and truth of Mr. Swan's observations were convincing and impressive. He looks forward with confidence to the creation of a South African school of painting, with original and national methods of expression. The spirit of South Africa rarely calls in vain to the soul of the artist; certainly Mr. Swan has fallen under its spell. In picturesque language

he tells of the great spirit of the land which seems chained, Prometheus-like, to her mountains, awaiting the touch of the great artist which shall set it free and reveal its soul to the world. The country appeals to him as being grandly elemental—he would get away from the towering pines, the shady oaks and even the stately blue-gums, and would be among Africa's own children, the magnificent Kafir-booms, the glorious proteas, or the shimmering forests of silver-leaves. As Mr. Swan talked, he impressed upon me the strange charm which this country has, owing to the fact that no trivial details encumber its large structural features. He spoke of the wonderful foregrounds of vast rolling plains with sharp and stately ranges in the broad, blue distance. Keenly modern, and filled with the new vision of impressionism, he is captivated by the federating power of our flooding sunlight, by which all the vastness and the luminous colour of our landscapes sink into a marvellous unity and become atmospheric and profound.

Mr. Swan has clear and definite opinions upon the training and ideals of the young artist. He is to follow nature. We are not to ask "how such a one did it," but we are to look upon nature with the fearless eye of a child, and endeavour to see her truly and see her wholly. Mr. Swan would warn us in South Africa against being led away by the method of seeing nature peculiar to the lens of the camera. The camera can never take the place of the artist. There is much, from the scientific side, which is of value in photography, but it cannot be art; there is no human emphasis until the artist's power of selection, which is largely emotional and individual, comes into operation; there can be no art, although there may be a splendid record of scientific fact.

In the limits of this short article it is unfortunately impossible to give, in Mr. Swan's own words, the interesting history which he gave me of the great impressionist movement in modern art. He traced it, laying particular stress on the technical side of the movement, from the mighty genius of Velasquez, the first of the moderns, through the great Dutchmen; and so by way of England, with her glorious galaxy of painters—Gainsborough, Reynolds, Constable and Turner. Constable carried the torch to France and set fire to the immortal spirits of the Barbizon school and the later paysagists, Monet, Sisley and Pissaro, the painters of vibrant light and air. The message of modern art is now exemplified in England by such world-renowned artists as Swan, Brangwyn, Clausen and Stott.

I have left to the last a reference to Mr. Swan's regard and reverence for the great French sculptor, Rodin. Mr. Swan declares Rodin to be the greatest living name in art, a wonderful genius who has stood alone, and by his keen vision and great soul widened the bounds of man's achievement in the arts. Nothing is more heartening than to hear the praise of one great man for another—for if Rodin has attempted what was before unattempted, so also has Swan, and has also as nobly achieved. John Swan is only with us for a season, but his wise words and generous optimism will be a spur to our young artists to go forward in sincerity of spirit towards their goal of self-expression in their art. As he says, "You are not hampered by the traditions of schools—you are free in your choice of nature." It is a great privilege to have such an artist and thinker amongst us—one who, in taking leave of us, says, "I, passing this way, salute the solemn stillness of your solitudes and the fierce sunlight that beats over the plains of South Africa."

**The Competition** amongst architects for Perth's new city hall promises to be a keen one. Nearly 150 architects from all parts of Scotland and England have applied for copies of the conditions and particulars, and lodged their fee of one guinea. This number is far in excess of what was anticipated. Premiums of 50, 30 and 20 guineas are to be awarded. Plans must be lodged by February 1.

**The York City Council** at their last meeting adopted the following resolution:—That Mr. Frank Watson Spurr be appointed surveyor of this Corporation, acting in its capacity of Municipal Council, at a salary of 400*l.* per annum as from November 1, 1907, with an increase of 50*l.* on May 1, 1908, and a further increase of 50*l.* on November 1, 1908, to a maximum salary of 500*l.* per annum; his duties to include all such duties as are prescribed by the Council and the streets and buildings committee from time to time, but not any duties in respect of the Ouse navigation; that he shall hold such appointment during the pleasure of the Council, devote the whole of his time to the duties and do not engage in any other work.



## NOTES AND COMMENTS.

THE late MARIO RAGGI, the sculptor, was one of the last survivors of the old school. He was a native of Carrara, where he was born eighty-six years ago, and in the local school where dexterity counts for much he was successful, and was thought to have a prosperous future before him. Then he studied in Rome, and was for a long time assistant to TENERANI. Like many another foreign artist, he imagined that fortune awaited him in London, where he arrived in 1850. RAPHAEL MONTI, of Milan, was at the time prominent, and was afterwards connected with the sculpture of the exhibition of 1851 and of the Crystal Palace at Sydenham. RAGGI joined him as his assistant. In 1854 he exhibited a statue of "Innocence" at the Academy. Afterwards he became assistant to MATHEW NOBLE, many of whose works are to be seen in the public places of provincial towns. Then MARIO RAGGI opened a studio of his own, and after an interval of twenty-three years again became an exhibitor at the Academy, his "Compulsory Education" appearing in 1877. From that time until 1886 he contributed with some regularity; most of the works were busts such as Cardinal MANNING, Cardinal NEWMAN, Lord BEACONSFIELD, Lord JOHN MANNERS, Dr. WARDE, JOHN HARVEY and LIONEL BEALE. The figure of Lord BEACONSFIELD in Parliament Square is his work. He produced memorials of Queen VICTORIA for Hong Kong, Toronto and Kimberley, and a statue of Mr. GLADSTONE for Manchester. He was a typical Italian sculptor; his busts and figures are successful as likenesses, and his statues "Matutian" and "On the Sea-shore" were admired, for they were easily understood. But it could not be said that he exercised much influence on the sculptor's art in England.

THE earthquake in Jamaica not only disturbed the surface of the island and destroyed buildings, but it overcame also the officials, and was not without its effect on the Home Government. That may explain the absence of a scientific investigation into the phenomena from which lessons for the future might be derived. Dr. CORNISH, who was in Kingston at the time, delivered a lecture before the Royal Geographical Society on Monday evening, in which he said that a Commission of three should have been despatched at once to the island, the Commission comprising a field geologist, an expert in building construction, and a hydrographer. A complete record was necessary of all damage to buildings, and an exploration for new faults or movements of old ones, particularly in the somewhat difficult country in the eastern portion of the island, which was both mountainous and thickly wooded. The guidance which the resulting report would have furnished respecting methods of building, and perhaps also as regards the best sites for houses in Jamaica, would in itself have more than repaid the expense. The report would further have been a valuable guide in other parts of the Empire situated in seismic areas. From his own observation Dr. CORNISH said:—In addition to any jarring or bumping there was a strong swell, literally a ground swell, running from west to east or east to west. Thus walls that faced east or west were generally overthrown, while the fall of a wall facing north or south was exceptional. Of the former many more fell to the east than to the west. On the latter, though they mostly remained standing, the effect of the rocking was to produce a double system of cracks. As the wall returned westward from its eastward excursion the eastern end of the wall was, so to speak, left behind, and on the return vibration in an eastward direction a corresponding crack opened at the west end. These cracks often crossed each other diagonally. Walls in which cement mortar had been used stood much better than those with only lime mortar. The defect of all stone and brickwork, however, in respect to earthquake shock was want of tensile strength,

hence the advantage of reinforcing concrete, & strips of metal, which would give a fibre to make otherwise too brittle. The disadvantages of height and of top weight were also abundantly evidenced. Any departure from simplicity of usually brought about additional damage, Gothic and Classic cornice being almost equally unsuitable in earthquake countries. In face of these restrictions would seem that architects in regions of seismicity would have to rely mainly on the skilful proportion of spaces for the production of artistic effect must be allowed, however, that if the information desired by Dr. CORNISH were forthcoming it is doubtful whether it would be adopted. After the Great London the citizens who survived returned to the ruins of their old dwellings in spite of all the advantages which streets laid out on WREN's plan would offer. San Francisco people are not afraid to risk the damage of spots in which the seismic force was active, and Kingston they would probably be equally foolish. It would, however, be an advantage in a scientific sense to have such a report as Dr. CORNISH describes.

THE village of Saddlescombe is near Battledown, Sussex. It has lately acquired interest among archaeologists from the discovery of pit dwellings which are of an unusual kind. There is no question they were used as dwellings, because charcoal ashes were found in them as well as some flint implements. Mr. E. ROBINSON discovered them almost accidentally. The pits were probably roofed in with tree boughs covered with clay. All the pits faced the east, as though to secure the shelter of the downs from the south-west winds. A Roman coin dated A.D. 141 was found in a shallow flint bed adjacent to the site of the pit dwellings. Other discoveries were human teeth, crumbling portions of a skull and a piece of pottery. Large quantities of oyster shells of coarse texture were unearthed, and one of the larger pits hundreds of shells of the common land snail were found in the crevices between the flint slabs, the snails evidently having sought this shelter for hibernation and failed to find a way out. Another chamber in a pit was filled with gallop-holes of moles' bones. A few bones of cattle and tusks of boars were close by. One peculiarity was that the hearth was within the hut instead of outside. It is supposed that the dwellings belong to the Bronze Age. The early dwellers may have realised the value of local ironstone long before the Romans came, for there is evidence that they occupied Saddlescombe and the vicinity.

AN Architects' Technical Bureau has been established. The advisory committee consists of Mr. ALFRED W. S. CROSS, G. HUBBARD, W. A. PITE, J. SEARLES-WOOD, KEITH D. YOUNG, G. BERTRAM BULL, JOSEPH CROUCH, H. L. GODDARD, PAUL OGDEN, E. SEWARD. The offices are 11 Bloomsbury Mansions, Hart Street, London, W.C. The Bureau is intended to supply a want frequently expressed by architects. It is proposed to establish a central bureau, where complete and reliable information can be obtained on practical matters, such as building materials, appliances, manufactured goods, new methods of construction, &c., where expert advice will be available on the technical requirements of the profession. It will render the services of experts to assist architect subscribers, especially the younger practitioners, in arriving at sound conclusions relative to difficult points on ancient limitations and easements, and upon knotty points in agreements and contracts. For those architects who enter into conditions, the Bureau will have the respective sites inspected and obtain full particulars as to surroundings, materials, &c., as well as photographs of the adjacent buildings, if any. The Bureau, we understand, already over 500 subscribers amongst architects in all parts of the country. The period for joining original subscribers (10s. 6d. London, 5s. provinces) has been extended to the last day of the year.



## ILLUSTRATIONS.

ABBEYSTEAD, LANCs.

DENHOLME, WALTON-ON-THAMES.

A house, which is situated on a site of about 1½ acres of land in Oatlands Chase, Walton-on-Thames, was completed about four and a half years ago. It stands at right angles to the public road, in order to obtain the south-east aspect for the principal front towards the garden. A plain substantial family house was required at a low cost, and it is left to the architect to beautify the walls with creepers. The house is faced with purple clamp bricks of varied pattern, with red dressings, and the roof is of tiles. The accommodation comprises on the ground floor a large reception hall, dining-room, drawing-room, billiard-room and the usual offices; on the first floor, seven bedrooms and a dressing-room with two bath-rooms, and on the top floor, five bedrooms, bath-room, and a study, &c. The house is warmed by radiators connected to the ordinary grates, the heating being supplied by a "Duplex" boiler also supplying the domestic hot-water service. The system was carried out by Mr. E. P. MILNE, of 15 Craven Street, London, and proves very effective. The stoves are mostly "Heaped Fire" variety, by Messrs. BRATT, LONDON & Co., Mortimer Street, London, W. The architect was Mr. FRANK HAWKEY, of 81 Brighton Road, Brighton, while the architect was Mr. WALTER E. DAVIES, A.R.I.B.A., of 22 Buckingham Street, Strand, who also arranged the laying out of the garden.

THE GODBER MEMORIAL CHURCH HALL AND PARISH INSTITUTE, HUCKNALL TORKARD, NOTTS.

THIS building, which was opened on November 16, 1906, by the Duchess of PORTLAND, has been built for educational and social purposes on a site presented by the Duke of PORTLAND, and adjoining the old parish churchyard on the west side, with frontages of 100 feet on West Street on the north side and West Street on the south, the maximum width being 120 feet and the depth 138 feet, the area being nearly an acre. The ground was fairly level throughout three-quarters of its extent, and the remaining quarter sloped down to Ogle Street with a fall of 15 feet. Most of the ground on this slope has been removed to form a recreation ground for the building, a large portion of the excavation having been done by voluntary labour of the parishioners. Advantage was taken of the fall of the ground in planning the building by giving an entrance on the level of the upper floor. The portion of the site facing West Street, which had been laid out as a recreation ground, as well as the main entrance on the ground-floor level facing Ogle Street, a carriage drive at the west side of the building also giving access from Ogle Street to the recreation ground on the higher level. The building has been designed on economical lines, to give a maximum amount of accommodation at a minimum cost. The ground-floor is chiefly devoted to recreation rooms, the largest room, measuring 29 feet by 29 feet, being divided by folding partitions into a reading-room, a lecture-room and a games-room. Also included are a billiard-room 29 feet by 26 feet (with a billiard table), lighted on two sides, occupying the north-east corner, and a lads' club-room, the same size, at the south-east corner. A dark-room for photography and lavatories are also provided on this floor, and a room for the honorary secretary and committee is situated close to the entrance. Two staircases give access to the upper floor, which is also approached directly from the recreation ground on the higher level, as before mentioned, and this floor is mostly occupied by a large hall 80 feet by 37 feet, capable of seating about 100 people, exclusive of the raised and recessed platform, which will seat about fifty more. The hall is divided into three portions by folding partitions, the middle portion adjoining it at one end is a music-room, and at the other end (next the platform) is a

suite of service rooms, consisting of a kitchen, scullery, store-room and serving-room, with a large store-room above the kitchen. Ladies' lavatories are provided on this floor. The heating chamber is placed in the basement, next the Ogle Street front of the building. The walls are built of local brick, faced externally with red brick and Darley Dale stone dressings, and the roofs are covered with Welsh slates, the ventilating turret being of wood roofed with lead. The floors are of concrete (the upper floor being carried on steel girders and joists) and covered with "terrazzo" throughout. The joinery is of canary wood, unpainted internally. The boundary wall is of local stone, most of it quarried on the site, the front coping being of Darley Dale stone, and the railing and gates being of wrought-iron. Canon GODBER was the largest contributor to the building fund, and his death having occurred shortly before the laying of the foundation-stone by the Duke of PORTLAND on August 1, 1906, it was decided to call the building "The Godber Memorial Church Hall."

The total cost, including laying out the grounds, forming a miniature rifle range on the east side, furnishing, and all fees and expenses, was 5,680*l.* Mr. LOUIS AMBLER, F.R.I.B.A., of London, was the architect, Mr. D. DAVIES the clerk of works, and Messrs. THOMAS FISH & SONS, of Nottingham, the builders.

A PAIR OF COTTAGES.

THIS pair of cottages was designed by Mr. E. W. POLEY, A.R.I.B.A., of 6 Lancaster Place, Strand. The external walls are finished in roughly trowelled stucco and distempered a light tint. The roof is covered with grey green slates and the chimney-stacks are red brick.

CATHEDRAL SERIES.—SOUTHWARK: THE NORTH TRANSEPT FROM SOUTH.

## CHICHESTER CATHEDRAL.

IT is stated by the Dean of Chichester that the architect, Mr. Somers Clarke, endorsing the opinion of the surveyor, Mr. Gordon Hills, has recently informed the restoration committee that it will be necessary to spend at least 5,000*l.* on the campanile and roof of the cathedral, the lead of which is very ancient and is getting dangerously thin; and, if the work of restoration is not speedily taken in hand, serious damage to the structure is likely to ensue. This comes on the top of several other recent efforts—such as the entire rebuilding of the north-west tower, which had long been allowed to lie in ruins—and these have severely taxed local resources. At present 1,600*l.* is being expended on the repair of the stonework of the campanile, which is the only one in England now remaining detached from a cathedral church. As is well known, the central spire fell down in 1861, and its rebuilding was a very costly affair, carried out when Dr. Hook was Dean. Including something over 60,000*l.* for that object, more than 117,000*l.*, principally raised in the county of Sussex, has been expended on the fabric. The Dean adds:—"We are so far in a very fortunate position, inasmuch as the architect tells us that, if we can succeed in raising this, comparatively speaking, modest sum of 5,000*l.*, it will be the crown to our labours, and that the whole building may then be considered to be sound and in complete repair, which will make us to a certain extent the envy of other chapters less fortunately situated. None the less, at the moment this repair of the roofs is a hard nut for us to crack, and we feel that the need is urgent for the reason given above. The Dean and Chapter have contributed and are contributing as largely as they are able out of their sorely diminished revenues to the repair of the cathedral, which has no fabric fund, and the heavy calls upon local generosity which the raising of the above-named large sum has entailed have well-nigh exhausted local possibilities. There must be many among the thousands who come here to view our glorious buildings who would be willing to help us did they but know of the need which has arisen. The Duke of Richmond and Gordon is the chairman of the repair and restoration committee, and subscriptions will be most gratefully received either by him at Goodwood, Chichester, or by the Dean."



## THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at the premises in Tufton Street, Westminster, Mr. Walter Cave, president, in the chair.

Messrs. E. H. Buckingham, H. G. Warlow and H. S. Rogers were elected members.

Mr. C. Wontner Smith (hon. secretary) announced that a meeting of the A. A. Camera Club would be held on December 19, when Mr. E. W. Harvey Piper had promised to contribute an address, entitled "An Hour at Southwell."

On the motion of the President, a hearty vote of thanks was passed to the Musical Society for providing excellent entertainment at the recent conversazione.

Mr. PAUL WATERHOUSE read the following paper, illustrated by plans, entitled:—

## The Laying-out of London.

In bringing before you this essay on London, I would have it understood that I disclaim all initiative in the matter. Twice in two years I have been asked to read a paper on this subject; but I have never applied myself unasked to any of the problems which it involves. I make these prefatory disclaimers, not by way of disarming criticism—on the contrary, I welcome it for this very reason with the less embarrassment—but simply because I should like it known that I have never for an instant had the effrontery to look upon myself as in any way specially qualified to offer advice on the topic of London street planning. Whatever freak of the imagination has coupled my name with my subject, I may truly say that it is a flight of fancy which took its origin entirely in other brains than my own. When your summons came to read a paper on laying-out London I was bewildered. Was I to take my start from the great green field of prehistoric Middlesex and relate the chronological process of London's plan? Was I to put before my eyes the chart of present chaos and doctor it? Or, finally, was the laying-out to be in another sense? Was I, in fact, to take the weary but dearly-loved sufferer just as she is and lay her out—for burial? Presumably, what you require of me is some suggestions as to how London might have been laid out and how she may still be amended.

Now, apart from practical difficulties, which, in a matter of this kind, must never be admitted as obstacles (for practical difficulties mean money difficulties, and money is bound to be forthcoming for real public needs), the great question that besets the handling of this problem is, Where, in point of history, are you going to begin? We want (or rather we are going to have) a new London. You will understand as I proceed that I say this from no love of novelty. Indeed, I would sooner not say it, for if you were to come to me as magicians and were to say, we will give you leave to live in whatever London you choose to ask for, I should have no hesitation whatever in ordering the London of 1800. By favour of your magic I would pave it with wood, I would grace it with a selection of really good horse omnibuses, with hansom cabs, and with odourless taximeter four-wheelers. For convenience in transit, I should encourage two-thirds of the inhabitants to settle in the Garden City, when the rapid increase of population would probably demand the transfer to Letchworth of all the motor omnibuses.

Seriously then, and apart from all jest, the London I should prefer, and that you would prefer, is a certain old London; but this we know we cannot have. Our London of the future must be, whether we like it or not, a new London; we are making it new every day. There was, you know, once a man who when asked what he thought of Rome said, "It will be a nice place when it's finished." Rome, so far from being built in a day, has taken 2,000 years in the process, and is still at it hard. But all cities aim at a certain—of course, unattainable—completion, and the question for us (as for the Romans) is, Will ours be a nice place when it's finished? In other words, if we were to be told that there was to be no anxiety about cash, but the job must be done in twenty-five years, could we conceivably make a decent piece of work out of our enterprise?

And still the inquiry, Where are we to begin? has its force. First, to begin very far back, let us ask whether London is in the right place at all? Were I to offer you, as I have offered myself, no already tangled problem, but a clean map of British pasture land and forest, with nothing on it but rivers and contour lines, the chances are that you would begin by placing London where it is. There is good reason now, as there was in old time, for planting our capital on one of our largest rivers, and in so placing it on that river that it shall coincide with the lowest point at

which a bridge can conveniently span the water, doing you not only minimise the severance of shore, which is one of the main drawbacks in a rivers, but you also allow the navigation to reach the unimpeded by lower bridges. Again, in choosing the Thames as the river rather than the Severn, the Mersey, or the Humber, you place your city in its nearest relation to the rest of Europe. So let us have no qualms in London somewhere near London Bridge. Our difficulties are simple so far, now the difficulties begin.

The next question, ridiculous as it seems, is still asking, because it opens out a matter of principle vital to our task. Shall we, while retaining the site all, any or none of the existing streets and buildings? If you come to think of it, a man might conceivably rather reasonably, argue thus:—"London is a very convenient city and needs remodelling."

London buildings, even the best of them, are perishing and will be outlived by London herself. Though it is true that no scheme of improvement, unless aided by earthquake or fire, would proceed by means of wholesale destruction, yet there must still be a gradual and eventually complete renewal of all London buildings.

An obsolete building of important functions is more easily superseded by one on a new site than by one on the same site. Therefore, plan your London of the future irrespective altogether of London present or London past. This is, I repeat, what your man of sense might say.

But, gentlemen, I have stated this line of argument clearly and convincingly as I can, only to tell you that I do not one with which I have little or no sympathy. It is difficult to get rid of the reverence for the past, which I hope to show in the first principle, and by no means as a secondary consideration, London as a modern aggregate cannot be regarded as an entity identical with London of the past; and this reverence, so far from being a hindrance to us or an obstacle to righteous conservatism, will, I hope, prove to be a solution of part of our problem and the best bulwark against the temptation, by which I mean our reverence for certain buildings, which should be unassailable and impregnable. It has nothing to do with any theory of London improvement, and does not adopt as one of its first principles the sterile belief that certain buildings, and perhaps certain streets, are inviolable.

And now, with an appearance of inconsistency—only an appearance—I want us to ask ourselves apart from all question of existing buildings, would it be an ideal plan for a city of the size of London, placed upon the site of London? Assume, if you please, that you have offered as unalterable data the Thames and the moorless undulating ground on its north and south banks. On this ground, cut in two by this tortuous stream, you lay out to the best possible advantage, and with full knowledge of modern requirements, a metropolis measuring nine miles by six miles.

It will first occur to you that a purely rectangular plan has certain advantages, owing partly to the fact that it involves a minimum of waste ground, and partly to the economy of labour resulting from right-angled construction. But you will soon discover, on applying the rectangular treatment to your Surrey and Middlesex, that the river plays havoc with it, and cuts up the "T-square and set-square" formation by its tortuous nonconformity. You will next remember that the other objection to the right-angled street plan, namely, that in the course of business or pleasure a man's path may take him in directions not necessarily coincident with your parallels and rectangular lines. He may need, in fact, to move diagonally as the bishop moves in chess, and then his course in your rectangular city becomes one of much indirectness and of much wasted time. The rectangular city is then not perfect without diagonal streets, and diagonal streets waste the virtue of the right-angled formation. Meanwhile, your study of the river's course has been putting another idea into your head. There will, I need, as you soon observe, of many bridges. Starting from the east end of the town with a bridge as low down-street as the river traffic will permit without interference, and assume that bridges will be wanted throughout the whole course of the river at a more or less uniform distance apart of, let us say, half or three-quarters of a mile. For bridges, you further observe, should, for the double sake of economy and beauty, cross the stream as nearly as may be at right angles. The roads which cross the bridges should for some distance be approximately straight, and con-



you will have begun your city plan by planting several main roads which, owing to the sinuosities of the river, are at oblique angles to one another. Again, the river takes in its course through central London a more or less approximately to two segments of contrary flexure tangential to one another, it is at there will be two points, one on the right bank and the other on the left, where these roads, or several of them, will meet as at a focus.

Working with such a formation, I have put together in a plan what I suppose would be a likely and reasonable plan of the main streets of London, if the town were designed on its present geographical site and with the best knowledge of its present-day needs. A little later I will enter into some of the details of this plan, but for the moment I want to make it understood that in my rough plan as an ideal London, I am not by any means branding it as a desirable one. The opportunity of designing a brand new metropolis of the size of London is not an artistic blessing, but an artistic calamity. A town so built would be full of convenience, but also full of ill-ordered prim propriety which every true lover of the city would regret. To take the most obvious aspect of the plan, there is the question of straightness. No one but an old-fashioned landscape gardener has the moral courage to be deliberately crooked; a new city would in many grounds the duty of straightness, and we do our best to evolve from it the beauty of straightness. We should glory in length, in vistas longer than the eye can see, in roads of arrow-like purpose that speed us on from spot to spot, but we should lose that happy simplicity which is justified only by the causes (generally the necessities of history or geography) which bend the streets of our older cities. Look how Holborn or the Strand, the first one set of frontages into view, and then the other, and remember that every swerve in the street's course tells the story of some bygone episode, some forgotten or remembered obstacle or influence that has twisted the track.

A perfect city would have many imperfections. My plan, to be sure, is far from perfection; but it shares at least some of the disadvantages of a newly planned town. It is forward for a purpose, but not for the purpose of its own realisation.

Jerusalem was built as a city that is at unity in itself; London was not so built. Even 200 years ago London was a conglomeration of different towns—to-day it is a conglomeration of numberable towns and hamlets. You have merely to open the "High Street" in the directory to realise, by the number of streets bearing the name, how many once distinct townships are now part of a greater unit; for the "High Street" was at one time the chief thoroughfare of each separate system.

Let me return from this digression to my imaginary plan, and let me explain that I have made a moderate attempt to embody on it some of the special devices which are necessary at the intersection of main thoroughfares in a modern city. The question of interest in regard to the plan will be just this, Does it bear any resemblance to the plan of London? You will notice that, though rather subdued by other features, the two foci, or hubs, at which the radial roads connected with the bridges meet are really the chief factors in the positions and directions of many of the streets. One of these marks the heart of the West London residential district; the other lies south of, and is on the easy touch of, the business centre. What shall we call each focus? The elementary idea of a small and compact town—such a town as stands on cross-roads in a rural district—is to place at the meeting of the roads the town place, the town hall, the church and, indeed, all the public buildings and spaces which represent corporate life. A town is of such a size that its public life can be accommodated by four or five buildings, and if the functions of public buildings are so limited that their contiguity is a convenience, and not by reason of congestion of traffic an inconvenience, then such a collocation is in all ways desirable. But in a town of the size of London it is not convenient to have a great company of public buildings of different functions close together, nor is it wise to have a multiplicity of roads to converge on the site of a single building or group of buildings. Such convergence is rather than helps access.

At the same time a focus, or road centre, which brings a number of thoroughfares together, with no object in view but convenience, is useless. What, then, is the suitable function of a group of roads? Why, obviously a railway station.

A radial focus, remember, implies not merely convergence on a point, but easy distribution from that point. If we were to place two of our main termini at these two foci, we should have done much to justify the radiations by providing an easy and direct run from each station to any possible part of the town. Then, again, you will notice as a special feature of my town, that there are two main roads east and west. One entirely on the north side of the river; the other running from the Royal Palace right away to the docks. I might add a third south of the Palace road, and there should be a fourth in the north of the town. Now, I could go on for some time describing the points of this Utopia, and I shall return to them again; but I want to get to my question, What relation, if any, does it bear to London of to-day?

Gentlemen, you will join with me in astonishment at the discovery that, in a great number of important features, our modern London is closely allied to this imaginary sketch. Buckingham Palace is nearly where it ought to be; the two foci, or road centres, are where you would expect them, or nearly so. The Houses of Parliament, Scotland Yard and St. Thomas's Hospital stand for the administrative buildings which I have placed as riverside sites, and the County Council is on the way to fill a missing link in my Utopia with the new building in which so many of you take an antagonistic interest. But though coming astonishingly close to my ideal city in some particulars, our London just misses its theoretical fulfilment by a narrow margin of error, which just makes all the difference.

The south focus, for example. On what do our radial roads converge? The simplicity of the convergence, to begin with, is broken up by a hesitation between the two points. One point is, or was, the obelisk at St. George's Circus—a blameless, and to my mind admirable structure, which, overborne perhaps by an undue concentration of attention, has been induced to retire to the gardens of Bedlam. The other point is the Elephant and Castle, likewise blameless, no doubt, but very irrelevant.

Now, if you will think for a moment on cities in general, you will realise that it is the natural business of roads in a normal city to diverge as they leave the town, not to converge. This convergence of ours in London is due quite directly and undeniably to the river curves, and it is the business of the city planner to give what is a geographical accident a real function. If some intelligent foreigner were to spend a day in stopping omnibuses on London Bridge, Southwark Bridge, Blackfriars Bridge, Waterloo Bridge and Westminster Bridge, with polite inquiries as to whither they were bound, he would receive the unanimous and startling answer, "Elephant." Now, this is all quite wrong and improper. The Elephant and Castle are, as I said before, a blameless couple; but they exist at that point merely because the roads converge (and cross) there; the roads do not converge because of the Elephant. What ought to be at the Elephant site is Waterloo Station, or rather, the South London combined lines general station. Abolish Cannon Street, Charing Cross and Holborn Viaduct stations, and construct a large general station at the Elephant site, or rather at my connected focus, and what have you gained? And what lost?

You have certainly removed your station a little further from the centre of the town than the three or four which it supplants, but you have placed it where it obtains a much readier access to the roads leading to all parts of the town, and you have thereby prevented the railway road traffic from unduly blocking one or two of the bridge roads.

Moreover, my great east and west road, which is not far from it, is a sign that the new station is within much easier reach than is the present Waterloo of the true centre of the town. My threefold avenue, to the details of which I shall shortly draw your attention, is no idle fancy. It is part of a suggestion which, in my opinion, has real force, that we have got to recognise the importance of the Surrey side as we have never done before. For 500 years London Bridge was the only bridge across the Thames. Since 1750 one bridge after another has been built in succession, but we as Londoners have, for some reason or other, never realised the accessibility of the south shore, nor its propinquity. Dwellers on the right-hand bank, whose daily work is on the left, naturally cross the Thames twice a day, but how many people are there who recognise that the straight course between Westminster and the Bank runs through, or very near, New Cut? And how many know that the Mansion House is closer to Bermondsey than it is to the Old Bailey? The Thames is to this day a great gulf, like the gulf fixed



between Dives and Lazarus. Westminster Bridge is so placed that a continuation of its direction eastward would lead direct to Rotherhithe and the Surrey Docks, touching the Thames bank at Cherry Garden Pier on the way, and giving very easy access on its north side to the roads leading over the various bridges. Such a road would form a spine—or, if you will, an artery—practically central with the city's activity, running due east and west, a direction which, for some reason, is apparently more important than north and south, and not only linking both shores, but also directly connecting the heart of the residential quarters with the heart of the commercial.

And now a word as to the possible construction of such a street. The real difficulty with our London traffic is caused, not only by the way in which slow vehicles impede swift ones, but also by the inevitable holding up of progress at the points where traffic intersects. If drivers intent on long-distance journeys could only be quite free of obstruction by vehicles that want either to stop or turn aside, or, again, by others that want to cross, progression in London would be an easy, swift and pleasant matter. Let me, then, suggest that the great road of imaginary London should be triple. Its two outer ways should be 30 feet lower than the central track, so that at the points where roads cross, the crossing being at the low level should pass under the central gangway. The simple result of this device would be that all travellers on wheels who were desirous of turning aside from the direction of the triple street would travel on the low roads right or left of the central track for the purpose of turning off when they arrived at their proper turning, whereas those who were intending to travel from one end of London to the other, including all such public conveyances as omnibuses and tramcars, would stay on the high-level road.

As it would be a great commercial waste of space to allow the footways of the central track to be shopless, I suggest that between the centre and the side roads there should be a range of buildings which would be only 15 feet or 18 feet high in their elevation towards the central road, but as much as 45 feet or 50 feet high towards the side roads. You will ask me why I ask for a triple road when a double road would possibly serve my rather extravagant purpose. I will explain.

Three roads would give more traffic accommodation than two, for one reason; for another, the mere fact that a person coming into the triple road from, let us say, the north would take the northern track and leave the southern track for those who came in from the south, would help to sort the traffic and thus minimise obstruction. Thirdly, there would be all the more shop frontage. Two miles of triple road—and I think you would want two miles of it—would give twelve miles of shop frontage, not four only as in our ordinary streets, and finally—this being my real reason—the triple street being well balanced would have the nobler effect from these points of view—such as rising ground—which would command a vista over the tops of the side shops.

Of course I should provide at fairly frequent intervals steps by which foot passengers could descend from the high street to the lower streets, and there would necessarily be certain places at which vehicles could drive down to the low level to suit the convenience of those who, having started on the long distance track, might change their mind and wish to turn aside from it: I spoke just now of my triple street—shall I call it the Threeway?—being two miles long. It might, I think, with some advantage have been about two and a half; this would enable it to cross all the main transverse roads. At its east extremity I should allow it to relapse—the side tracks should die off—and a somewhat widened centre should continue on the straight course till a mile further on it hits the Thames at right angles; there I would place a bridge on the Tower Bridge principle, unless, indeed, it were thought better to stop all tall shipping at the place where I have shown the docks, so as to have a fixed bridge at this point, which, you will observe, would link Poplar with the rest of London in a way quite unknown to our present civilisation. West of Westminster Bridge—if I may continue to call my imaginary bridge by that name—the road would travel level (though still triple), and divided by avenues of trees, to the round-point in front of the Royal palace, flanked on either side by embassies, Government offices and other public buildings of the national and imperial sort.

You will see that opposite the palace I have placed a large circle, into which several roads converge, and over which the Sovereign can look down the five-mile road that

unites the heart of Empire with the seat of traffic. This circle is an apparent contradiction of the principle of the plan, which has industriously avoided "the circus as possible." "Don't let traffic converge upon centres," that should be our motto, and I have almost ignored it here; but let me explain. A meeting-point in a West-end centre has not the same disadvantages as a meeting-point in the commercial or industrial part of the town; moreover, this circus is so placed as to have means of alternative roads almost any vehicle could use without loss of time and distance. But there is another means whereby the objections which might qualify circuses can be avoided in this and, indeed, in other cases. If our circuses, instead of being nothing more than swollen crossings, were really circuses—places of convergence—it is my belief that the difficulties which they present might be almost wholly avoided. My suggestion is that where several roads meet at a point, the point itself should be occupied by a plot of grass and trees, or by a small island, or even by a building, and that vehicles entering the circus, or circle, should go not across it, but round it, so that their circulating should be always unalterable in direction, that direction being the one in which the traffic of wine and other well-regulated institutions revolve. The circle is very small the congestion is so tight that the manoeuvres executed by the vehicles are not distinguishable from what happens in an ordinary circus of foot-paths, such as Oxford Circus; but if it be once increased to a sufficient size and the traffic be limited to circulating in one direction, then the process of crossing is reduced to a simple process of turning twice to the left.

[I have just heard, at the moment of writing this, that the suggestion here made has been put forward in print; the blow to my conceit is more than counterbalanced by the satisfaction of realising that there is some support for the idea.]

(To be concluded.)

## NATIONAL GALLERIES OF SCOTLAND

A REPORT on the collection of the National Gallery of Edinburgh, by Sir James Guthrie and the Hon. Mr. James L. Caw, has just been issued and is as follows:

In preparing the following report upon the National Gallery collection, and in making suggestions for its improvement, your committee has considered not only the chief blanks are, but the probabilities of being able to fill them.

The collection, having come together chiefly through the generosity of individuals and societies who have bequeathed or deposited works of art, has been gathered upon no definite plan, and there never having been until quite recently any annual Government grant for purchase, those responsible for its management have been unable to supplement it in any systematic way. The result is that, while the gallery contains many notable pictures or groups of pictures, the time value of the collection is marred by many blanks, specially amongst the old masters, which have not been filled at moderate prices is past. Had the National Gallery, like the Irish, been in receipt of an annual grant for purchase since its foundation this would not have been so.\* But an effort should be made to obtain the works of the chief artists unrepresented, and, the funds being obviously insufficient, your committee suggests that the members of the Board should do what they can to induce collectors to present pictures, promise bequeathments, or lend suitable works of art for considerable periods.

Considering that the generosity of Scottish collectors in the past has made the national collection what it is, your committee thinks that the Board might consider the advisability of issuing a circular setting out the chief blanks of the gallery and appealing for support from collectors of to-day.

Further, as a gallery may obtain importance from the possession of works of a particular kind or school, or from its general interest, it would be wise to strengthen the collection in the direction in which it is already strong.

Broadly considered, the collection consists of three sections—foreign pictures (chiefly old masters) and Scottish pictures, both old and recent. For the special purposes

\* While the National Gallery of Ireland had received in thirty-three years 34,000*l.* for the purchase of works of art, the National Gallery of Scotland in forty-five years had received only 6,000*l.* (Report of Departmental Committee, 1903, p. 10.)



port, however, it is better to take it as consisting of i.e. foreign, English and Scottish pictures. resources at the disposal of the trustees being i, your committee believes the ideal to be aimed at nection with the two former is that of collecting les of the more individual men, or characteristic i in each of the important schools rather than the t to form a large general collection illustrative of the of painting in all countries.

regards the Scottish section, on the other hand, an our might be made with hope of success to bring er a collection so fully representative as to present equate survey of Scottish painting in its historical pment. In this also, however, it would be well to quality before quantity, and to have an artist repre- by one or two highly characteristic works rather than arge number of less admirable examples.

hile oil-painting is illustrated by some of its finest ements, the art of water-colour is inadequately shown, our committee is of opinion that an effort should be to do justice to a form of art in which the artists of n country have been so conspicuous.

ulpture is hardly dealt with. The examples, exclud- me half-dozen pieces and the Torrie bronzes, are y busts by Scottish sculptors. This weakness might edied by the acquisition of a well-selected series of

ork in black and white—drawings, original etchings ngravings—is practically non-existent, and separate ough to be devoted to it, and to a collection of photo- s and coloured and other reproductions illustrating is of art of which the Board can scarcely hope to obtain al examples, and giving a comprehensive survey of ork of the greater figures in the history of art.

#### *The Italian Schools.*

ilian art is represented by fifty pictures, three models ne drawing, by thirty painters and one sculptor. Of pictures, twenty-four are Venetian, eight Bolognese, Milanese, three Florentine, three Tuscan, two Roman, eapolitan, one Genoese and one Ferrarese.

f the interesting early developments there are scarcely examples. The chief pictures are by Veronese, io, Tiepolo, Bonifazio and Guido Reni. The others, gh some are excellent, are of minor consequence. lanks are therefore too numerous to specify, and any y example would be a valuable acquisition. The s, however, of pictures by the more prominent masters eyond the Board's resources, and for most additions of rtance the Gallery must continue to be indebted to e donors.

#### *Dutch School.*

hirty-one painters are represented by forty-three pic- , most of which are of good quality. Rembrandt, Hals, idael and Hobbema, although not numerically strong, dmirably seen. In the seventeenth century, however, was widespread in Holland such a good standard of smanship that it is difficult to avoid omissions in men- g names. But probably the most desirable additions, nd further works by these masters, would be examples ssens, De Hoogh, Terborch, Vermeer and Nicolaes ; among the figure painters, and of Koninck and elle among the landscape painters. None of these s are represented. It would be well also to acquire a characteristic pieces by the still-life painters. What een said of the chances of acquiring fine examples of n art applies equally to this and to the other schools red to.

#### *Flemish School.*

Of the sixteen pictures by eight painters of this school, chief are the four Vandykes, the three Teniers, and raits by Jordaens and Suttermans. The great men of arlier school, the Van Eycks, Memling, Quentin Matsys, der Weyden and the rest, are unrepresented; and there othing, either landscape or figure, by Peter Breughel, ens or De Vos. Of all these masters examples are h to be desired.

#### *Spanish School.*

Five pictures and one piece of sculpture (by Cano) esent this school. A Zurbaran and a Ribera are the f pieces. Velasquez has a small sketch attributed to , but it is doubtful and wholly inadequate.

#### *German School.*

Since the National Gallery claimed the very interesting ures lent by it many years ago, German art has been

represented by nothing except a drawing by Overbeck and a portrait by Lenbach.

#### *French School.*

The small group (seventeen pictures by eleven painters) of French pictures is one of the notable features of the Gallery, and should be strengthened, if possible, by exam- ples of early portraiture, of the landscape of Claude and the Poussins, and of the work of Chardin and Fragonard among the painters of the eighteenth century.

#### *Recent French and Dutch Painters.*

The Romanticists and the Barbizon men, who were so early and so notably appreciated in Scotland, should also be represented, and with them might be associated the later Dutchmen. The chief of the former are Delacroix, Corot, Millet, Rousseau, Troyon, Monticelli, Michel, Daumier, Decamps, Diaz and Daubigny, and, although a later de- velopment, Courbet, Fantin Latour and Manet; of the latter, the brothers Maris, Bosboom, Mauve and Israels.

#### *English Painters.*

English painting is very inadequately shown. Forty-two painters (eleven by oil-pictures, the rest by water- colours) are represented by twenty-two oil-pictures and fifty-four water-colours. By Gainsborough, Wilson, Crome and Etty there are important works; by Hogarth, Morland, Cotman and Stark good, though small, ones. The two slight portraits by Reynolds are totally unrepresentative. The water-colours, with some exceptions (including the Vaughan Turners), are small and unimportant.

The most desirable additions would be pictures by Hogarth, Reynolds, Romney, Constable, Bonington and Turner; by Alfred Stevens and Watts; by F. Madox Brown, Millais, Rossetti and Burne-Jones; and by Mason, Walker, the Moores and Whistler. Of the water-colour painters, of whom good examples should be secured, Cox, De Wint and Cotman may be mentioned specially.

#### *Scottish Art.*

Fifty-three painters and eight sculptors are represented by about 100 oil-pictures, sixty water-colours and drawings and fifteen pieces of sculpture. The diploma works of the Royal Scottish Academy, being a distinct collection, are not included.

There is nothing by any of the following artists:— Jamesone, J. M. Wright, Scougall, Jacob More and Gavin Hamilton among the painters of the seventeenth and eighteenth centuries;\* and, among those of later date, the elder Fraser, Patrick Nasmyth, W. L. Leitch, Alexander Fraser, J. C. Wintour, Milne Donald, Docharty, Thomas Faed, John Pettie, Tom Graham, Colin Hunter, H. Macallum, George Wilson, Cecil Lawson, Hope M'Lachlan and G. Manson. All these men, although varying in importance, might be represented, and there are others whose inclusion would depend upon the quality of the particular work under consideration.

The following might be more fully represented:—Of the earlier men, W. G. Fergusson, Allan Ramsay and Alex. Runciman; of the later, A. Nasmyth, Wilkie, Roberts, Ewbank, Bough (particularly in water-colour), Dyce, Crawford, Harvey (in landscape), G. P. Chalmers, Fettes Douglas (in still-life and landscape) and E. Nicol.

To summarise:—The view of your committee is that the collection, as it exists, has notable features, the emphasising of which would materially increase its artistic importance, and that there are omissions in each department which detract from its interest alike from the artistic and the historical point of view.

## RESTORATION OF PETERBOROUGH CATHEDRAL.

AT last week's meeting of the cathedral restoration executive committee the following report for the year was read, adopted and ordered to be circulated:—

Your committee deeply regret the loss they have sus- tained by the death of Mr. G. F. Bodley, R.A., under whose advice and direction, since the death of the late Mr. Pearson in 1897, the work of the restoration of the cathedral has been carried out. In their annual report your committee stated that the works then remaining to be done to complete the restoration of the fabric, commenced in 1883, were the repair of the western faces of the north and south transepts. These works were finished in September last. It is therefore with

\* Although not a Scotsman, Medina worked in Edinburgh, and his portraiture possesses considerable historic interest.



the greatest satisfaction and thankfulness that your committee have to report that the last of the projected works for securing the stability of the fabric of the cathedral have now been executed. The expenditure upon the fabric has amounted to 53,614*l.* 8*s.* 10*d.*, and of this amount the sum of 57*l.* 10*s.* 10*d.* has still to be raised. In addition, the special gifts for adorning and beautifying the interior of the cathedral, including the choir floor and fittings, have, so far as can be ascertained, cost upwards of 20,000*l.* To the subscribers and to all who have in any way assisted in raising these large sums your committee now return their grateful thanks. All who know the cathedral will, however, be aware that there is still room for further effort, in order that the interior of the building may be put into a satisfactory condition. A rood-screen at the western entrance to the choir is desirable, and the flooring of the nave and other parts of the building requires attention. The payments during the past year were:—Repairs to the eastern face of the eastern aisle of the north transept and the clerestory above, 331*l.*; repairs to groining of this aisle, 42*l.*; repairs to the western face of the north transept, 265*l.*; repairs to the western face of the south transept, 252*l.*; glazing of clerestory and triforium windows of south transept, 18*l.*; architect's commission and travelling expenses, 46*l.* 18*s.*; other items, 3*l.* 2*s.* 6*d.*; hon. secretary for postage, &c., 12*s.* 6*d.*; total, 958*l.* 13*s.*

### THE EXPLORER OF KNOSSOS.

ON Saturday a portrait of Dr. Arthur J. Evans, Keeper of the Ashmolean Museum, by Sir W. B. Richmond, R.A., was presented to the University of Oxford on behalf of the subscribers.

The Vice-Chancellor (Dr. Warren), in the course of his address, said they all knew, and those in that room especially knew, what Dr. Evans had done for Oxford, for that institution, for the cause of classical study, and history, and exploration. They knew how largely the Ashmolean of to-day, its contents and its inspiring ideas, were his work, and if ever there was a man who as head of an institution deserved to have his portrait preserved within its walls and handed down to posterity as one who had placed upon it an enduring mark, it was the keeper of the Ashmolean of to-day. But Dr. Evans had a yet larger and wider claim and fame which needed neither portrait nor museum to perpetuate them. England, France and Germany had had many great excavators and explorers of the past. With these, with the names like those of Champollion, of Layard, and of Schliemann, to cite no others, the name of Dr. Evans would ever be remembered. It was not too much to say that by his discoveries—the result, let them remember, of no mere happy accident, but of natural flair and genius, long and patiently cultivated, united to study in the library and intrepidity in travel and adventure—he had revolutionised their knowledge and their ideas of the classical past. Dr. Evans had made Homer, he would not say a living author, for that he always was, but a more living author still, and a modern author. He was not sure that Agamemnon and Achilles were not now more historic figures, and brought nearer to them, if not than Charlemagne and Roland, at least than Arthur and Lancelot. What he was sure of was that the marvellous people on whom all the other history of Europe hinged, what they called the Greek race, had been lifted suddenly into an entirely new position by the great discoveries of Crete and Knossos. What seemed the legend and fairy tale of their youth, the labyrinth, Dædalus and Minos, and many another name and figure had acquired an entirely new significance. Dr. Evans was still comparatively a young man, full of fire and energy. They hoped he might carry his researches still further and to yet more complete success. Their best tribute to him, he was sure, was to aid him to carry on his work, to make it known, to enlist sympathy, to give what they could and to get others to give to assist him. It was his privilege to accept this portrait, so worthy in itself, so happily conceived and realised, and to assure Dr. Evans that the university and the museum would prize and preserve it as one of their most signal treasures and illustrative possessions.

Dr. Evans, in reply, according to the *Manchester Guardian*, acknowledged how much he had been assisted by friendly co-operation. He had in the spirit of the old regulations, he said, tried to combine temporary and sometimes rather prolonged absences with some direct contributions to the museum. They had in that way put together a Cretan section which at any rate had this to recommend it, that

there was no other series of antiquities illustrating the civilisation to be seen anywhere else, at least not to an extent, except perhaps in Venice or in the British Museum had grown, and that was to a great extent to the provision which enabled the keeper to travel and keep in touch with foreign discoveries. He was referring to Cretan antiquities, but also to their collection of Greek vases. That had been largely due to his being able to travel and to excavate in Sicily. In other words, the office had, perhaps he might say, a diplomatic character. They had had to enlist, and many had contributed to the sympathies of those who excavated in Egypt, the result of the co-operation of explorers like Professor Petrie and others had been that they had more than a museum in this country been the depository of the discoveries which had brought back within the reach of history what in Egypt had been regarded as the realm of myth. This museum, owing to the munificence of the Exploration Fund and other societies interested in Egyptian excavation, and especially Professor Petrie, had become a depository of a collection of early Egyptian relics, in the prehistoric period and the early dynasties, which not to be matched outside Cairo. He hoped, thank the munificence of the present Reader in Egyptology, that that foundation was going to be solidly built up, and that the department of Egyptology was going to be a permanent endowment. What they all felt was that they must be prepared to produce new divisions. The new subjects starting up which all required to be provided for. He acknowledged the munificence of their great benefactor, Mr. Fortnum, who had enriched almost every department of the museum, the Egyptian, the Classical, beyond everything else the admirable department of the Renaissance art, and he expressed the hope that what thus been achieved might be the stepping-stone to a greater development, and that the whole of their fine department might be placed upon a new and permanent basis, in which the Renaissance objects of all kinds might be grouped together with the pictures in a thoroughly scientific manner.

### WIND PRESSURE.

AT the ordinary meeting of the Institution of Mechanical Engineers on the 3rd inst., the paper read "Experiments on Wind Pressure," by T. E. Stanton, M.Inst.C.E.

The experiments described in this paper form the first part of the research on the distribution and intensity of the pressure of the wind on structures, which was proposed to the committee of the National Physical Laboratory for the first investigation to be undertaken in the engineering department, and was commenced by the author in 1902.

The first part of this research, of which the results have been communicated to the Institution in December 1903, is the investigation of the resultant pressure and distribution of pressure on flat plates normal to and inclined to the direction of a uniform current of air.

As those experiments were made in a channel 24 inches in diameter, the dimensions of the plates were necessarily small, but between the range in dimensions obtained, the results indicated that the resistance of geometrical plates was proportional to the area of the plates. In the case of dissimilar plates, however, such as square plates and long rectangles, the resistances per unit area differed considerably.

The value of the resistance so found in these experiments on small plates was somewhat smaller than determined by Dines, Frowde and Langley for plates of order of 1 square foot in area. For comparison, the value of the constant  $K$ , in the pressure velocity relation,

$$P = K V^2$$

are given in the following table:—

Experimenter.	Method.	Value of $K$ .
Dines . . .	Whirling Table . . .	.0029
Frowde . . .	Moving Carriage . . .	.0037
Langley . . .	Whirling Table . . .	.0033
Author . . .	Plate in uniform current . . .	.0027

On the completion of this part of the work, it was decided to make observations on flat surfaces of area ranging up to 100 square feet when exposed to the wind, since general experience tended to show that in actual winds whose velocity was not uniform over time or space the mean pressure per square foot on a large surface



erably less than that on a small one. As a knowledge variation in resistance with the dimensions of the re, if it exists, is all important in design, the investi- of this problem was made the chief feature of the experiments.

the purpose of the work a steel windmill tower was in the grounds of the National Physical Laboratory (dington. The experimental boards and models of res were attached to a light framework carried by o of the tower, the height of the centre of the boards he ground being 50 feet.

er some preliminary experiments, the method of ation finally adopted was the determination of the nt in the pressure-velocity relation for pressure-boards ying dimensions and for the models of structures. found, as anticipated from a knowledge of the e character of the velocity of the wind, that single ations were quite worthless for the purpose in view, at, if for any pressure-board or model about 200 ations of the velocity of the wind and the corres- g pressure on the board were taken, it was possible in a fairly accurate value of the constant. In these ations the velocity of the wind was estimated from of pressure-tubes, similar to those used by Mr. Dines nemoneter, placed about 15 feet above the centre of the

These tubes were connected by lead pipes to a ve water-gauge, of the type used in the author's us experiments, placed at the foot of the tower. The nt pressure of the wind on the board was estimated a measurement of the pressure produced in a closed er of air by the deformation of a thin steel diaphragm g its cover, which was in contact with the centre of ressure-board. This pressure was also transmitted h lead pipes to the foot of the tower, and there red by a similar tilting gauge to the one used for the y estimations. The simultaneous observations of re and velocity were only possible in the short s of time in which the velocity of the wind was fairly nt. Such periods, lasting from 2 to 5 seconds, were to occur about once a minute in a fairly steady

e. The results of these observations on three pressure- s, one 5 feet by 5 feet, one 5 feet by 10 feet and one t by 10 feet, gave practically identical values of the nt in the pressure-velocity relation. In units of s per square foot and miles per hour the mean value s constant for the three boards was .0032. As this agreed so well with the average of those obtained by ous experimenters when using plates of the order of are foot in area, it was not considered necessary to e experiments on plates smaller than the one 5 feet by in the present case.

urther observations on the intensity of the pressure at ont and back of the boards appeared to show that the of the higher value of the constant, compared with btained in the case of the small plates in the 24-inch imental channel, was the relatively greater intensity e negative pressure at the back of the boards compared t at the back of the small plates.

periments were also made on a model of a braced r 29 feet long by 3 feet 7 inches deep, and on a roof l whose sides were 8 feet by 7 feet. The ratio of the ance per unit of area of the model girder to that of a re board in the wind was found to be precisely the as the ratio of the resistance per unit of area of a model of the girder made to a linear scale of 1 in 42 square plate in the previous experiments.

he resultant pressures on the roof were obtained, for windward and leeward sides, at angles of 30, 45 and gs. inclination to the horizontal, and indicated the con- able suction effects on the leeward side of a roof when ressure inside the building is augmented from the ward side by open doors or windows.

hese results lead to the conclusion that the resistance complicated structure in the wind can be accurately icted from a determination of the resistance of a small el of the structure in an experimental channel.

at a Recent Meeting of the Berwick Town Council a rt was submitted showing that some of the stonework he spire of the ancient town hall is scaling off and ying in places. It was agreed that the work of repair, r the direction of Mr. Stevenson, architect, should be ed out at the earliest suitable date.

## ARTISTIC EXPRESSION OF STEEL AND CONCRETE.\*

THE artistic use of steel and reinforced concrete is con- sidered a new problem in architectural design.

Wherever a combination of materials which is some- what new in character becomes usual by the number of its examples there appears a desire to analyse its com- ponent parts, to make its architectural expression charac- teristic, to enrol it under architecture raisonné, and naturally to exaggerate its peculiarities in the process. The intention is excellent and admits of no contrary argu- ment. What can be more undeniable than that architecture should express structure, and that unusual structure should demand unusual architecture? If any contention is at all possible, it can be merely in relation to the degree in which this construction is unusual, and, as a corollary, as to how unusual the architecture must be to express it. Is re- inforced concrete new in the elemental factors of structure, and to what extent? Its main factors are vertical supports and horizontal loads (in which it resembles Greek structure), both of which are reduced in cross sections to areas less than in any other construction. It has no structural arch, though it has curved trusses or beams (in which it does not resemble Roman structure). It has continuous vertical factors with the horizontal factors inserted between (in which it re- sembles much of Gothic architecture), and it has horizontal planes in its floors which appear on the façade, in which it is in no way unusual. What are the differences, apart from the areas of its cross sections, between it and other structures?

### Main Features of Structure.

First, it is made up, as far as its vertical factors are conceived, of slender piers; second, as far as its horizontal factors are concerned, by beams of great possible span; and both piers and beams are each homogeneous, not built up of separate blocks, as in stone or brickwork, and therefore corbels are inconsistent. A reinforced concrete structure is, therefore, a pier and beam structure of slender supports and long spans, its intercolumniation being much greater than in any previous type of building, and from our con- stant association with shorter spans the beams seem weak.

### Treatment of Main Structural Factors.

The openings between the piers are unusually large, the whole structure appearing to be slight and undeveloped. Up to this point the choice of treatment seems to be merely as to whether the continuous vertical supports shall be pronounced, or the successive plans of the floors. The decision as to which of the two methods of expression shall be adopted depends entirely upon the location of the building, and upon the proportion of its height to its width. Isolated buildings of great height may well be treated with long vertical lines; but in the majority of cases the build- ing requires a horizontal treatment, as it is associated with other buildings in the same block, and its assertion of vertical lines is overwhelmed by the length of the base line of the block. Also the vertical lines are ineffective in shadow, as they can have but slight projection, and as they are merely surface indications of interior structure and are not buttresses. Horizontal lines on the contrary always produce shadows. In most cases, therefore, the treatment of reinforced concrete buildings by horizontal lines announcing their floors (the distances of which apart are of much more nearly fixed dimensions than are the inter- columniation of piers or the height of verticals) is better in relative proportion to adjacent buildings, and affords stronger evidence of purpose than does the exaggeration of the verticals.

### Treatment of Lintels.

The apparent weakness of the long lintels has been mentioned. This can be modified in several ways, either by crowning the centre, which is of little value in long spans and is inconsistent with the concealed structure, or by arching the lower line of the lintel, or by bracketing at the piers. The cornice is capable of any treatment which does not suggest stone corbels or modillions. The next problem is that of the necessary filling treatment of spaces between factors of main structure of the openings between the piers and the successive floors. This is manifestly a screen only, whether of plain surface or of fenestration. It supports nothing. Its structural requirements are merely those of frames to openings and of surfaces between the openings. As its structure is unimportant and can be done in many

\* A paper by C. Howard Walker, read at the Convention of the American Institute of Architects in Chicago.



ways, there is no more reason that it should be announced than that the palm of a man's hand should announce the bones beneath. The anatomical structure of the building is adequately recognised when the piers and lintels are acknowledged; in fact, it is not necessary even in architecture *raisonné* to even announce them, provided they are not contradicted.

The suggestions for this secondary treatment of curtain walls between main structural factors may either be derived from minor structure or may be surface ornament only.



#### How Architects get Work.

SIR,—I want to be an angel, consequently I have avoided rushing into the controversy so amusingly sustained in your columns during the past few weeks. May I be permitted to suggest an amicable settlement of the dispute by the following pronouncement? Discarding all consideration of the superfluous correspondence, and restricting our attention to the letters writ from Alexandria and Abercumbeli, I think all your readers will agree that the palm of victory shall be awarded to Mr. Robert Williams.—Faithfully yours,

PERCY L. MARKS.

SIR,—As the writing of one letter is apt to suggest somewhat tyrannically the necessity of continuation, I will (with your courteous permission) send you a few further lines before finally leaving the subject. It is in order to correct a misapprehension under which your correspondent, "A Bachelor," is labouring.

It is a mistake for architects to suppose that your worthy magazine is read only by members of their profession, and, for my part, I have yet to learn of any member of that profession indulging in a bath.

A friend of mine once (nay, on several occasions) said to me, "Of all ungodly-looking people commend me to architects," and to judge by the way he gathered his toga about him whenever an architect approached, he evidently considered them as unattached to the Order of the Bath. Pardon the garrulity of four score and nine.—Your obedient servant,

THE PANTALON AS BEFORE.

December 8, 1907.

#### GENERAL.

**Mr. Thomas Forster Brown**, aged 72, of Stoke Bishop, Bristol, and of Richmond, Yorkshire, head of the firm of Forster Brown & Rees, civil and mining engineers, of Guildhall Chambers, St. Mary Street, Cardiff, a Fellow of the Geological Society, of the Royal Historical Society and of the Surveyors' Institute, left property valued at 132,253*l*.

**The Parish Church** of Honeychurch, Devonshire, is to be closed owing to its dilapidated condition and the inability to get anyone to accept the living, which is only valued at 80*l*., including seventy-eight acres of glebe. The church seats sixty persons.

**The Borough Surveyor** of Workington has been instructed to report upon the question of the provision of and the cost of a machine for the manufacture of the tar macadam with which the principal streets in the town are now laid.

**A Room** in the Baillie Gallery, Baker Street, where an exhibition is open, is arranged with objects designed by Mr. C. F. A. Voysey, architect.

**The Truro Cathedral Building Committee** last week approved Mr. F. L. Pearson's design for the western towers and spires, and had under consideration plans for the chapter-house and for a cathedral school within the precincts. Arrangements were made for a peal of bells. A letter was received from Mrs. J. E. Hawkins, London, who has given 20,000*l*. for the erection of the towers, expressing the hope that a peal of bells would be provided by the time the towers were finished, and adding:—"It will be a great joy to me to give the largest bell of all, and I am sure that the great and representative Cornish families will each like to give a bell. Ten would soon be forthcoming. If this could be accomplished, and if the smallest of all could be collected for by children of Cornwall and called the children's bell, it would be really delightful."

**The Liverpool City Council** by forty-seven votes, have approved a recommendation of the committee to purchase from the Dock Board a piece at the east side of the new dock offices, for the purpose of public baths. It was announced that terms had been agreed with the Dock Board which were considered satisfactory, that there was every prospect of arrangements being concluded whereby the Custom House would be transferred to the central site of the Pierhead.

**An Interesting Discovery** has been made in connection with the burgh seal of Annan, N.B. The seal, which is of an ancient date, bears four letters which antiquaries and others have for many years deciphered as P.I.W.M., it is not known what these letters mean. At a meeting of the Annan Town Council a Dumfries solicitor, in appearing before the Council in a matter concerning some feu-duties, produced an impression of the burgh seal of 1610, on which the letters P.T.W.M. were quite clearly visible. At present the burgh coat of arms with the letters P.I.W.M. is on the stained windows of the town hall and in other places.

**From the Annual Report** of the Commissioners of Majesty's Woods, Forests and Land Revenues it appears that during 1906-7 important work was executed at the south transept of Tintern Abbey. In the north transept (eastern end) the tops of the walls, which were in bad condition, were cleared. The stonework and the old tracery there were reset and made sound. Similar operations were carried out in connection with the walls of the south aisle. Some preservation work was done on the mullions and parts of the window tracery in the refectory, while various minor repairs were also undertaken.

**At the Last Meeting** of the King's Norton and North District Council it was proposed that the education committee be authorised to invite architects practising in Birmingham, or within a distance of six miles of Birmingham, to submit competitive designs and plans for a proposed new department for infants and for co-educational laundry and woodwork rooms at the Cotteridge School. An amendment was proposed by Mr. Whittaker to restrict the competition to a number of Birmingham architects. It was eventually agreed to limit the competition to six architects resident or practising in the district, to be selected by the committee, who were instructed to appoint an assessor in the competition.

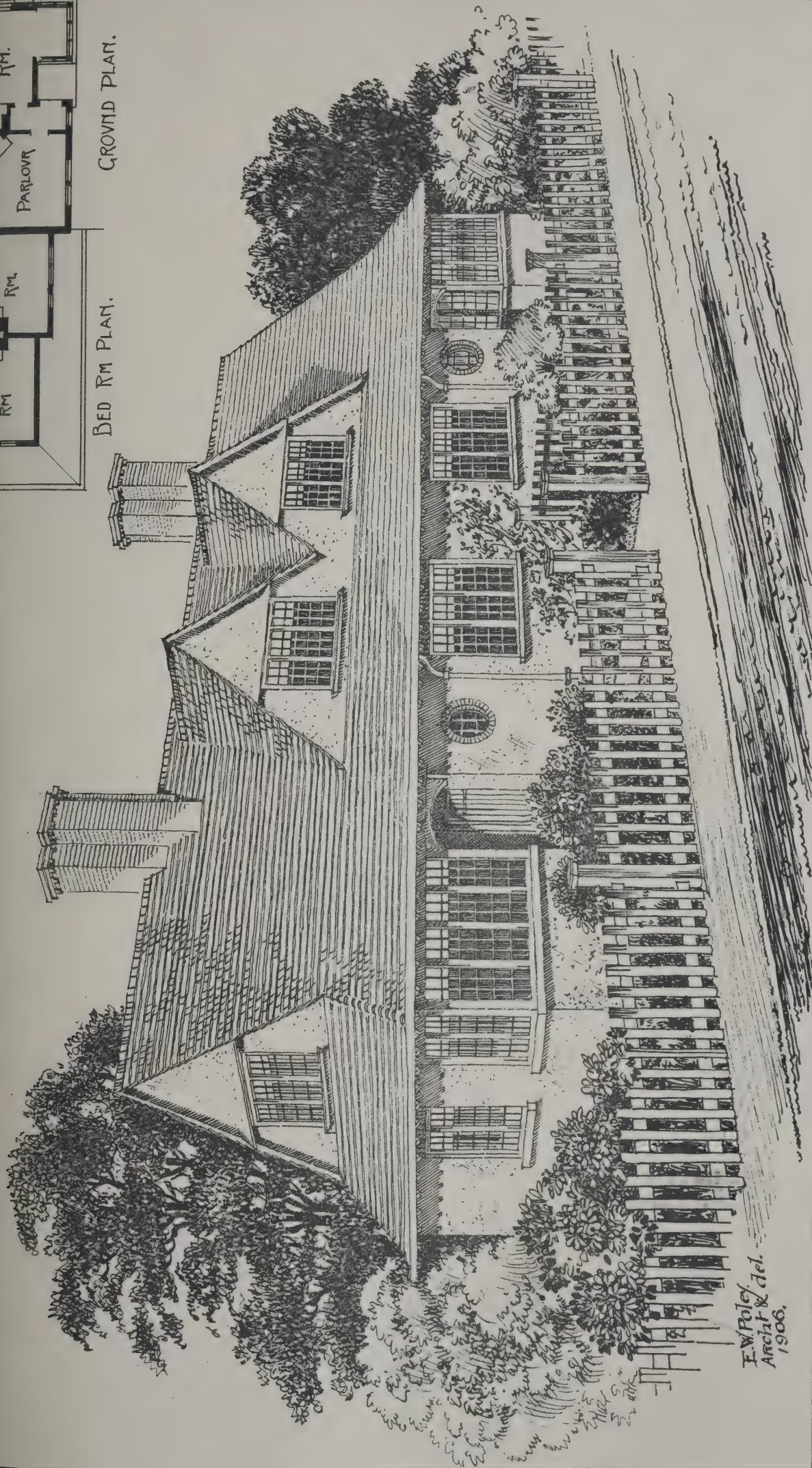
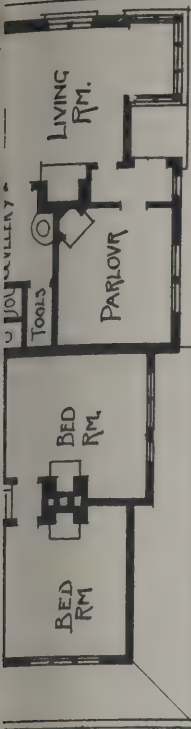
**A Meeting** of those interested in the formation of a society for the purpose of ingathering and preserving some permanent form the lore of old Edinburgh, its traditions, folk and buildings, was recently held in John Knox House. Mr. W. J. Hay, the chairman, said he believed that a society was wanted to preserve material in regard to Edinburgh in pre-railway days and to secure information on the changes effected since that time. Buildings disappeared and traditions were vanishing, and it was desirable that every effort should be made to record what was still available, especially from old inhabitants. A provisional committee was thereafter appointed to draw up a constitution and rules, with Mr. Hay as convener. The committee will meet at an early date to consider the proposed constitution, and what further steps may be necessary for the promotion of the Society.

**The A.A. Musical Society** will produce at the Glasgow at the end of February their second musical play, entitled "Metope Mania," written by the Purple Patch. The play will be Wednesday, Thursday and Friday, February 27 and 28. A portion of the proceeds will again be devoted to the Architects' Benevolent Society. Tickets will be obtainable from the hon. secretaries, A.A. Musical Society, 18 Tufton Street, S.W.

**The Brechin Town Council** have been informed that a special finance committee had under consideration the claim by the trustees of the late Mr. Mackison, Dundee, for a share done in connection with the proposed erection of the new slaughter-house at Strachan Park a number of years ago. The committee had resolved to recommend the Council to refuse to admit the claim. The report was unanimously approved.

**Part of the Ancient** north wall which once surrounded Chichester fell on Saturday owing to the effect of recent heavy rains. The wall itself is about 12 feet wide, but the stone facings are only about two feet thick, the middle being composed chiefly of earth. The portion which bulged out eventually fell down on the roadway with a crash—probably nearly twenty tons of stone and earth altogether were displaced.





A PAIR OF COTTAGES.  
E. W. POLEY, A.R.I.B.A., Architect.

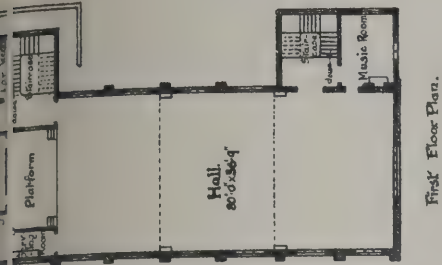
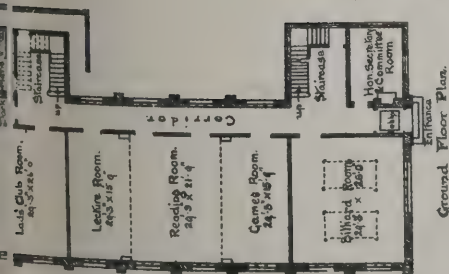
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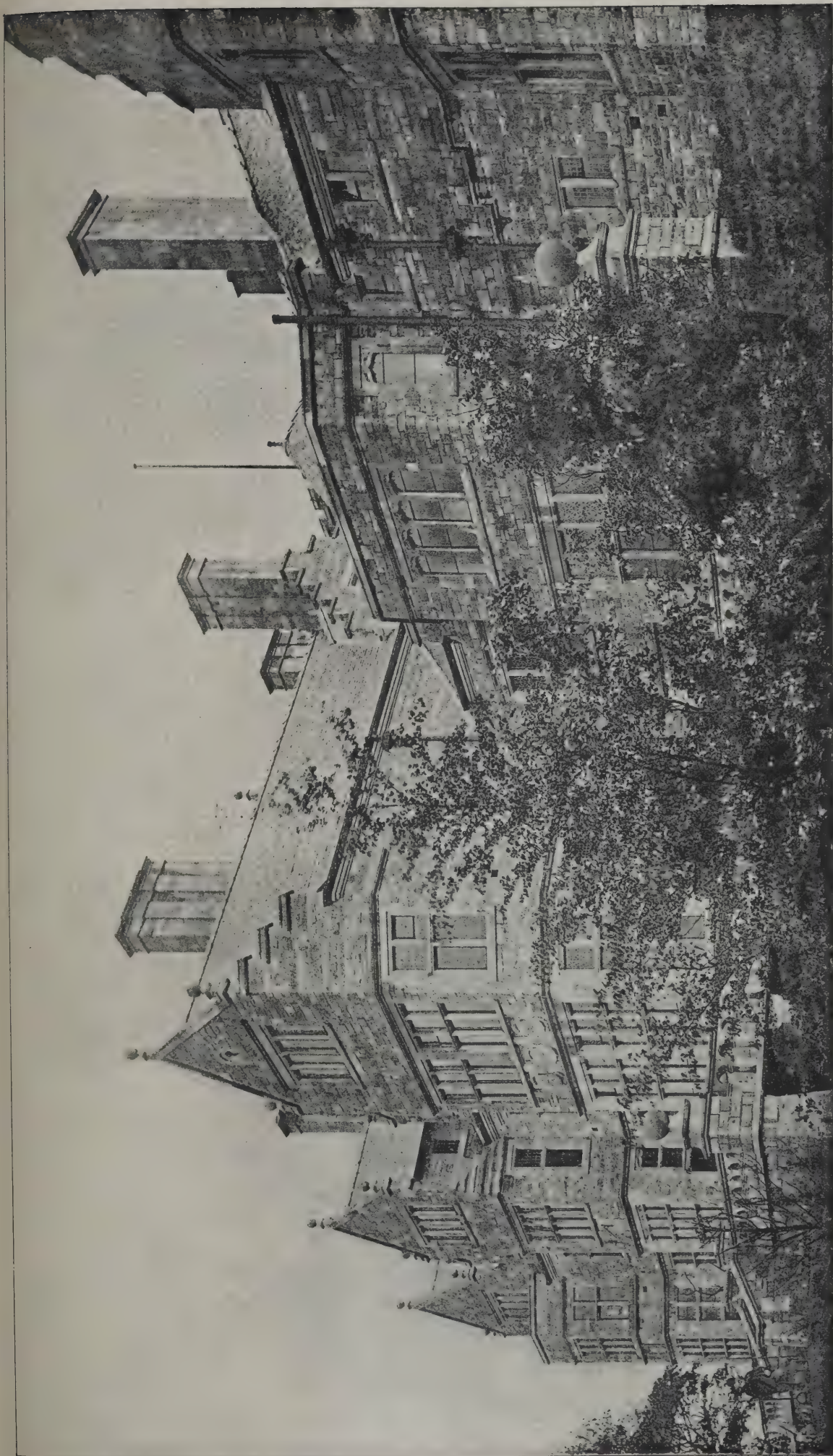


*Lowndes & Sons Architects.*  
 Temple Chambers,  
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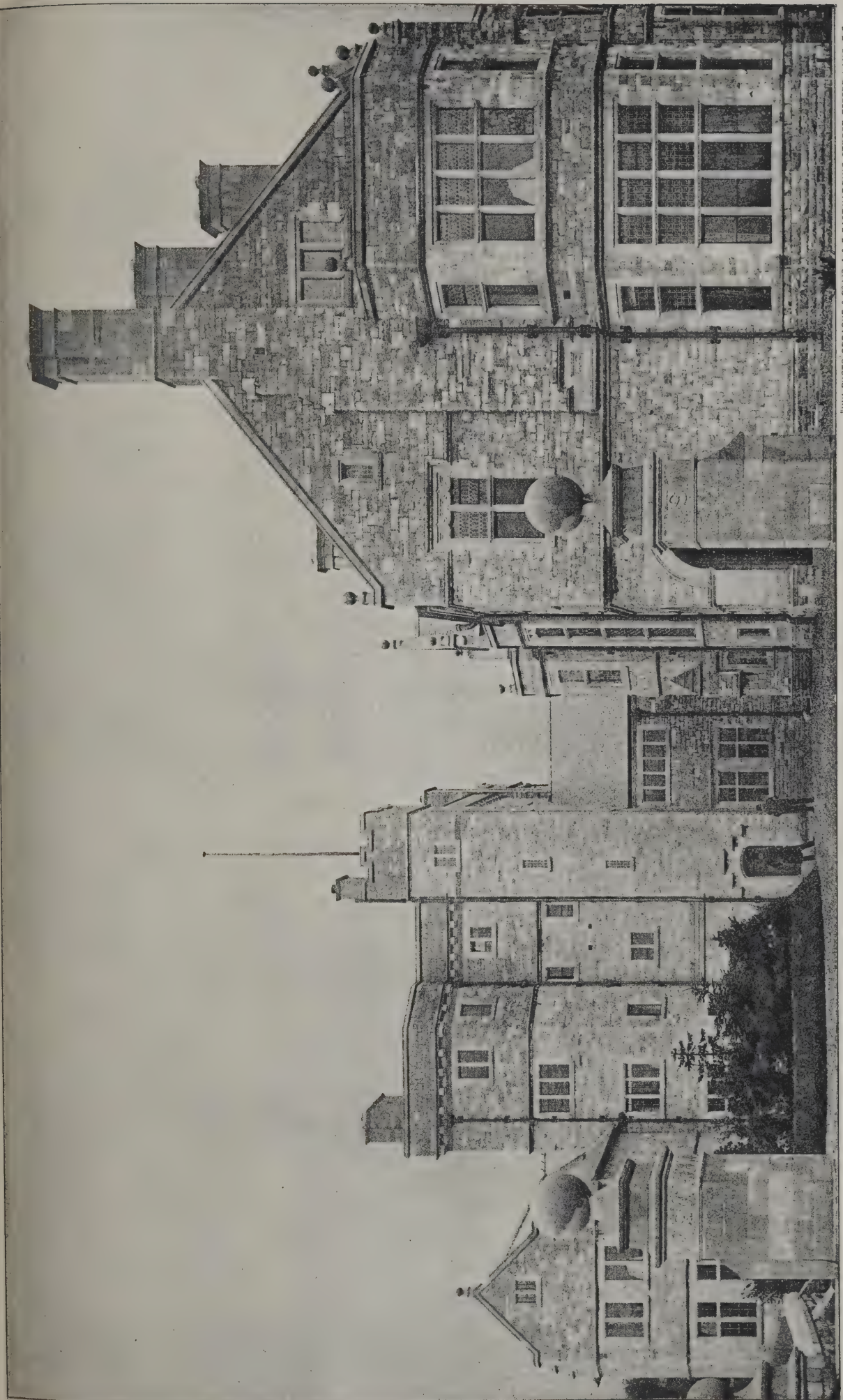
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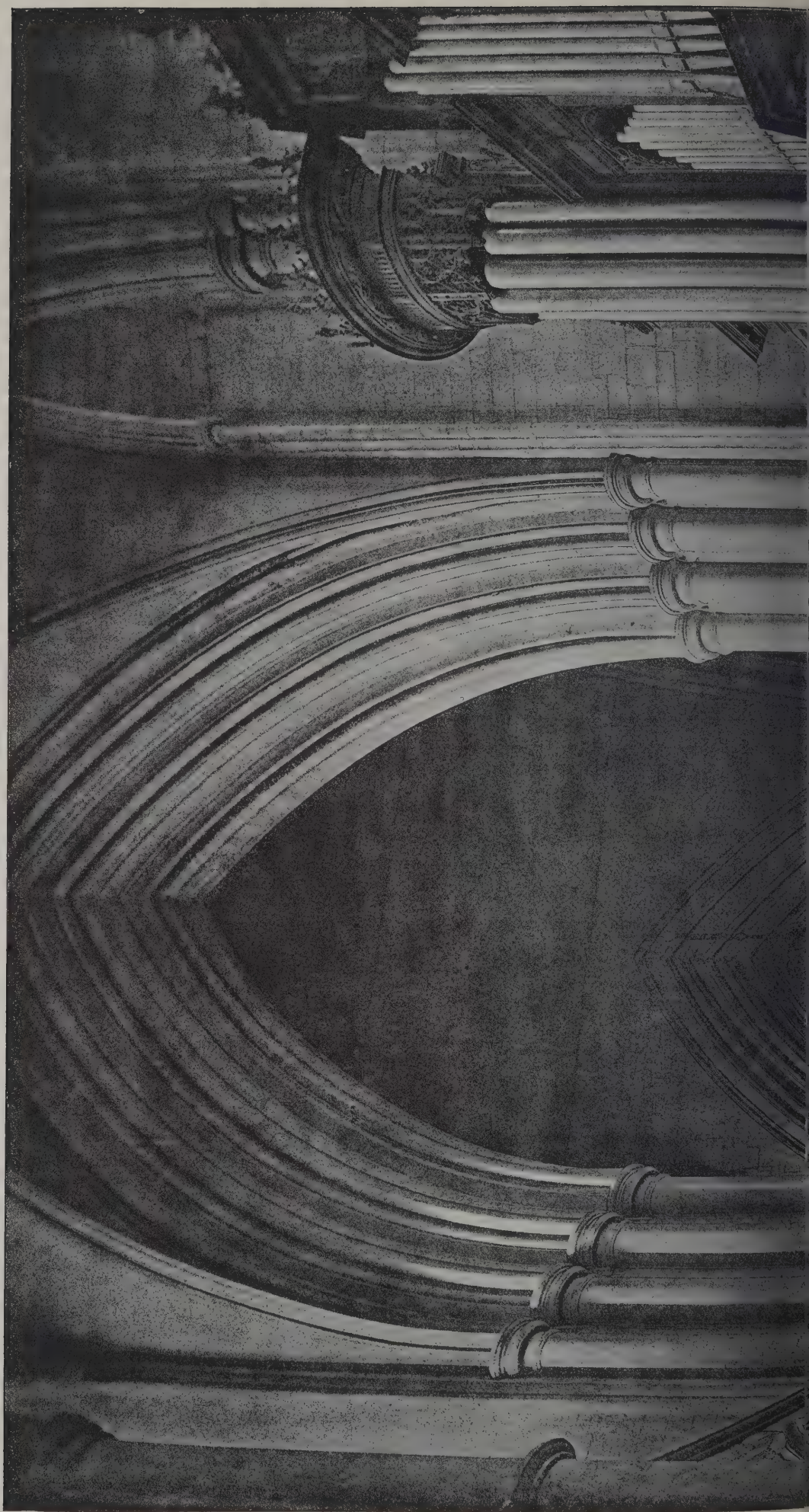
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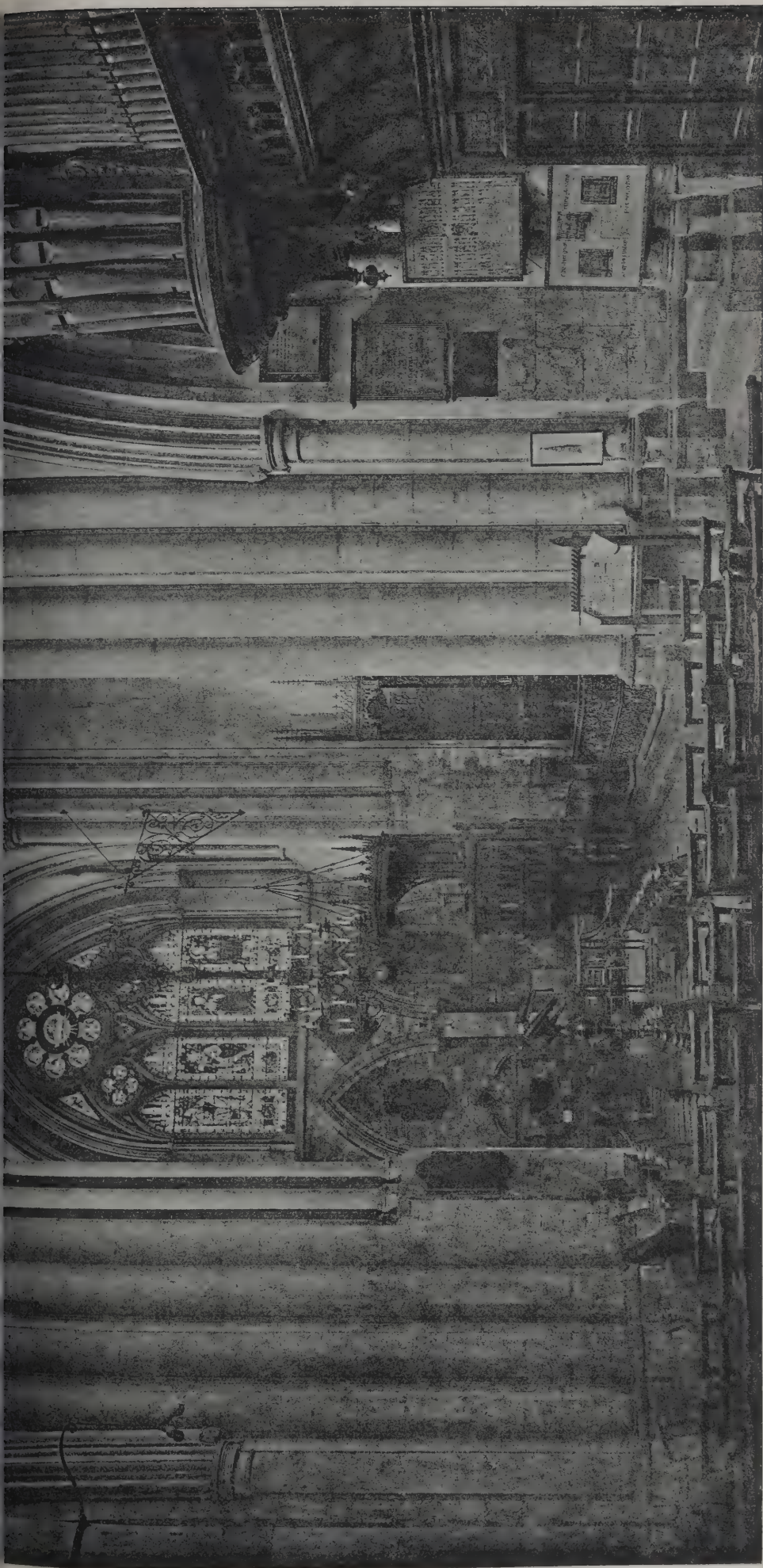
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The Architet, Dec r 13<sup>th</sup> 1907.







PHOTOGRAPHED BY ERNEST MILNER, THE GROVE, WANDSWORTH, S.W.

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CATHEDRAL SERIES, No. 618.—SOUTHWARK: THE NORTH TRANSEPT, FROM SOUTH.



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GARDEN VIEW.



FRONT ENTRANCE.





GARDEN VIEW.



THE HALL.



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# The Architect.

## THE WEEK.

AM THOMSON, Lord KELVIN, who died on a night in his eighty-fourth year, gained his reputation mainly through his applications of electricity, especially to submarine telegraphy. But there were many branches of physical science which he did not neglect. The number of papers which he contributed to the Transactions of various societies is evidence of his omniscience. Belfast can claim the honour of being his birthplace, his father at the time being a teacher of mathematics at the Academical Institution. He was so precocious that when he was little more than years of age he was able to enter the University of Glasgow, where his father had been appointed Professor of Mathematics. In his twenty-second year AM THOMSON was elected Professor of Natural Philosophy in the University. In a speech he delivered he related the difficulties which attended the introduction of electric lighting in his own house. The current was derived by the aid of a dynamo gas-engine. The instructions he gave were, "through the whole house. Wherever there is a burner put in an electric light. There were gas-burners and there were 106 electric lights in the house about the end of the year 1881. He had heard that any house was wholly lighted by electric light at that time. There might have been a house in America. There was none in this island. It was the beginning. It was quickly followed by a large spreading out of the electric light. But the University of Glasgow might look upon it with some regret that a house in the University had its whole lighting done in the way explained. A little after midnight he used to go across to his laboratory to stop the gas-engine, and anyone who wanted a light in the house must have a candle, because the gas had been cut off and soldered up." Lord KELVIN's life may appear to many to be very simple, but it was the result of numerous experiments and important principles. The celebration of the centenary of his professorship in 1896 was unexampled, as if all the representatives of science throughout the world testified to his distinction. Of course he suffered from illness. But for a man who had a laborious life of eighty-four years could be considered as of long duration.

It suggests the extent of the vacant building sites owned by the London County Council when it is found that an application has been made for permission to use some of the surplus land to give work to the unemployed. Mr. JOSEPH FELS, who was connected with a scheme at Hollesley Bay, Essex, the applicant, obtained that permission would only be desired so long as the sites remain undisposed of, and that possession would be given on demand. An association, it appears, has been formed for the purpose of organising the work of cultivation by the unemployed of unused plots of land. It has been successfully carried on in Philadelphia, New York, Cleveland, Detroit and other cities, and covers nearly 300 acres, belonging to public as well as private owners, were cultivated in Philadelphia. The improvements committee are advised that, although it would be undesirable that Mr. FELS should be permitted to use the Council's valuable land in the central parts of London, there would be no objection to allowing him to use less valuable sites. It would, it is to the public interest to allow him to do so, as his operations would not interfere with the letting of land, and would relieve the Council of certain expenses in levelling, watching and fencing. It is therefore recommended that, provided Mr. JOSEPH FELS agrees to give immediate possession, as and when

required by the Council, and agrees to make no claim for compensation in respect of the determination by the Council of any or all of his tenancies, he be allowed to use for the purpose of providing work for the unemployed portions of the Council's surplus land at the following places:—Aylesbury Place, Clerkenwell; Falcon Court, Southwark; Tower Bridge Road; Tower Bridge northern approach; High Street, Fulham; Marius Road, Balham; Tooting High Street; Garratt Lane, Wandsworth; Webber Row, Southwark; Long Lane, Southwark; Wandsworth Common, north side, and Balaam Street, Plaistow. Vacant land in a town is rarely pleasing to look on; but it remains to be seen whether Mr. FELS's experiments will afford a better view and whether the sites can be cultivated without loss.

PROMINENT metropolitan auctioneers are careful when selling paintings and drawings which are attributed to great masters to suggest in some way whether there is certainty about the authorship or whether the buying is to be considered as a speculation. But a great many catalogues appear which astonish collectors from the courage which is shown in crediting able artists with works which have not their characteristics. A judgment delivered by Mr. Justice PICKFORD in an action which was tried in Manchester is suggestive of the risks incurred in cases where the authorship is suggested to be doubtful. Mr. HINDLE, the plaintiff, claimed 138*l.* 11*s.* 6*d.*, the amount of a cheque of which payment had been stopped. He received some pictures for sale, and in his catalogue they were described as the property of a gentleman going abroad, and the pictures were said to be choice examples by or attributed to various artists. The defendant purchased twenty-five of them for which he paid by cheque 138*l.* 11*s.* 6*d.* The cheque was not cashed for some days, although the auctioneer paid the owner of the pictures. When the cheque was presented it was found to be stopped and the pictures were returned. It was alleged that the artists named did not paint them, and that the auctioneer was aware they were not genuine. The jury found that the defendant was induced to buy partly through the false representations. Judgment was deferred. His Lordship held that the plaintiff was justified in suing in his own name and not as agent for the owner. The representations were innocently made, and in such a case a contract could be rescinded if the parties could be replaced in their original positions. But that was not possible, for the auctioneer had paid away the money, and it was doubtful if he could recover it. Judgment was therefore given for the plaintiff. The case is a curious one, but has a warning for all concerned in the disposal of works of art.

A COMMERCIAL library established by the Board of Trade and intended to be used for business purposes should be in a modern building properly lighted, heated and ventilated. We doubt the expediency of sacrificing what might be an admirable institution for the sake of preserving an old building in which every reader will have to suffer more or less inconvenience. No man can serve two masters, and buildings cannot be treasured for their antiquity and at the same time made to serve purposes for which they were not designed. If the City, the County Council and the Government would co-operate Crosby Hall could easily be preserved as an example of ancient architecture. But architecture for its own sake has little value in London, and in consequence Crosby Hall is to be used for housing a commercial library and a rent is to be paid for it by the Board of Trade. The library is to be combined with sample rooms, and in course of time other uses will be discovered. Can anyone imagine that the hall will not be deprived of its ancient character when it is made to pay for its existence, or that readers and inspectors of samples will be at their ease in such premises?



## METROPOLITAN WATER SUPPLY.

PRIOR to 1619 the water supplied to London would horrify the humblest of the inhabitants at the present time. The monk FITZ-STEPHEN, who was acquainted with fouler water on the Continent, testified to the sweet, wholesome and clear wells which were to be found in the suburbs. The importance of such sources is suggested by the names of districts of which the word "well" forms a part. Well water in our time is regarded with suspicion. But in less scientific days when analysis was unknown water was supposed to spring from some subterranean source and to be as free from impurities as if it had been distilled. There are, however, occasional references which are enough to suggest that both the wells and the conduits of fresh water were recognised as not entirely satisfactory. Benevolent people endeavoured from time to time to overcome the danger by introducing substitutes for decayed pipes; but they could be only partial remedies. Not until the third year of the reign of JAMES I., when the Act was passed for the making of "a new trench to convey the water from Cadwel and Anwell," and in the following year, when power was given to "the Mayor and Commonality of London to convey the said water in a trunk or vault," was there a prospect of a regular supply. In course of time MYDDELTON's New River was supplemented by other sources and the water companies became monopolies.

On the whole, it must be allowed that the water companies, although confined to sources within limited districts, endeavoured to supply as pure water as could be obtained by elaborate processes of filtration. But when about the middle of the nineteenth century sanitation received more earnest attention than in any previous age, dissatisfaction with the companies was created. It was necessary to be careful about restricted supplies; but that was interpreted as mere penuriousness. If any sudden outbreak of an epidemic arose in which water would have to be liberally used for sanitary purposes, it was concluded that the companies would not be equal to the emergency. Accordingly the Board of Health was directed to report on the subject. In 1850 it was suggested by the officers that the sandy district in Surrey known as the Bagshot Sands should be turned to account. So little was known about the site, it was contemplated to depend on the surface water of the sands and heath alone. The existence of several abundant springs was overlooked. But when they were gauged one of those reactions which are not uncommon in connection with projects of water supply took place, and it was proposed to neglect the surface water, which was more or less peaty, and to depend on the springs alone.

The area of the Metropolis increased, and demands for a larger supply could not be suppressed. It became more evident that there was a risk in depending on the supplies to be found within a convenient distance of London. Accordingly, when the Royal Commission on Water Supply was appointed about forty years ago, several schemes of novel magnitude were proposed. Among them was one for deriving water from a Welsh source, and another which would utilise one or more of the northern lakes. People had become so accustomed to believe in the possibility of finding water close to London, the western and northern sources appeared at first so remote as to become impracticable, although devised by engineers who were well acquainted with the subject. Objections were raised about the expense, the terrible consequences which might arise if the supply of the Metropolis were cut off by invaders or by a mob of discontented people, or by any terrestrial movement which would fracture the large pipes. The water companies were at the time influential in Parliament, and revolutionary schemes had no chance. The result was that London, after all the inquiry, remained as before.

Towns in the provinces alone became gainers from the evidence. The value of Wales and the Westmor-

land and Cumberland districts was revealed, and that which were supposed to prevent the utilisation of supplies by the Metropolis could not be said to be places which were less distant. Manchester, Liverpool and Birmingham by timely action secured for themselves the sources which London might have acquired. The Metropolitan Board of Works had been more courageous.

An attempt was next made to overcome the difficulty which continued to be magnified, by obtaining possession of the properties of the water companies. A Commission was appointed to investigate the question of control which was anticipated, no doubt, that something would be done by the Government to aid London in accomplishing everything by a moderate outlay. But no Government could set aside the rights of owners. Large sums were, of course, sought, but the authorities again hesitated, and subsequently it became necessary to offer still larger sums before the companies surrendered their waterworks.

There will always be a difference of opinion as to the wisdom of the act. According to some the purchase was inadequate, and could never be made to correspond with the growth of the Metropolis. A new system should have been secured, new works constructed, new appliances introduced. In that case the water companies would have to be paid little, if any, compensation. On the other hand, the number of hours of London which would have to be disorganised was itself sufficient to make authorities alarmed at the remedy. The simplest course was therefore adopted.

But the great difficulty remained. The water supply was as deficient under the new owners as it was under the companies. Sanguine people continued to believe that justice was never done to the sources which were available. Through that belief arose the creation of the Water Trust. The new controllers possessed the courage to acknowledge the gravity of the situation which they have to cope. That must have a beneficial effect, for it is like taking the public of London into confidence. Hitherto it was difficult to realise from the pronouncements of the chairmen of water companies that there was any cause for anxiety about the future. Investigations of the Water Board have demonstrated that fifty-four years from the present time, or in the needs of London will have grown to such an extent that a supplemental gathering-ground must be found, year have been acquired and turned to account. It is not to be supposed the present sources of supply will be sufficient for the next half-century. It was necessary to derive a still larger supply from the Thames.

Those who desire an improved water supply are dissatisfied with the proposal to make the Thames more productive. Sir MELVILLE BEACHCROFT, the chairman, considers that Thames water is quite as potent as Welsh water, and, of course, his influence must carry great weight among members of the Trust. But it is doubtful whether a body of independent engineers and chemists would support his theory. The late Sir BATEMAN long ago proposed to derive the water of London from Wales. At a later period Sir ANDER BINNIE, who was possessed of an intimate acquaintance with the requirements of the Metropolitan Board, also relied on Wales as the most eligible source. The success of the water supply in Liverpool and Birmingham confirms the judgment of the two metropolitan engineers. The case, we must admit, is not so simple as it was some years ago. London has now a large Stock which is supposed to be no less safe than Consols or any other public security. To do anything which would affect the value of such an investment would, of course, require serious consideration. In fact, the delay in grappling with the difficulty, could have been overcome thirty years ago, had it been allowed to become so complicated that probably no sacrifices cannot be avoided.

There is another phase of the subject which is not so easy to determine. It has been repeatedly pointed



journal that the practice of allowing the first who can pass a private Bill to appropriate any ground or catchment basin is most dangerous. It would have been simple when the subject of water was being considered on national grounds to have prepared a map of England on which the districts could be marked to which provincial towns could make claims. The boundaries, of course, would be subject to variation. But they would at least suggest where sources of supply were to be sought, and would help to prevent towns endeavouring to monopolise a much more valuable resource than is requisite for present or future requirements. Through the delay London is likely to suffer for if the present practice of dealing with the claims of each town when it comes before a Parliamentary committee is continued, where is London to look for the water supply which will be indispensable in the future or it may be at a much earlier time? The *laissez-faire* principle may have its advantages, but it will not meet the emergency which will then arise. The Government can prepare for the future, and it is desirable that no delay will be suffered before completing the necessary arrangements.

#### LETTERS OF ITALIAN ARTISTS.

THE name of GIOVANNI BOTTARI is seldom met with in print in our time. But so long as antiquity is valued in art and in literature receives respect from mankind his name should be remembered. He was Florentine, and he was born in 1689. He was a priest and a doctor of theology. His knowledge of his native language was so extensive that he was entrusted by the Accademia della Crusca with the editing of the great Italian dictionary. In the early part of the eighteenth century monarchs were proud to bring classical works, and BOTTARI had charge of those from the Grand Ducal printing office. He was sent to Rome and appointed professor of ecclesiastical history. There was so much confidence in his knowledge that he was deputed to report on the possibility of diverting the Tiber for navigation. More congenial to him were his investigations of the catacombs and other subterranean cemeteries of Rome. In course of time he brought out volumes on the Capitoline Museum, the Vatican, and an edition of VIRGIL which was long valued.

BOTTARI used his influence in order to prepare one volume of work, which but for his exertions might never have existed. This was a collection of the letters of Italian architects, painters and sculptors, as well as of some foreign artists who had studied in Italy. He completed the compilation in 1754, and he was fortunate in being able to issue no less than seven volumes. He was so eager to possess genuine examples of the correspondence, he was not critical about the subjects of the letters or the rank of the writer. Many epistles are therefore of little interest to posterity, and it would be difficult to identify works by several of the writers. As a rule an Italian artist did not care much about expressing his thoughts by words. His private opinions are often to be inferred from the character of his work, and the famous figures by MICHEL ANGELO for the family of the MEDICI. Besides, in an age when despotism was general and justice was elastic, it might cause inconvenience to an artist if he prepared documents which, though simply expressed, could be interpreted as having a serious meaning. But, making every deduction, BOTTARI's collection has often historical or biographical importance, and enables us to understand important events in connection with Renaissance

as a fellow Florentine, BOTTARI must have felt pride in the greatness of MICHEL ANGELO. The faithful VASARI, however, anticipated him, for the majority of the letters from the great master were either printed in full or in abstract in the biography. But there are some others.

In one we learn that VASARI's intention of writing the lives of the artists was well known to his great patron. VASARI had written some kindly and flattering letters, and MICHEL ANGELO declares that he has been overestimated. But he adds that his dear GIORGIO's talents did not astonish him, because he was aware how, by his writings, VASARI could give life to dead men, could extend the lives of old men, or, if he pleased to be angry, could make men wish to be dead. BOTTARI was not equally successful in recovering epistles from LEONARDO DA VINCI, and the absence somehow suggests his remoteness from ordinary life, although he appears to be a sharer in it. The interesting letter dated June 1, 1519, from FRANCISCO MELZI, a pupil, to the artist's brothers, is the principal evidence concerning the death of the master. He states that DA VINCI died on May 2 and accepted the last rites of his Church. As a foreigner LEONARDO could not by the strange laws of that time make a will disposing of any property which he possessed in France. FRANCIS I. made a concession in favour of the artist. His 400 crowns and the little property he possessed at Fiesole were to be divided in equal portions among his brothers. The will is now well known. After resting three entire days in the chamber where he died and where the prayers of the Church were to be offered, LEONARDO desired to be buried in the church of St. Florentin, Amboise. All his books and the appliances of his art were bequeathed to FRANCISCO MELZI, and his two domestics were to share in the garden he possessed beyond the walls of Milan.

It has often been supposed that the Renaissance artists were extremely jealous of one another. But we find MICHEL ANGELO praising BRAMANTE; and architects apparently were very glad to lend their designs to some of their contemporaries. It is curious, however, to find MICHEL ANGELO, in criticising the design of SANGALLO for St. Peter's, suggesting that parts were so badly lighted they would serve to conceal members of the criminal class, thieves and forgers, and that at least five-and-twenty men would be required to search the building after the doors were closed in order to make sure that malefactors were not concealed somewhere. In another epistle we find SANSONO imploring the protection of Cardinal BEMBO after the accident at the Libreria at Venice. He says it arose from the ignorance of the overseers or foremen, who removed the scaffolding before it was entirely completed. The architect was imprisoned and fined, but subsequently was reinstated.

One of the most admired paintings in the National Gallery is TITIAN's *Venus and Adonis*, which was formerly in the Colonna Palace in Rome. It must have pleased the artist, for he made several repetitions. In one of the letters TITIAN writes to PHILIP OF SPAIN expressing his gratitude for gifts received, and, in order to make it more evident, he had resolved to put all his power into a painting of *Venus and Adonis*, which should serve as a pendant to *The Danae* in the palace. In another letter TITIAN proposes to paint *Perseus and Andromeda* and *Medea and Jason*. He also rejoices that Heaven has added England to PHILIP's dominions. A letter from ANIBALE CARO, the poet, to the Duke of PARMA reveals to us that in the sixteenth century, in Italy, a young and clever architect was not always sure of commissions. CARO gives a letter of recommendation to PACIOTTO, who was a relation of RAPHAEL's, but who was very small and very timid. Persons of distinction in Rome urged CARO to use all his interest with the Duke in order to obtain employment for PACIOTTO, who was honest, inventive, industrious, modest, and those who were competent to judge considered him as having exceptional talents and training and that he possessed not only a perfect knowledge of VITRUVIUS, but also of mathematics. How far the architect succeeded remains untold.

It is always doubtful whether any statement by BENVENUTO CELLINI is to be taken as fact or fiction. In one letter he begs to be paid for his bronze statue of



*Perseus*, on which he said he was engaged during nine years. He professes that he would be satisfied with whatever sum the Grand Duke gave him if he expressed his satisfaction with the statue. But he would not produce a similar work for any other prince for less than fifteen thousand golden ducats. He would, however, be willing to accept five thousand ducats from the Grand Duke, and land to the value of five thousand. He humbly begged for a prompt decision, as the uncertainty of his position was killing him. If he liked he might have obtained heaps of gold from the barbarians—France; but he preferred a single crown from the Grand Duke, in whose service he hoped to live, to one hundred from another prince.

A curious chapter in the history of Italian painting would be furnished from the treatment which artists from other parts of Italy received from those of Naples when they were induced to accept commissions in that city. One of the sufferers was DOMENICHINO. It is to be feared that he succumbed to the manoeuvres of his rivals. He tells a friend that he had two treatises on painting, one by LEON BAPTISTA ALBERTI, the architect, the other by LOMAZZO. The latter had said that the drawing or outline was the matter, and colour the form of painting. DOMENICHINO argued that the contrary is the fact; it is the outline or contour which gives being to objects, and colour without it cannot be expressive. A very different doctrine now prevails. Exactly the same lesson was conveyed by Sir EDWARD POYNTER in the address we published last week. MILLAIS, according to Mr. BRITON RIVIERE, valued a "clean edge," and said that a clear, direct work always tells in an exhibition. It was also Lord LEIGHTON'S opinion that unless a study can be modelled from it is of no use. DOMENICHINO was therefore possessed of principles which were enduring. But he could not resist the opposition of the Neapolitans. There is a legend that he was poisoned. LANFRANCO in particular seems to have been his enemy. He alleged that DOMENICHINO worked up his frescoes with pastel, and that the colour fell from the cupola in the chapel of the Duomo; that he was penurious and left his family in debt; that he was jealous of all artists except those belonging to the School of Bologna; and, indeed, a man who seemed to be most amiable was transferred into a mass of imperfections.

A refreshing contrast is afforded by the letters of SALVATOR ROSA. He was born in the Neapolitan territory if not in the city, and there is a good deal of similarity between his wild landscapes and his own character. But the letters which BOTTARI was able to rescue suggest that in the intervals of his storms he was generous. When he received an unexpectedly high price for a picture he offered to share the money with a friend. From his own account he was surrounded by men who liked him, although he is willing to confess that his temper is not of the best. He is fond of solitary walks. Sometimes he walks as if he were pursued, but occasionally he reads a book and prefers to think rather than speak. His health was not always good, and he could not comply with the demand for his pictures. If he had to paint through necessity it would kill him. The savage SALVATOR has aroused more of Mr. RUSKIN'S ire than any other landscapist. He compares him with ANGELICO and DÜRER as well as with TURNER, and finds brutality, viciousness, feebleness, ghastliness, ugliness and other evil qualities in his pictures. Seemingly he represented nature as it appeared to his own eyes, and many spectators of his paintings have recognised in them much that was akin to themselves. In the neighbourhood of Naples, and with volcanic forces not far off, it was hardly possible for a susceptible man to present the serenity which is to be found in the paintings of CLAUDE. We have, however, said enough to suggest some of the interest to be found in BOTTARI'S collection, although few readers, whether artists or amateurs, care to turn over his pages.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS

A MEETING of the Institute of Architects was held on Monday evening last at Conduit Street, Edwin T. Hall, vice-president, in the chair.

Mr. Alexander Graham (hon. secretary) announced the decease of Mr. Edward Morgan Whitaker, associate, 1882.

The CHAIRMAN said before they commenced the business of the evening he wished to acquaint them that that was the last general meeting of the Institute in which Mr. Locke would attend as secretary. They were aware Mr. Locke had resigned his position in consequence of the great success he had attained in that branch of art. Mr. Hall thought the members would be at such a meeting to take their leave of the retiring secretary in his official capacity, though they hoped to welcome him sometimes as a visitor at their meetings. Mr. Locke had been with them for ten years, and the chairman said that all members were agreed that he was at all times the most courteous secretary, who had made himself liked by everyone with whom he had come in contact. It was inevitable that such a change had happened, and Mr. Locke would leave the Institute in order that he might shine as a bright light in his profession. They did not, however, wish Mr. Locke to go away without an expression of appreciation for the work he had done during the ten years, and to wish him the greatest success in that branch of literary art which he had chosen for himself.

Mr. LOCKE said it was not without some emotion that he rose to take leave of a body with which he had been connected for so many years as he had with the members of the Institute. It had been a very great privilege to him as an outsider to go into the very midst of the profession and see it in all its aspects—artistic, professional and social, and to experience the kindness of the whole profession. His duties in the Institute had taught him a great deal of things, and they had also brought him into contact with many men, the remembrance of whom would perhaps be a great expression in the profession which he purposed to pursue exclusively in the future. His connection with the Institute had also brought him a great many friends, since he had come among them, a stranger, he had been received by all members, both in London and the provinces, with uniform consideration, kindness and courtesy. There had always been extended to him the hand of friendship. He would leave them with great regret and considerable pain, but he thanked them for the constant attention they had always shown him, and he thanked Mr. Hall for the remarks he had made. He hoped that although not able to serve the Institute much longer, yet his poor efforts in other directions might minister to its edification.

Mr. WM. WOODWARD read a paper which dealt with

### Recent Fire Legislation for London under the Factories and Workshop Acts of 1895 and 1901, the London Building Acts, 1894, and the London Building Acts (Amendment) Act, 1905.

He said that modern invention had led to the introduction of materials and methods of protection from fire which had vastly increased the opportunity for clearing a building of its inmates before the fire had a chance of getting into the structure. This consideration had not received the attention it deserved, either from the fire insurance companies or from the authorities administering the provisions of the Acts of Parliament. Sufficient study, again, did not appear to have been given to what are and what are not fire-resisting materials. It was by no means certain that the iron staircases to be seen outside large buildings in London would not prove a delusion and a snare in the case of a big fire, even assuming that nervous persons were induced to use those staircases at all. As regards the use of other stone "deemed to be fire-resisting" by the Acts of its solidity and durability" (Act of 1894, Schedule I) these materials could not be relied upon in the case of a big fire. The requirement in Schedule II, that iron and iron in beams or posts must be protected by plastering in cement or other incombustible or non-conducting external coating was, at least in the case of buildings of quite unnecessary. Timber was one of the best materials for a building on fire, and required no external coating of the nature described. The provision of oak, teak or hard timber for staircases was also unnecessary. Sound yellow deal or fir would be equally effective in the case of fire. If some undoubted preservative of



the effects of fire could be secured, much cost and labour would be saved. Professor Abel had specified the painting of the surfaces with a diluted solution of silica and limewash, then with slaked fat lime of the consistency of cream, then with a stronger solution of the same.

Mr. Woodward referred to the recent fire in Commercial Street, Lambeth, where two persons were burnt to death. On January 1, 1906, twenty-five lives had been lost, and upwards of five hundred seriously endangered, in houses of similar type, consisting of shop with room at back, and stairs leading to first and second floors, lath-and-plaster partitions matchboarded in parts, and no way out except by iron fixed ladders, if required, to the roof of the premises. No reasonable objection could be brought to this simple and inexpensive requirement.

Discussing some of the provisions of the Factory and Workshop Act, 1901, attention was directed to some undesirable requisitions under sub-section 2 of section 14, which had given rise to much litigation and much cost. A difficulty had arisen when a "factory" was in different parts of a building; the upper floors may have urgently needed means of escape in case of fire, which could only be provided by interfering with premises beneath, above, or around, the owner of which, not having forty persons employed, was outside the Act, and would not allow any means of escape to pass through or interfere with his premises. The London County Council, experiencing this difficulty, had provided for it in the London Building Act Amendment Act of 1905. Dealing with the working of the measure, Mr. Woodward referred to the three cases—(1) regard to 13 and 15 Leather Lane, 1 and 2 Grace Street, and 41 and 42 Beech Street—in which Mr. B. Tubbs had been successful in his appeals to the Tribunal of Appeal against the provision of ventilating shafts in these buildings, each of which was under 1,000 superficial. Mr. Tubbs in his evidence stated that he experimented on one of these smoke lobbies and found the air was drawn into the room rather than the lobby, driven out of it, and that on opening the door leading to the staircase the smoke rushed up the lobby; this appeared conclusive proof that the ventilators acted as inlet ventilators, and not as exhaust ventilators. It appeared also that the L.C.C. Building Act Committee were prepared to consider proposals of various alternative measures of escape, and one of them was a means of communication with adjoining buildings by means of ladders; but, unfortunately, the adjoining owners would not agree to these ladders, which formed an inexpensive and satisfactory means of escape, being placed on their premises. Mr. Woodward congratulated Mr. Tubbs on the success of his appeals. The result had been that the Building Act committee of the London County Council had considered the practice of the Council in cases arising under sections 7 and 9 of the Act, and had determined that, in similar cases to those the subject of the above appeals, enclosed fire-resisting or incombustible staircase with means of escape to and from the roof should be deemed sufficient for the purposes of the Act.

The author went on to summarise the machinery by which the Amendment Act works, dealing with "high" and "low" buildings under the headings of (a) As regards the Owner; (b) As regards the Council; (c) As regards the Tribunal of Appeal; (d) As regards the decision of the Council. Reference was made to the difficulties created by the "cubical extent" clauses. Since the trades had been opened up—such, for instance, as printing establishments, engineering works, motor-car repairs—which had been much hampered in their growth and developments by the fact that the Council had power to allow more than 450,000 cubic feet without effective party-walls and iron doors. The Council had seen how detrimental these provisions had been to modern ideas of large areas for modern buildings, but had had to keep in mind the risk of serious conflagrations in such large buildings were not subdivided by party-walls. The Council had now determined, he believed, to refer the matter to Parliament in the session of 1908 for power to amend the Building Act of 1894, as regards the cubical extent of buildings, in the following manner, viz.:—(1) Section 75 to be amended so as to enable the Council to allow horizontal separation; (2) Section 76 to be amended so as to remove all restrictions on the Council's

power to allow increased cubical capacity for buildings of the warehouse class; (3) Section 77 to be amended on the lines laid down in the London Building Acts (Amendment) Bill, 1905, so as to give the Council discretionary power with regard to openings in party-walls, the provision of fire-resisting doors constructed of materials other than iron, and the uniting of buildings. Amendment in the direction indicated would be a matter of satisfaction both to architects and to the public.

Mr. Woodward, in his conclusions, expressed the hope that the provisions of the Act would be interpreted in a fair and reasonable manner. The Act gave considerable latitude to the Council, and in practice it would be found quite reasonable to ease off some of its provisions. He would leave each case to be dealt with by the Council literally on its merits; and as in our Courts of Justice all decisions were subject to appeal, it might be desirable to give power to leave every decision to a Tribunal of Appeal. He thought the 9-inch newel wall to a staircase might be omitted in many instances; that the smoke lobbies might be omitted altogether; that the thickness of a wall-string might be less than  $1\frac{1}{2}$  inch; that the thickness of the panels of doors might also be less than  $1\frac{1}{2}$  inch; that the reduction of height in buildings from 60 feet to 50 feet was unnecessary, as the London Fire Brigade ought to be provided with appliances capable of rescuing persons from a burning building at a greater height than 50 feet. He was glad to see the elastic way in which the London County Council was dealing with projecting shops. He hoped the Council would modify all its requirements in the way of ventilating areas, including, of course, the vexatious trunks inside, and gratings in the fronts of buildings to take air into those areas. He should rely a little more on the ability to get out of a building on fire before that fire got a hold, but he would not stop short in any house in London in insisting upon a way out to the roof, and, having got there, a way on to adjoining premises.

Mr. J. DOUGLASS MATHEWS, in proposing a vote of thanks to Mr. Woodward, said he was in general accord with many of the remarks in the paper. Attention had been called to such undesirable requisitions in an Act as the smoke lobbies, and he was glad to hear the County Council saw the desirability of not taking further steps in the matter. He had taken part in considering previous Acts, and he was never convinced that there was necessity for smoke lobbies. The Institute, he thought, had a great deal to boast of in having been able to get the word "reasonable" introduced, for he believed it would be generally admitted the word "reasonable" had value. Another suggestion was that in all cases where the County Council had discretion to interpret a clause in the Act that it should be subject to the Tribunal of Appeal. The Act was a difficult and important one, and differences of opinion must necessarily arise in its operation, more especially in the adaptation of it. Mr. Woodward had also mentioned the escape to the roof. Possibly there was nothing so difficult as the arrangement for that in an ordinary dwelling. Supposing an escape to a roof was planned, naturally some kind of protection of the front would be necessary, and that might lead to sad consequences, because a person would not only have to get up to the parapet but to climb on to it before a fire escape could reach. Unless access was easy the arrangement would be a trap rather than an advantage. The London County Council were certainly taking an elastic view of certain clauses. It was difficult, he said, for such a body to take on the great responsibility indicated in the Act, and he thought it would simplify matters if they made suggestions to the various owners to do such and such things and put the responsibility on the owners. That would save the County Council very great trouble, because it would throw greater responsibility on the owners which they themselves would not be disposed to accept. He agreed with Mr. Woodward in the matter of legislation, and believed, if the public were treated as sensible beings, that a great deal of the Act could be put into operation without the pressure and enforcement of a public body.

Mr. W. E. RILEY said he wished to second the vote of thanks and to compliment Mr. Woodward on the extremely temperate tone he had adopted in his able paper. Fire in buildings, and especially in domestic buildings, was a gruesome subject, and legislation in connection with it needed care and consideration. He could not help, he said, being struck in the committee-rooms of the House of Commons and the House of Lords when the Bill, he referred more particularly to the Amendment Act, was before the committee, with the practical monotony of the testimony of those



whether in favour of the Bill or against it, but who were desirous to show that it was necessary to do something. Of those who were prepared to criticise the clauses of the Bill, nothing impressed him more than their final surrender to the conclusion that any amendment which tended to save life should not be neglected. The crux of the whole matter was that provision should be made to save life in case of fire. He was glad to be able to note that there was no disposition to charge those responsible for the administration of the Act with an iron inflexibility, which had in his opinion been too much spoken of in the past in dealing with the Building Act of 1894. That Act contained many positive and decisive clauses which gave the County Council and those responsible about the County Council no power to change the mere wording or the intention of the mere wording which was allowed in the clauses. It was for that reason those Acts were unpopular. Everyone, he said, knew that the promotion of the Act of 1905 was due to the dreadful fire in Queen Victoria Street, when the Home Office made representations after the finding of the jury, who added a rider to their verdict. The Home Office had just previously amended their Factory Act; but the first case tested under that Act proved it to be useless for its purpose, and it had to be abandoned. There were many fires previous to the promotion of the Bill, which had great influence on the trend of the clauses, especially those which dictated the requirements of domestic buildings over shops and premises of that kind. Mr. Riley then gave some statistics of losses through fire in inhabited buildings.

Mr. MAURICE B. ADAMS said the objection to outside escape staircases in domestic buildings was that they led to the increase of burglaries. He was in accord with the feeling which suggested the necessity for providing those escapes, but he saw some difficulty in dealing with the problem in that particular way.

Mr. JOHN SLATER said he was quite sure that everyone in the room was agreed that the people who were responsible for protecting persons from death by fire must feel that responsibility very heavily indeed. He did not suppose, he said, there was one person present who had had occasion to enter inhabited buildings in London, and who had not gone away assured that they were positive death-traps. He therefore had great sympathy with the endeavours of Mr. Riley. But he thought there was a great deal of force in what Mr. Woodward had said in regard to laying down hard and fast lines, whether they looked at the Act from the point of view of the owners or the County Council. Again, there was no advantage in laying down rigid provisions which might be evaded. He therefore came to the conclusion with regard to a very large number of requisitions alluded to in the Amendment Act, that it would be infinitely better to leave the matter in the hands of the County Council or district surveyors, and to treat each individual case in the way best fitted for it. Mr. Riley had mentioned instances which called for special treatment, and Mr. Maurice Adams had undoubtedly touched on a point of great importance. Then there was the kind of provision for escape in such buildings as hotels. He also thought in respect of the Amendment Act and in respect of many clauses of the original Building Act, that it was rather hard treatment on the architect who tried in every way possible to meet the reasonable requirements of the Acts, that he should have cast in his teeth such regulations as were made for people who would evade them. He could, however, testify to the extreme courtesy and consideration which he had met with when he had had occasion to go to the County Council upon such matters.

Mr. G. A. T. MIDDLETON suggested that balconies would afford a means of escape from a building, and there would not be the objection to them as was raised against external staircases.

Mr. L. HURST SEAGER also joined in the discussion.

The CHAIRMAN said architects not only shared in the responsibility of citizens in preventing loss of life, but there was a professional responsibility which made them most scrupulous and anxious to design their buildings with every provision for enabling persons to escape in case of fire. He agreed with Mr. Woodward that the provisions of the clauses in the Act should be as elastic as possible. In detached houses standing in their own grounds there was no necessity for providing an escape to the roof, and other examples could be cited. In place of smoke lobbies Mr. Hall suggested that windows on a staircase glazed halfway up would be found to be effectual.

The vote of thanks was passed by acclamation, and Mr. Woodward briefly replied.

## AMESBURY SCREEN AND FONT.

A SPECIAL service was held in Amesbury Church a week when the Bishop of Salisbury dedicated the restored font and screen, which have long been lost sight of in the building, and also the renovated chancel.

Unfortunately, in the "restoration" of fifty or sixty years ago, says the *Wiltshire Mirror*, many of the architectural adornments and handsome carved figures in stone or other stone were, for some reason, totally innocent at the present day, ruthlessly destroyed. For instance, the font, which now occupies its former position at the west end of the south aisle, was found under the altar broken into fifty or sixty pieces, and it took Mr. Kite many days of patient toil ere he pieced the fragments together, and it reflects great credit on his work that one can scarcely see the joints. The font, which is a Norman bowl, was supported by four columns of fourteenth-century pattern, though later a solid base must have been substituted. This has been recovered and utilised; the latter dates from the seventeenth century. The wall of polished Purbeck, and is so well restored that the pattern can still be seen, and in one corner the design is perfect.

Perhaps the greatest acquisition—or one would rather more correct in saying the recovery—is the old screen. This is of Perpendicular design and enhances the beauty of the church. It appears that this screen shared a similar fate to the font, being discarded though it escaped destruction. A certain Mr. Job Edwards, a lover of antiquities, who has long been laid to rest, by some means obtained this oak structure and placed it amongst the curiosities in a building which acquired the local designation of a "museum." On his death a horse dealer took over the premises, and his æsthetic tastes not being so well developed as his business capacity, he utilised the screen as a partition for a horse-box. Owing to the intervention of the War Office, it was saved from further damage. Being used in the way of course, was not conducive to the preservation of the woodwork, and when it passed into the hands of the architect, Mr. C. E. Ponting, of Marlborough, it was in a state. Fortunately this also was not beyond repair, while the whole work has been retained, several new pieces have had to be made.

A transformation has been made in the floor of the chancel. It was formerly paved with tiles, but, on removing these to get at the font which was known to be beneath, a number of ledger stones was discovered, and these have been used for paving. They are all very old, the inscription on one informing the reader that it was originally placed in that church to someone's memory in 1680. The upper part of the chancel has been laid in diagonal slabs of Forest of Dean stone, copies of two squares of which were discovered amongst the ruins which have been utilised with the others. In the upper part of the sanctuary the Hopton Wood stone is used.

In one of the large stones discovered under the chancel was embedded a thick brass plate with a Latin inscription. When this was deciphered it was found to supply a link with the past history of the neighbourhood. The inscription was as follows:—

"Here lieth Edith Matyn, late wife of Robert Matyn, who died — day of May, Anno Domini 1470.

To whom God grant peace."

Reference to Hoare's History shows that Edith Matyn was the wife of Robert Matyn, of Durrington, who left a will, dated 1509, "To my lady Prioress of Amesbury 3s. to every lady householder of the same place 8d., to my veiled lady 4d., to the parish church of Amesbury 10d. per sheep." The brass plate has been carefully cleaned and has now been placed on the wall of the chancel opposite the mural tablet which has just been erected. It is of an oval shape consisting of green marble bordered with raised black composition, and inscribed:—

"In memory of Constance Emily Vivian, wife of the Honourable Claude Panton Vivian, of Plasgwyn, Anglesey, and daughter of Jules Alexandre Sartoris, 16th Lane, London, born 20th July, 1857, died 20th October, 1905."

Besides the mural adornments the window on the north side has been carefully restored. Of course all this work can be seen, but there has been a good deal of money expended upon that which is out of sight. New foundations have been laid underneath the chancel, and the walls and buttresses, which previously rested on loose flint, have been underpinned with cement concrete. The roof came in for a good deal of attention. The whole of it was taken down with the exception of the timber, and the old tiles fitted



where missing by new ones. Two massive oak s span the chancel holding the roof plates together. surface gutters and drainage, which never before are now used and will help to preserve the ancient

The interior has received a good deal of attention the seating wooden blocks with oak kerbs n placed, and the central pier between the nave south aisle has been underpinned, as it was badly l.

oped at a later period to restore, if possible, some er monuments that have been unearthed from the

actual work of renovation has been carried out by -known firm of Messrs. H. J. Kite & Son, of y, in a thoroughly substantial and workmanlike and great credit is due to Mr. H. C. Kite, who ly undertook the restoration of some of the nts that were badly damaged.

### A LECTERN FROM HOLYROOD.

church of St. Stephen, St. Albans, is a lectern ch formerly belonged to Holyrood chapel. Accord- e *Scotsman*, St. Stephen's Church is in the centre ge and straggling parish, running far beyond the of the city, and yet partly in its boundaries. The was one of the three built by Abbot Ulsinus in 948. left of its Saxon foundation, though many of the ent periods can be traced built into its walls. It ored in the fifteenth century, but a hand abhorred antiquarian, that of Sir Gilbert Scott, passed over i, and what could be destroyed of the best work in ch was then accomplished. It stands on a hill, nd of the famous Watling Street, and for some s of its thousand years' stay the lectern of Holy- bbeys has stood in it. A noble "fowl," with h bald head, long neck, swelling breast, and ick wings of the date when he was cast and ed, not in silver but in brass. On the globe where s are spread is engraved the Scottish lion, ramping apant. Twice on either side appears his effigy. he upper part of the pedestal runs in Gothic letter- Georgius Creichtoun Episcopus Dunkeldensis." ottish bishops of Dunkeld claim that title; their e not far apart—1527 and 1550. One theory of the e of the lectern is that after its second restoration ch was dedicated by the Bishop of Dunkeld, and presented the lectern to the church. This is e, but is too obviously the ingenious invention of es which do not like to remember that Protector et wrought far more ruin and desolation among the churches and monasteries than was ever per- l by even the Scottish reformers or the more modern of Scotland.

re is a simpler explanation. Sir Richard Lee, a good of Hertfordshire, went as in duty bound northward e Protector. His services and those of his following aid in kind. He was given, or took, part of the of the abbey, and the lands, which included the of St. Stephen's, were also made his. When its long s was over and the baggage waggons which had anied the army to Scotland came slowly back over eat North Road, and when the loot was sorted from ny gear, what would be more natural than that Sir l should present to the church—which the war in d had given him—the church furniture, which bore ottish Lion and which would serve for all time to is name and generation. The brass font he seems presented to the abbey of St. Alban. The records tell it it fell into the hands of Cromwell's soldiers, and it nto the smelting furnace with other relics of more is metal. The lectern, if unprotected, most probably have shared the like fate, for Fairfax had his head- s at St. Albans, and the soldiers made searching tion. Most of the St. Albans churches were turned isons for Royalist prisoners. In St. Stephen's the n arches bear many a scratched record of their and their loyalty to the king. Fortunately for the of the lectern, there existed then a vicar wise in his d generation. He buried the lion and the eagle in a hich belonged to a family with the Scottish name of omery, and there it lay forgotten, or perhaps with se that the Scottish lion had best not be roused for other hundred years. During its repose General

Monk, advancing from Scotland in 1660, halted at St. Albans to send his message to the English Parliament. The Restora- tion was not to restore it to its place in the church. Three years after the fall of the Jacobite cause it was necessary to make another burial within the chancel, and the missing lectern was then discovered. Once again it stood in its appointed place, and with spread wings faces west.

Will it ever take the high road, and see again the walls of its ancient eyrie? The Church of England keeps a heavy hand on property, whether belonging to her or to other churches. The precautions taken effectually pre- vented any hasty removal of the Scottish property, and the lord of the manor spoke of the endless "faculties" required to free the lion and the eagle from the toils of the Church of England. Thus they were left still waiting. But the Bishop of Dunkeld's "feast" should come home to St. Giles's Cathedral to roost, and to bear again on its over- shadowing wings the Word, without which the people perish.

### TWO GREEK STATUES.

A LECTURE was delivered to a meeting of the French Literary Society, Liverpool, on Saturday evening, by M. Michel S. Ralli, on "Some Greek Statues." The lecturer chose two masterpieces for special consideration. The first, of marble, was found during excavations in the year 1879, and is considered by the best authorities to belong to the fourth century B.C., and to represent Hermes holding the infant Dionysius in his left arm, by the celebrated sculptor, Praxiteles. The other statue was only discovered in the spring of 1902 by some sailors in the Ionian Sea among the débris of a wreck which, from the evidence it afforded, must have occurred at a very early period. The statue is in bronze, and consisted when found of disjointed pieces, which were subsequently assembled by M. Andre, of Paris, and made to represent the original is nearly as possible. It was problematical what this statue was intended by the artist to symbolise. The figure held in the right hand an object similar in shape to a ball, and was probably a statue of "Paris with the Golden Apple." Another idea put forward was that the figure might possibly be that of Perseus bearing the head of Medusa, but M. Ralli gave reasons to show that the former supposition was the more worthy of acceptance. The discovery of this statue in the Ionian Sea, the lecturer observed, might be due to the fact that the Roman fleet under Sulla was wrecked there about 86 B.C., while carrying away the plunder of many Greek cities. M. Ralli concluded his lecture by remarking how fortunate it was for Greece that two of her most famous statues, which had been lost for nearly 2,000 years, had at last been restored to their native country.

### SHEFFIELD SOCIETY OF ARCHITECTS.

"SOME Churches of Northern France" was the subject of a lecture by Dr. G. Wilkinson before the Sheffield Society of Architects and Surveyors. Mr. W. J. Hale presided.

The lecturer began by referring to the chief characteristics of the design of the typical French, as compared with the English churches. The most striking feature of the former was the greater height of the vault. To maintain the vault in its elevated position, a much more elaborate system of external buttressing was necessary, and also a wider spreading base, to which the thrust of the vault might be conducted. Thus the French examples had generally a greater width than the English. The greater width was obtained by adding to the number of the aisles, and at the east end by a semicircle of radiating chapels round the apse forming the chevet. The French ground plan shows less extension of parts, the churches are generally shorter, and there is less projection of the transepts, whilst eastern transepts and eastward projecting lady chapels were distinctively English features. Spires or slender flèches were more frequent than groups of towers, which form such a marked feature of many English cathedrals. The French western façade was always an important feature, usually peopled with beautiful examples of Mediæval sculpture, in which branch of Gothic art France held the foremost place.

The lecture was illustrated by a number of lantern slides prepared from the lecturer's photographs of Amiens, Rheims, Noyon, Soissons and Laon.



## NOTES AND COMMENTS.

THE coroner's jury on Wednesday returned a verdict of accidental death at the adjourned inquest relating to the disaster at Blackfriars Bridge. No blame whatever was attributed to the contractors. The jury considered that the jacks and the girders were the best that could be provided according to our present knowledge of engineering science; that the simultaneous control of the jacks in the lowering and raising of the caisson was reasonably perfect. It was suggested that in future work of the kind the cocks should be protected by shields. When it is remembered that a coroner's jury in such cases rarely consists of experts the verdict is satisfactory. The report of Mr. C. A. BRERETON when it appears will no doubt confirm that of the jury in exonerating Sir WILLIAM ARROL & Co. from any suspicion of carelessness in the arrangements or of the absence of practical skill in the direction.

It is always fair to expect in an Irish law suit some peculiarities which are not usually found in similar cases in England and Scotland. One instance was a claim decided by Mr. Justice Ross on Monday after two or three days' hearing. The plaintiffs were builders who carried out a contract for erecting five blocks of artisans' dwellings, the amount being 3,110*l.* The architect, Mr. F. W. HIGGINBOTHAM, in granting his final certificate found that a sum of 71*l.* 3*s.* 2½*d.* was due to the plaintiffs, but that 210*l.* should be deducted on account of delay in completing the work. The plaintiffs maintained that the deductions were made by direction of the defendants, who were known as the Economical Housing Company, Ltd., and that Mr. HIGGINBOTHAM had in consequence disqualified himself from being recognised as a fair and impartial arbitrator. Mr. HIGGINBOTHAM's defence was that throughout he had acted fairly and impartially, that the works were delayed by the plaintiffs, and that there was no fraud or collusion between him and the defendants. Mr. Justice Ross held that there was neither collusion nor fraud, but neither the defendants nor the architect could be considered as entitled to deduct any sum by way of penalty. If a certificate had been given by the architect that the work could have been completed within the time specified, they would have had power to deduct, but in the absence of such preliminary certificate they had no jurisdiction. His Lordship therefore decided that the plaintiffs should receive the sum of 210*l.* as well as the sum of 71*l.* 3*s.* 2½*d.* The action against the architect was dismissed with costs and the defendants were ordered to pay the costs relating to the deduction. It was not stated whether the contract deed had any clause relating to penalties for delay, but it is generally understood that a right exists for the architect to deduct the amount from his final certificate without giving notices from time to time.

It is remarkable that, although the French Government are supposed to be the proprietors of the cathedrals and churches throughout the country, no definite arrangements have been made for meeting the expenditure on reparations. A case on a small scale which lately occurred will suggest the peculiar situation of affairs. In a small commune 16*l.* was voted for repairs to the parish church. The Prefect declined to approve of it on the ground that it was an indirect subvention to the exercise of worship. The case was brought under the notice of the Minister, and he informed the Prefect that he was to tolerate similar votes. What is meant by tolerating is uncertain, but it is considered that where the vote is for the security of the inhabitants in preventing the collapse of a structure or for the conservation of communal property the vote may be allowed. But there is no responsibility on any public body or collection of parishioners to give a vote, and the French people are rather indisposed to perform any duty which will increase their taxation. When the Separation Act was first made law it created associations which were to

represent the national ownership in the building, to become responsible for all expenses for their preservation. But that arrangement was found impossible. Afterwards, the communal or local authority was supposed to take over the buildings, although they may close them or prevent services in some circumstances, apparently they are not bound to keep them in a proper condition. It is not unusual that if the neglect continues the State may intervene and have the churches treated as dangerous structures with consequences resembling those adopted in London on the reports of the district surveyors.

## ILLUSTRATIONS.

BETHNAL GREEN MUNICIPAL BUILDINGS.

WE reproduce to-day a design, drawn by C. E. MALLOWS, virile in character and fine in conception. The council chamber, of the size stipulated in the conditions, was placed to the main front of the first floor and lit from above. All the offices were obtained on the ground floor and every part was well lit. The ancient lights were carefully considered, no infringement took place even after the future alterations. In the design placed first by Mr. HARE the council rooms were put in the basement which should have been put on the ground floor, and the council chamber was short of the size definitely stated in the conditions to be essential. This, of course, affected the contents and would help to pay for an unnecessary "campanile." In the report sent in with this design notice that the architect took the precaution of obtaining the guarantee of London builders to erect the building within his estimate and the amount allowed by the conditions. The defect of this plan would probably be that the lighting to the rates' office might not be strong. The access to the basement forecourts is also as also is the planning of the council chamber suitable for arrangements for receptions. The architect is PHILIP A. ROBSON, A.R.I.B.A., of Palace Chambers, 9 Bridge Street, Westminster.

CARDIFF EXCHANGE: THE ANNEKE.

COTTAGE, BLEDLLOW, BUCKS.

CATHEDRAL SERIES.—SOUTHWARK: FOX'S SCREEN.

WHEN JOHN CARTER in 1808 visited the church of St. Mary Overy, which is now the cathedral of Southwark, he found instead of the old reredos of those vulgar clumsy altarpieces in what is called "Grecian taste." It was made of wood and plaster, and rested against the ancient work. In 1829 it was arranged that a partial restoration of the tower and lady chapel was to be undertaken by GEORGE GUTHRIE. Another architect, ROBERT WALLACE, was entrusted with the alteration of the choir. The Grecian "frieze piece," which it is believed was designed by CHRISTOPHER WREN, was removed. The altar screen resembles the noble work erected by Bishop Fox at Winchester Cathedral. It is probable the Southwark screen was likewise erected at his expense at a time, for the London palace of the see of Winchester adjoined the priory church, and some of the predecessors of Fox were munificent benefactors of St. Mary's. In one feature the Southwark screen is preferable, for in the Winchester screen the figures of the two upper rows of niches stand on the capitals which are over the figures, whilst in St. Mary's the niches are separated by a band or frieze of azulejo. The figures in the niches were not likely to survive the surrender of the priory to HENRY VIII, but the canopies and other delicate parts of the screen which were preserved were ruthlessly broken when it was considered necessary to conceal a shrine which once contained images of saints in stone. The iron lines seen in the niches were part of the ornamentation introduced above the heads of the statues. The entablature of angels and shields is a modern addition designed by ROBERT WALLACE.



# THE LAYING-OUT OF LONDON.\*

(Concluded from last week.)

will notice that though I spoke at the beginning of my paper of making my imaginary London of the size as our present town, I have circumscribed it by an ellipse measuring only 6 miles north and south by 9 miles east and west. You will notice also that the circumference of the ellipse is a zone of green. Now, I am by no means saying that we could do with a town no bigger than this, but by 6, in fact, I realise that whatever size we may have for a modern city, that city, if conditions of life and health are healthy, is bound to spread. But I contend that we might reasonably make a stand against that gradual invasion of country by town, which makes for towniness.

There are some towns in continental Europe where towniness ends abruptly. Country and city meet at a town gate, with an effect as beautiful as it is striking. In England such a meeting of the sylvan with the urban is wonderfully rare. Even smallish country towns define their boundaries by some sordid compromise which is no credit either to the rural or the architectural. The shock of an abrupt contrast between wood-land pastoral scenery and town buildings is so great that one meets it, that one realises forcibly how rare it is. I know, as it happens, a happy little town not far from London, where the shops end suddenly in an avenue of great elms. The effect is so glorious that one senses how any town can deny itself the luxury of this natural nature.

For this reason that I propose in my imaginary city of green fields and woodlands round the limit of its activity. Suburbs can, if necessary, spring up outside the green girdle, but there would certainly be great assurance that the immediate contrast of the city with the world of green things should be one in which they respect one another. Not a region in which urbanity struggles with a landscape whose virginity is perpetual and gradual contamination. This green world, no doubt, contain recreation grounds and of entertainment, as well as, possibly, certain parks, on which the number of buildings would be restricted.

Essentially, you will observe that two roads follow the ellipse, the inner one being a specially broad highway. I have intended the roads for the special convenience of those who may want to get across from one main thoroughfare to another, which is often a difficult matter, and for the convenience of motorists who may require to get often do—to get from one side of London to the other without going through it. Such a road would very greatly simplify the task of getting, let us say, from the Strand to Harp to Camberwell.

At this time I feel that I have bored you sufficiently with my imaginary London, especially since I have, as I explained, no great enthusiasm for it myself. We are at once more to the question which embodies the practical use of this flight of fancy. The question is whether our imaginary city does really display some features which are good in themselves, is there any means whereby we can incorporate them in our present London? Many principal landmarks of my fantastic town are already suggested. I have pointed out. The general formation of our town bears a rough approximation to my scheme. We have a more or less rectangular formation, cut across by a number of diagonal tracks; but we are certainly ill-served with good through routes; we have far too many of congestion, our town lacks parallel roads to act as alternative routes and our methods of dealing with crossing are not equal to the requirements.

As to improvement of routes, I am afraid I must confess the egotism of referring those who are interested in the subject to the paper which I read before the Royal Institute of British Architects in May of last year. That was a criticism and an emendation of the scheme for new main thoroughfares proposed by the Royal Commission on London Traffic. The Commissioners' proposals, I believe, far from perfect; but they were based upon a study of the subject, and on a collection of facts which it would be most foolish to set aside. In fact, we might take it for granted that the two roads proposed by the Commission would meet an actual need; and I feel sure that the line of these streets were to be modified, not arbitrarily on the lines which I suggested—I am not self-

sufficient enough to insist on that—but upon some similar lines, actuated by similar principles, the gain to London traffic might be immense. I will merely say here, in regard to the details of my proposal, that my criticism of the east and west road was mainly by way of insisting that the route should neither destroy existing buildings of interest nor run past them at inelegant angles, and that my indictment of the Commissioners' north and south road was grounded not merely upon the same general principles, but particularly on the obvious responsibility of taking a street through Staple Inn and the Temple. I also drew attention to the undesirability of forgetting Kingsway. At great expense we have there secured a new highway, and we may as well make use of it as part of the system. Finally, I ventured to suggest that the two new roads might cross over and under one another in Russell Square.

Let us suppose, therefore, that the County Council have occupied the Traffic Commissioners' new streets; that some greater man than I has arrived at a scheme of modification identical with mine; that the Council have adopted this modification also and are prepared to let the whole proposal go forward, only keeping back the drafting of a Bill till the Architectural Association has had its say. What more should we ask for?

Gentlemen, I have a proposal to put before your consideration. I believe that my triple avenue linking east and west is not, in the present state of London, a right thing to ask for. Had it been the central street of a new city, it would, I hope, have made of itself a noble and useful highway; but at this present hour of need it would be, I believe, fantastic. Not so a modification of it, which I now offer.

Gradually during this evening you and I have been discovering the Surrey side. Do not let us allow it to relapse again into *terra incognita*. It really is the territory which lies between Westminster and the Mansion House, and it really might contain means of approach to other delights than those of the Elephant, other hospitalities than those of Bedlam. I want to ask you whether you cannot contemplate a fine street leading in a gentle but magnificent curve of about one mile radius from the east side of Westminster Bridge to the City. You will probably reply that there is such a means of progressing already, and that it is of no great convenience to struggle over London Bridge when you can drive comfortably along the Embankment. But I want to point out that the drive from Westminster Bridge to London Bridge on the Surrey side is not at all a direct or convenient one, and for that matter I don't propose to take any new road over London Bridge at all.

More than once have I been astonished by the dignified desolation which prevails in the south end of Queen Street. From the bustle of Cannon Street at its busy junction with Queen Victoria Street you may turn aside into a quiet and respectable thoroughfare, which reminds you by its air of repose of, let me say, a street in Bath or Stamford. You assume from the lull and the unfrequented roadway that its downward course is leading you to a *cul-de-sac*, and perhaps you wander down it to explore the dead end, when to your amazement you reascend a brisk incline to find yourself actually crossing the Thames on one of Rennie's masterpieces. In fact, you are on Southwark Bridge, and will soon be in Southwark Bridge Road, hurrying along to—may I mention it once more?—the Elephant and Castle, but by a much less frequented track than that of your fellow-mortals, who by four other bridges are all hurrying to the same Mecca. Why, I ask, should not a fine road connect Westminster and Southwark bridges with one another? Such a fine road as this would connect Belgravia with the Bank by a route actually shorter than the Embankment route, and much less obstructed at the finish. The first answer will be that the true secret of the boycotting of Southwark Bridge is the steepness of the gradient over the bridge and the smart dip which Queen Street takes to bring itself to the level of Upper Thames Street. But these levels are obstacles which can be got over, or even turned to account. In the first place Southwark Bridge would need, I think, some alteration to fit it for the needs of my proposed thoroughfare, and even if the piers are reused there would need to be some widening, and the excessive camber or arc of the roadway might be softened. In any case, it may be noticed that Upper Thames Street could easily be depressed at the point of intersection, and that Queen Street makes something of a struggle to reach its present level. Let the struggle be abandoned, and the result will be that Queen Street will pass very pleasantly over the head of Upper Thames Street, and will thereby lessen the rise which it makes in mounting the bridge. When once in the high

\* Paper by Mr. Paul Waterhouse read at the last meeting of the Architectural Association.



level it might retain its elevation all the way to Westminster Bridge, crossing over by viaduct all the streets it meets on its way, were it not for the railways, which already occupy the monopoly of elevation. Here I utter the aspiration that sooner or later there may be no railway bridge across the Thames within the metropolitan area, or at worst only one. For the purposes of goods traffic, I conclude that there must necessarily be at least one rail connection above ground between the north-side stations and those on the south side, but for all passenger purposes we should practically be as well off as we are at present if we abolished those stations which depend on bridges to take their traffic out of London, substituting for them stations on the south side of the river. A good system of tube railways, linking all the termini and giving connection from them to the business centres, would, as far as the majority are concerned, meet all genuine requirements quite as efficiently as the present system. Charing Cross, Holborn and Cannon Street are relics of the theory that the south side of the Thames is a tractless, cableless swamp. A few persons whose offices and places of business lie within a short walk of one or other of these stations would, of course, bitterly resent their abolition, but their number must be insignificant in comparison with the many thousands who employ some kind of conveyance after leaving the terminus. If the stations substituted for these three stations were ranged along the curve of my proposed new road, the distance of them from the main haunts of business would not be appreciably greater, on the average, than at present. In fact, the planting of the new County Council offices on the Surrey bank, and the probability that a business quarter will arise in connection with it, would have the result that the new stations would for some persons be actually nearer the seat of work than the present ones. In such a case you might even indulge me by letting the curved road be on the triple, or "three-way," formation.

But for the present we must assume that the railways and their detestable bridges remain. My visionary road must therefore dodge them, and I propose that on leaving Westminster Bridge it should pass under the South-Western Railway—rising to high level in time to run over Waterloo Road and Blackfriars Road—then again descending to pass twice under the South-Eastern. The distances between the points would allow these rises and falls to take place without undue steepness.

The difficulty of forming a new approach to the City is always said to lie in the enormous cost of City property, and the consequent difficulty of acquiring it for improvements, but the route I have indicated—by passing through a track less valuable than the City—helps us out of the dilemma. Queen Street, I fear, would need widening, and I regret it because I respect its air of provincial propriety. Again, I think it would be desirable to do something by way of relieving the already undue conflict of traffic at the awkward junction between Cannon Street and Queen Victoria Street, which my new street would rather add to than diminish. Perhaps an increase of road space at this point would meet the case. Happily the turning into Queen Street does not exactly coincide with this junction.

I do not like to indulge in talk about new streets without admitting that I realise a certain fact which is all-important. Traffic—one may put this as an axiom in the science of town improvement—traffic does not go from A to B; it certainly starts from A and reaches B, but it passes C and D and E, and all the rest of them—and the things passed are nearly as important to the traffic as the start and the goal. The man in a hurry in a hansom is only one man in a thousand. We must not forget that. It is true that he, and a certain number of his fellow-citizens in less expensive conveyances, do truly need to get from spot to spot with convenience, speed, and by a road of minimum length, but you will not get traffic to go along a road in anything like full strength merely because it is the shortest way, unless the road, besides being short, is also attractive commercially, or otherwise.

Look at Kingsway. You would have prophesied that directly the barriers were down the traffic would have poured through like Niagara. But no; these empty sites frighten the traffic—the street is used, of course, but with no ardour. Half the day you could play marbles in the roadway without undue anxiety. Therefore a new road must not be a dreary one, or it will cease to be useful. It must be lined with houses of attractive business (if it is in a business quarter), and it must pass certain points which are in themselves the objects of journeys. If my new street, or any new street, is to be lined with empty plots, or

with wholesale button houses, built in Fletton brick, had better not be a new street at all. It is greatly to the credit of wayfaring men, cabmen included, that they do not shudder at the horror of these dreary streets, whether they be caused from incompleteness or from the presence of joyless houses.

My suggested new street (together with the modification of the Traffic Commission's avenues) is but an example of one of the directions in which we might approach ideality. You will have gathered that time and space alone prevent my carrying this line of suggestion further; and no doubt you will have grasped the principle, which is this:—Take or make an ideal London (I do not press my own). See whether that can be made to bear any possible relation to London as it is. If it cannot, reject it; for the wholesale subversion of London would be a calamity. But if it does, then keep it, plan by you as representing the guiding model upon which to build, bit by bit, the improvements of London may be worked out. The initial process would, of course, take the form of incorporating upon a map of existing London such features of your Utopian plan as would really add to the convenience of our town without in the least case damaging any well-loved building, or even any handsome or beautiful line of street. To-night I have only stated the principle so far as to recommend some two or three new streets, to suggest that cross-river railways be abolished and to plead for some improvement in the points where great lines of traffic cross one another; but it might have gone further. I might have prayed for my girdle, for the parks lining the railways and for a new Tower Bridge.

I said, as perhaps you will remember, that our aim was to preserve what we love best need not be disturbed by the fact that London as we now have it is not the kind of city that it set out to be. The realisation that what once was a city surrounded by hamlets is now a connected metropolis is really a help and not a hindrance. London had always been of its present size, it would almost be impossible to effect improvements without incurring insufferable vandalism. There would be no trace of hallowed spots over which new streets could be laid without ploughing ruthlessly through sentiment and history. Had Londoners of past ages been in a position to appreciate what I have been dwelling on to-night—the importance of the Surrey side—we should find that, instead of mutilating Gravel Lane and New Cut to make a new approach, it might be necessary to do such things as were done at Whitehall when King Street disappeared.

Gentlemen, I have spoken too long and said too much. In all this time I have only scratched the top of my subject. You will perhaps feel also that, as an architect speaking to architects, I have said disgracefully little about the architectural side of the subject, but if you do feel that I respectfully say that you are wrong. Every consideration which affects the planning of a city is architectural. To look on cities as agglomerations of separate bits of architecture. So they are, true enough. But whenever questions of city planning arise they are of themselves architectural questions of a very specially architectural kind. It is true that architects very seldom have anything to do with any larger issues than the designing of individual buildings, and that when the larger issues do occur, which is not often in our old civilisations, those issues are left to be decided by the amateur decision of those heterogeneous persons whom we call public men. I do not know that anyone is to blame for this, but it is wrong, and it should be put right. It seldom occurs to anyone in particular, least of all to any collective public body, that the general problems of city arrangement are the kind of things about which architectural decisions should be taken, and they are consequently settled, as they are, by chance, by caprice, or by common sense, which is the very last kind of sense to apply to an acute architectural problem. For it is artistic, however practical it may be. People forget that. They forget that there is one art which deals with practical things and practical issues, an art which would lose its dignity if it ever forgets that these things are practical.

I don't overlook the welcome fact that the County Council has its own architectural adviser; but do you run a risk of seeing large London questions settled without his or any other architect's advice? Who was the architect who advised the Royal Commission on Traffic? There is not one.

It is a most unpleasant task to have to urge in favour of the employment of our own profession. Suggestions



or by an architectural society, that this, that or predicament is one in which an architect's are needed—such suggestions, I say, are very received with a wink. But do not let us be of the winks. We are quite sure we are in the whenever the proposals of the Traffic Commission, statements of London's difficulties, are taken there absolutely must be an architect or a small ee of architects appointed to assist in the working e scheme and to advise in the technical details that e in connection with the regulation of architectural t certain prominent parts of the new streets. Those the monarchs of our art cannot, for modesty, go on that some such architectural appointment should but those of us who have no immediate apprehen- being one of the selected advisers need have no real n or false shame about urging the necessity of ural advice. After all we are citizens as well as s—citizens of no mean city.

JOHN W. SIMPSON proposed a vote of thanks to the f the paper, and said he would like to call attention lightful and original idea of Mr. Waterhouse when i them to consider a London upon the old site, but w city. The idea was quite original, and the ng problem had been solved by Mr. Waterhouse. raker did not share in the surprise which was ed by the paper that the development of such a as laid down by the author should have led to a London very similar to what it was at present. reat city, town or village not forced into creation, eloped and grown in that same way. They need ack as far as the Roman encampment to find an since there were more homely examples in the t of a spring and the water well. Cottages e built round the well, afterwards the village ould be formed, then the market place and s leading to the necessary centre. Then would oads from that centre to the next village, town or d finally a street would be formed through cons ns of gradient and shelter from weather. They ind in Vitruvius the suggestion that roads should aid in such a course that they would be swept by illing winds. Another factor which would govern g-out of a street would be access to a man's piece ated ground and the happy accident which led to ice of position. It was the happy accidents which the ancient and Mediæval towns, and they must be accidents. Therefore he thought Mr. Waterhouse n very wise in suggesting modifications to a general . The rectangular parcelling out of townland was t economical arrangement, but the result was very esting. In the plan of New York there was very tistic interest, and it therefore seemed to him when h scheme was in hand, that while the engineer was ying-out his rectangular blocks, an artist should be him to occasionally jog his arm and so shift the . The artist, too, might assist when the scheme had d to building operations, so that there would be aces before the more important buildings, giving istinction. He counselled them to beware of the ical plan. It was the curse, he said, of city plan- to begin with, it could never be realised except on . If they studied the Mediæval and Renaissance ey would find that the results were not haphazard, outcome of carefully studied designs, and that the out of the streets, place, &c., was the result of a very tistic perception. Thus the place was seldom trical, it was nearly always irregular. With regard ern planning, Mr. Simpson said the English towns ly would compare very favourably with the con- ones, certainly from the points of view of hygiene onvenience of traffic, though perhaps the English the monumental character of the others.

GEORGE BARTLEY, who seconded the vote of thanks belonged to that dreadful body the Traffic Commis- hich seemed to have had all the sins put upon its cause it had not sought the advice of an architect. Commission had no buildings to design or roads to he did not see why an architect should be wanted, y were not in any way opposed to architects. When ffic Commission were suggesting two great thorough- o one imagined the routes would be made without ard to the buildings which might seem to obstruct urse.

A. BRUMWELL THOMAS and Messrs. ARTHUR KEEN, H. LEVERTON and G. M. NICHOLSON supported the

## THE LEGAL LIABILITY OF THE ARCHITECT.\*

AT the present time the architect belongs to what is called an open profession. That is to say, in order to practise as an architect, a person is not required by law to comply with the regulations of any particular body authorised to control and govern the profession, or to fulfil any statutory requirement whatsoever. Any man, at any moment, may hold himself out as an architect, ready to draft plans and supervise their execution for any member of the public.

But although the law imposes upon such a person no preliminary course of education or test of knowledge, as in the case of a solicitor or a surgeon, it does not contemplate, nor does it permit, the practice of the profession by an ignorant, unskilled person with impunity. Anyone who holds himself out as an architect, and practises as such for reward, is required by the law to possess an ordinary and reasonable amount of skill in his profession; whatever work he may undertake to do, he is expected by the law to display the requisite amount of knowledge in a reasonable degree, and to do his work with such proper care and such due diligence as would be held reasonably sufficient by the average experienced architect; and if he fail in these or in one of these, there follows on his failure a legal liability which may operate in many ways—such as rendering him unable to recover his fees, or making him liable to be sued for damages for his incompetence.† This is a liability which the law, when put in motion, does not hesitate to maintain.

Now, the functions of an architect are so complex and so manifold that while it is of great importance to him to be capable of performing them, it is of still greater advantage to his welfare that he should realise the duties and obligations which they severally impose upon him. Putting it very broadly, an architect may be employed merely as an adviser, or as a designer, or as agent for the building owner, or—which is more usual—as all three together. He may further be employed as valuer or dispute preventer between the contractor and the owner, or, lastly, as arbitrator. But it is more particularly as adviser, designer and agent of the building owner that an architect, *qua* architect, is employed, and this employment is multifarious enough to exhaust the activities of the majority of those practising the profession. For, amongst other duties, the architect has to advise his employer on the land upon which it is proposed to build, both with regard to any legal restrictions lying upon it and to its suitability for the purpose contemplated; it is his duty to examine the soil with care, both the actual building site and its environment; he must draft his plans, and draft them in accord with his employer's wishes and in regard to the actual conditions of the building site, and on receiving authority to proceed with the contemplated work must elaborate his drawings and plans in strict and full compliance with the scope of his authority; he must in similar compliance obtain all necessary tenders and prepare all building contracts required; and, when the work begins, he must supply the builder with all proper information; oversee the work and supervise the workmanship, and generally, as agent for his employer and within the limits of his appointment as such, see that the contract is being carried out in strict accordance with all its terms and conditions. Here, indeed, are formidable requisitions upon his professional skill, but even if he can answer them all with full technical capacity there is something more to be demanded of him. For there is attached to each of them the additional incubus of a legal liability. The architect, indeed, must walk warily, for every step in his progress through a contract is hedged about with duties and obligations which are legal in character and are capable of being legally enforced or of being expressed in legal damages.

In considering the various aspects of this legal liability, it will be convenient to regard the architect in all his various relationships, and consequently his liability may now be discussed, first, in his relation to his employer; second, in his relation to the contractor; third, in his relation to public authority; and fourth, in his relation to adjoining owners and others. And first,

### 1. In his Relation to the Building Owner or Employer.

This relationship is severable into three distinct kinds and capacities, the first being that of a mere adviser; the

\* A paper read before the Society of Architects by A. Montefiore Brice, of the Middle Temple and the Oxford Circuit, barrister-at-law, on December 12.

† *Columbus Co. v. Clowes* (1903), 1 K.B.D., 244.



second that of an independent contractor merely called upon to design and prepare good building plans; and the third being that of both designer and supervisor as the agent of the employer or building owner, a stage which commences as soon as he receives instructions from the building owner to prepare plans or to obtain tenders or to get the contemplated work or any portion of it carried out.

(a) *As Adviser.*—An architect may be, and frequently is, called in merely to advise a person contemplating the erection or alteration of a building. As an architect he holds himself out as possessing the necessary knowledge and practical skill, and as willing to exercise all reasonable care in giving such advice.\* He must exhibit these in all the matters on which he may be properly consulted—such, for example, as the limitations on the use of land on which it may be proposed to build, the nature of the soil, the plans and drawings, the obtaining of tenders, the preparation of contracts, the cost of the proposed work and the like. But there are limits to his liability. For example, while he will be required to show a correct knowledge of the general or local Acts and by-laws affecting the work on which he is asked to advise, he is not expected to give the advice which a lawyer would give, and should he be so misguided as to give legal advice to his client and his client be so adventurous as to follow that advice to his own detriment, the architect would not be liable for such advice. He is not a lawyer, nor does he hold himself out as one.

(b) *As Designer.*—In his character as the designer, the architect contracts to supply drawings and a specification which shall be executed with reasonable care and skill, and, further, shall be capable of being carried out. And the skill has been held to embrace and include judgment, for Bayley, J., pointed out in *Duncan v. Blundell*,† that “Where a person is employed in a work of skill, the employer buys both his labour and his judgment. He ought not to undertake the work if it cannot succeed, and he should know whether it will or not.” But this skill and this judgment need not be of the highest order, for it is sufficient in all cases where professional skill is sought and rendered for reward that the skill should be of a reasonably competent character. It is not evidence against the architect that some architects, of far greater experience or ability, might have used a greater degree of skill, or, indeed, even a greater degree of care. The true test is whether the skill was so deficient or the care was so defective that a bad result became inevitable. This test was held to be the true one by Chief Justice Erle, in *Rich v. Pierpont*.‡

It was long since held that if the architect should ignore the rules of his art it might be regarded as proof of unskillfulness,§ but this does not include any personal predilections for a peculiar or a novel treatment or any idiosyncrasy of style, provided that the work so conceived is feasible. On the other hand, his plans, in addition to complying with the requirements and instructions of the building owner or employer, must also comply with the various statutory and other regulations affecting such buildings as he may have agreed to design; must observe all legal restrictions, whether public or private, which relate to the use of the contemplated site; and must not permit a building to be defective in structural strength and construction.

Further, if an architect is requested by the building owner to furnish estimates of the probable cost of the designs and plans he has drawn, it is incumbent on him to act with honesty and skill in so estimating. Chief Justice Best held in *Money Penny v. Hartland*|| that a man should not estimate a work at a price at which he would not contract for it, for if he does he deceives his employer; and he would be further liable if by negligence he omitted details which would necessitate an additional order or a further contract. In this case he would be liable to the building owner, not for the cost of the additional work, but for damages for having negligently induced the owner to engage in a more expensive undertaking than he had intended. The case of *Money Penny v. Hartland*, cited above, is the authority for this.

It may be generally laid down that whenever an architect, by want of skill or care, advises the owner that a build-

ing will cost considerably less than it in fact does, the right to recover his fees and at the same time be liable to an action for damages by the owner. The difference between the estimated and actual cost must be considerable as to be evidence of the want of care on the part of the architect, and, of course, any estimate made at the request of the owner from mere sketches and undetailed instructions cannot be regarded as warranted to be exact. Moreover, the matter may be referable to the contract between the owner and the architect—was a condition expressed (or it be implied) that the estimate should be reasonable? For example, if the architect is requested to draw drawings and plans for a building, the cost of which is to exceed a certain sum, and he furnishes designs incapable of being executed for that sum, he cannot recover his fees. For he warrants technical skill and is bound to exercise care.\*

Even if the owner approves the drawings and specification of the architect, such approval will not of itself remove the liability of the architect for any technical error in them, for it is obvious that the owner must usually be incapable of forming a judgment upon such matters. This was decided in *Smith v. Barton*,† where the employer was held to be incompetent to judge of the accuracy and value of the drawings and specification submitted by the architect. There is always present an implied undertaking by the architect that the plans have been made with all professional care and skill.

In the absence of an express agreement to the contrary, it is the duty of the architect to deliver up his drawings and specification upon the payment of his fees. The absence of a custom to the contrary is no defence to the demand of the building owner for the plans.‡ Should there be a contract as to price and he should demand and be paid an unreasonable price, he is entitled to retain his drawings while he sues for his price, and if the price recovered be a reasonable price the architect is not liable in damages to the owner for the retention of the drawings while demanding an unreasonable price.§ The architect is bound to deliver all the drawings and the specification.

Finally, if an architect is only requested to draw drawings and the specification, and is not engaged to execute the actual work, his liability to the building owner is limited to the drawings and specification prepared. From them, he is not liable for any damage or defect which may arise in connection with the progress of a work which he has no control. But should the building owner mention to the architect while preparing the plans that a certain course is likely to be taken, and should that course be, in the circumstances, impossible or injurious or undesirable, the onus of pointing out this fact to the building owner rests with the architect, and the failure to do so may entitle him to his fees or render him liable to an action for damages, and the same would apply to the case where the owner overrules the architect's judgment, or insists on his own views being carried out in opposition to those of the architect. The latter may or may not comply with the owner's demands, but should he comply, it becomes his duty to point out to the owner the probable consequences of doing so.||

(c) *As Designer and Supervisor and Agent to the Building Owner.*—The architect incurs further and serious liability to the building owner or employer as soon as he agrees in addition to preparing drawings and specification, to intend the carrying out of these drawings and the specification by a builder. From the date of that agreement, when the work is complete, the architect becomes and remains with one or two exceptions mentioned below, the constant agent of the building owner, and expressly liable as such. The exceptions to this duration of the contract are illness and death. If an architect contracts and then becomes incapacitated him for a prolonged period, his employment is not obliged to wait until he recovers, if such waiting would prejudicially affect the employer's interests. If the architect or employer die, such death also terminates the contract, for, as regards the architect, his employment is a personal services, and arises out of his capacity and confidence that is felt in him, and, as regards the em-

\* *Lanphier and Wife v. Phipos* (1831), 8 C. & P., 475; *Jenkins v. Betham* (1854), 15 C.B., 168; *Turner v. Goulden* (1873), L.R. 9 C.P., 57; *Lelièvre v. Gould* (1893), 1 Q.B.D., 491, 496.

† (1820) 3 Stark, N.P., 6.

‡ (1862) 3 F. and F., 35.

§ *Slater v. Baker and Stapleton* (1767), 2 Wils., 359.

|| (1826) 2 C. and P., 378.

\* *Flannagan v. Mate* (1876), 2 Vict. L.R. 157, and see *Money Penny v. Hartland* (1828), 2 C. and P., 378; *Whitty v. Hartland* (1860), 2 F. and F., 67; *Nelson v. Spooner* (1861), 2 F. and F., 613.

† (1866) 15 L.T. (N.S.), 294.

‡ *Gibbon v. Pease* (1905), 1 K.B.D., 810.

§ *Hughes v. Lenny and Croft* (1839), 5 M. and W., 18.

|| *Duncan v. Blundell* (1820), 3 Starkie, N.P., 6.



itect is acting as his agent, and the death of a l puts an end to an agent's employment.\* duration of the contract between building owner itect may also be terminated by the architect com- a breach of it and his consequent dismissal by the r. He may also, of course, be wrongfully dis- it any time. If wrongfully dismissed the architect ring an action to obtain specific performance of the between him and his employer, nor can he obtain ction to restrain his employer from employing architect, for a contract of agency is always revoc- d in the case of an architect his services are . His only remedy is an action for damages.†

liability of the architect who has been engaged designer as supervisor of the execution of the plans esigned may now be considered briefly, and it will nient to take his chief duties and obligations in the g order:—

ie consideration of all possible limitations on the he proposed site and character of the projected

he examination of the site and soil.

he preparation of the plans, working drawings and ction.

he estimate of the cost of their execution.

he obtaining of tenders.

he preparation of the building contract.

he supervision of the work and the performance of es imposed by the contract.

he possible limitations on the use of the proposed generally legal limitations. Thus the erection of a g on a site may interfere with the rights of adjoining entitled to access to that site, or the character and of the building as planned by the architect may be ngement of certain Acts, whether general or local, ertain by-laws and regulations with which it is the the architect to make himself familiar. Igno- of these may lead to his client suffering —he may be fined or the building he has may be pulled down,‡ or the frontage may be set back. For such damage the building ould have redress against the architect, for if it is ously agreed, it is agreed by implication that the t will make the plans in accordance with the law. ction to this occurs when the law is so altered between ring of the plans and the completion of the building nder the building illegal. In this case the architect escape liability.

her, the architect is liable for the proper submission plans to the various public authorities, and for the giving of the necessary notices to all concerned. es the architect escape his liability by delegating this an assistant or the contractor, for (1) as a delegate he cannot, generally speaking, delegate his duties e principle of *delegatus non potest delegare*—and (2) es so delegate his duty he is still bound to see that ly performed.

too, with his duty to adjoining owners at this stage work. He is liable to the building owner for any : that person may sustain or become liable to sustain on of his architect's interference with such private y as the easements of air or light, or water or way, party walls or rights to support, or reservation of ls. In some instances he must observe special care, he case of party walls, which are not subject to any Act, but are governed by numerous local by-laws gulations, or the common law rights of the adjoining

se and similar matters impose a serious liability on itect, and he would be indeed ill-advised to place a g on a site without first assuring himself that his do so is perfect. Any carelessness in this matter, mple, might lead to his erecting his building, or a of it, upon another's freehold, and the consequences ould be (1) an action for trespass against the ct; (2) the appropriation or destruction of the build- an action for damages against the building owner by downer; and (3) an action for damages against the ct by the building owner.

liability of the architect for trespass—or a nuisance

acey v. McCabe (1893), 32 L.R., Ir., 21; Wentworth v. 839), 10 A. and E., 42.

rett v. East India and London Shipping Co., Ltd., 2 H. , 404; Chinnock v. Sainsbury, 3 L.T., 258.

opkins v. Smethwick Local Board (1890), 59 L.J., Q.B.,

—rests on the legal principle that in tort the fact of agency does not excuse. Every individual concerned in inflicting a wrong is himself answerable for the wrong.\* The build- ing owner and the architect would be equally personally liable to an action for damages, but the architect has his remedy over against his client for any damage he may suffer, if he can prove that, while he exercised all due diligence, he was himself deceived by the negligence or misrepresentation of his client.

2. The examination of the site and soil constitutes a further liability on the architect. He may delegate the work, but he cannot divest himself of his own responsibility. He must use all diligence and skill necessary to show whether the site and soil are in all particulars suitable for the building he proposes to place on them, and the subsoil as well as the surface ground must be ascertained and then considered in relation to the projected building. It was held in a famous case† that if the foundations for a build- ing prove to be bad, and the architect has failed to make a proper examination of the nature of the soil, he could not recover his fees. He would also be liable to an action for damages. The same liability would attach to him when building upon existing foundations; for it is his duty to examine them and if necessary test them to prove their suitability for the building to be placed upon them.

3. In preparing the plans, working drawings and speci- fication the architect impliedly undertakes that they shall be in accordance with the instructions received from his client, that they are in no way defective, that they comply with all statutory and other public regulations and that they do not impair any rights existing in the proposed site.

Thus, even if the employer's instructions are complied with and the plans meet with his unqualified approval, the architect is still liable for any defects of a constructional nature that may be latent in the plans, for the employer is as a not rule competent to detect these.‡

The architect is under a further liability to supply the contractor with all necessary drawings and the specification, in accordance with the specified contract time or at the proper time, as the case may be. But before he can be held liable to his client for damages in this respect, he is entitled to receive a demand for the required plans from the contractor,§ for the owner could not suffer damage by the delay in supplying the plans if the builder were not ready to work from them. In the event of the architect being in default in delivering drawings at the proper time, the architect may be sued by the employer, according to the circumstances, for damages for breach of contract or negligence, and the damages would relate to loss of profits due to delay in completion, to loss sustained by the employer through the builder either repudiating the contract or obtaining damages from the employer for his agent's delay, or to the penalties for delay which the employer has had to forego.

The architect, further, is liable for all omissions he may make in his drawings which involve additional work or new contracts, and he is also liable for all inaccuracies, omis- sions and unnecessary additions in his quantities, should he see fit to take these out. But it may be mentioned in respect of this, that it is not usual for a building owner to warrant quantities, and in such a case the architect, his agent, has no authority to do so on his behalf.

Further instances of the architect's liability with regard to drawings and plans are dealt with in section B, where the architect is considered as a designer.

4. In estimating the cost of the execution of the drawings and specification he has made, the architect contracts a further liability. He must possess the necessary pro- fessional knowledge and skill, and exercise the necessary care and diligence to render his estimate of price a reason- able one. If he fails to make such a reasonable estimate he cannot sue successfully for his fees and he may render himself liable to an action for damages. The circumstances of each case must be relied upon to provide evidence as to whether an estimate is reasonable or not. Chief Justice Best held in the leading case of *Money Penny v. Hartland*,|| that if a person by an inaccurate estimate induces another to undertake a work which, in the event of the real cost being represented to him, he would not have undertaken, the person furnishing the inaccurate estimate is not entitled to recover his fees. The architect, of course, should require

\* Mill v. Hawke (1875), L.R. 10 Ex., 92.

† Money Penny v. Hartland (1826), 2 C. and P., 378,

‡ Smith v. Barton (1866), 15 L. T. (N.S.), 294,

§ Stevens v. Taylor, 2 F. and F., 419, 421.

|| (1828) 2 C. and P., 378.



the fullest instructions and information, and, failing these, should notify his client that he can only vouch for the reasonable accuracy of his estimate in the special circumstances. Further, the situation may, and sometimes does, arise that there is neither an express nor implied contract that the estimate shall be reasonably accurate.\* It may be repeated here, too, that an architect is not entitled to recover his fees in respect of designs which could not be executed within the limit of the sum fixed for the cost of the building.†

5. In obtaining tenders for the building owner, the architect is usually bound by a time limit, and his failure to obtain such tenders within the prescribed time may involve him in a serious liability. Forfeiture of land through not building on it within a specified time, loss of the building season, loss of profits from the building are amongst the damage which may accrue to the building owner and rebound on to the architect. The information given to those who tender must be reasonably accurate, and any fraud or misrepresentation by the owner with the architect's knowledge or by the architect himself will render him liable to an action for damages. On the other hand it must be borne in mind that there is usually no warranty to the contractor that drawings are accurate or practicable, and the onus of discovering this rests on the contractor.‡

Should the architect accept tenders without the authority of his employer, the acceptance will not be valid: it is void *ab initio*. But if the employer subsequently confirms the acceptance by his agent, then that acceptance does not date from the time of confirmation by the employer, but it refers back to the time when the architect made his unauthorised acceptance.§ But the ratification by the employer is to be made within a reasonable time, and Lord Justice Fry held in *Metropolitan Asylums Board v. Kingham*,|| that such time could not extend till after the date at which the contract is to commence.

6. In preparing the building contract the architect enters upon a duty fraught with liability. It is true that he does not, *qua* architect, hold himself out to be a lawyer; but in matters which come within the scope of his employment as an architect he must be cognisant of the law, and in matters which are beyond the range of architectural knowledge and are legal in character, he must warn his client of the same and suggest or prescribe the taking of legal opinion.

But there are many things which he must know and must regard at his peril. He is obliged to know, for example, the ordinary conditions which are included in a building contract; he is obliged to see that they are there in order that his principal may be protected. But he is not obliged to warrant that the language in which they are expressed constitutes in law a binding agreement. The construction and interpretation of a contract and the determination of the precise meaning of its language are legal functions, and the architect would be exceeding his duty to warrant these, and if he did warrant them he would do so at his peril.

It is his duty, however, to be cognisant of the law. It is not his business to know the legal conditions which determine when a building contract need not be in writing, but it is his business to know that grave risks may attend a building contract which is not in writing and advise his client accordingly. He may not be required to determine when a person is an "adjoining owner" or not, but it is his business to know that a person may or may not be an "adjoining owner."

So the professional knowledge which he holds out and the care which he impliedly undertakes to use require him to observe all proper caution in considering the person or persons with whom or for whom a contract may be made. It is his duty to know that liability may or may not attach to certain contractors under given circumstances—such as in the case of Government departments, public servants, local authorities, corporations, companies, church building and club committees. In each case it is his duty to warn his client that special legal difficulties surround contracts made with such bodies, though it is not his duty to decide in any particular case what is the true legal course to pursue. His knowledge of law, in fact, must be knowledge of the point of contact between law and the practice of architecture, but it is not bound to include a knowledge of the result of that contact. Consequently, the prudent

architect will submit his contract to the test of legal before advising his client to adopt it.

7. In supervising the work and performing the imposed on him by the contract, the architect will be a special liability to his employer. It is not usual there should be a separate contract between architect and building owner, because, in the absence of such a contract there is always an implied contract that he is obliged to render skilled service in return for the agreed reward. Moreover, the contract between the building owner and the builder or contractor, which has in a very special way been brought to the notice of the architect seeing that he has drawn it up, usually sets out both the authority and obligations of the architect; and while he is not bound by an ordinary legal sense of the term a "party" to that contract it is generally the only instrument which authorises him to act as agent for the building owner, and at the same time sets out the limit of his authority and the extent of his liability in reference to the subject-matter of the contract.

Included in the proper supervision of a building is being carried out from its architect's or even the architect's plans, are the duties to inspect as often as necessary both materials employed and work done; to give necessary instructions and make all necessary corrections to provide the contractor at the proper time with requisite drawings, plans and specification; to measure the work accurately; to certify correctly for all charges, including penalties enforceable by the contract; to allow only those extras and variations which are within the term of the contract or his powers under the contract; to permit, and generally to see that the terms of the contract are fully and faithfully complied with.

In supervising the carrying-out of the contract the architect must not forget his duty to his client. He is agent or servant of that client, and it is good law that he must understand and no payment are permissible between the contractor and the architect, unless the employer is aware of it and an assenting party. Any payment which an architect may render a builder should be done on an act on behalf of his employer. He may not for payment take out quantities or supply drawings for the builder in order that the builder may do the agreed work, nor may he receive commission from the manufacturers or vendors of any materials or appliances whatsoever, provided the employer is ignorant of the arrangement. Dismissal without notice is the liability upon the architect for infringement of this rule.

Either as breaches of contract or as constituting negligence, the architect readily becomes liable for a number and variety of acts which are in the course of his duty when supervising the performance of the contract. His employer, for example, can bring an action for damages against him if he fails to inspect the work properly; if a work has been completed and does not comply with the contract, because at a certain stage of the work the architect passed as sound that which was unsound, the employer is entitled to proceed against the architect and to recover from him any additional cost which the tardy discovery of the defect might have involved.† But the employer is estopped by the act of his agent from recovering from the contractor a larger sum than it would have cost to set the defect had it been discovered by the architect with due diligence.

Other acts of negligence or breaches of contract consist of failure to measure up work or measure it properly; failure to certify properly—such as certifying for charges for his own omissions or neglect and for extras as due when not due; certifying for moneys or materials which are really forfeited under a re-entry clause; certifying for money not due and for charges which are incorrect or improper; certifying for work not complying with the terms of the contract, and the like. It should be remembered that even if extras are so necessary as to be indispensable to enable a contract to be completed, this does not justify an architect to certify for them unless he has (1) power under the contract to order such extras as he thinks fit, or (2) the authority of the building owner to allow the extras in question. Any extra or any alteration which is made by the builder without the permission of the building owner or the properly exercised authority of the architect is not recoverable by the builder or certifiable by the architect.

(To be concluded.)

\* *Nelson v. Spooner* (1861), 2 F. and F., 613.

† *Flannagan v. Mate* (1876), 2 Vict. L.R., 157.

‡ *Thorn v. Mayor of London* (1876), 1 App. Cas., 120.

§ *Bolton Partners v. Lambert* (1889), 41 Ch. D., 295, C.A.

|| (1890) 6 Times L.R., 217.

\* *Rogers v. James* (1891), 8 Times L.R., 67.

† *In re Trent and Humber Co., Ex parte Cambrian Packet Co.* (1868), L.R. 6 Eq., 396, 410.



## SOCIETY OF ANTIQUARIES OF IRELAND.

PUTATION of the housing committee of the Royal Society of Antiquaries of Ireland on the 9th inst. upon the Right Hon. the Chief Secretary for Ireland in Castle in reference to the suggested housing of the Society. The following statement was made:—

Society was originally established at Kilkenny under the patronage of the Marquis of Ormonde, and usually grown in public favour until it has become one of its kind in the United Kingdom. From the income, derived wholly from the subscriptions of members, was mainly applied in the publication of a journal which is regarded as worthy of a place beside any other, and has now reached its thirty-fifth volume. The Society has also published an important series of volumes, and several antiquarian handbooks, which are mostly out of print. These have all been provided by the voluntary services of many willing helpers, and several high authorities in the sister island; and the Society receive or seek aid from Parliament as has been enjoyed by the Royal Irish Academy as a result of the recommendation of a select committee of the House of Commons many years ago. The Society is aided, with the aid of donations, a museum, which is public property. It remains at Kilkenny; but its most important contents were made over to the Museum in Dublin.

Society advanced so in prosperity and membership, that removal to the capital was eventually decided on. It enjoyed hospitable shelter from the Academy of the Royal Dublin Society, but it soon found the want of securing a meeting hall and offices for itself and library; and it is at present housed unsatisfactorily in Stephen's Green, Dublin, where its tenure is precarious and the accommodation available for its library collection of Irish photographs is such as to preclude general use.

Society is the only one of its kind having local representatives throughout Ireland in each province and in every county. It visits the provinces in turn, and its members have done much to promote an intelligent interest in numerous and important antiquarian remains throughout Ireland, as well as to stimulate historical research on a sound basis. In no part of the Empire do such appeals more to the national sentiment. The Society is called by the Government to aid it, not only by being members of the Board of Works' Advisory Commission on National Monuments, but quite recently to report on monuments as are on lands to be sold through the Land Commission. The relations of the Society to the Royal Irish Academy have always been most friendly. Most of our Council, and all who initiated this Society, are members of the Academy. But these two occupy different spheres. The Academy corresponds in Ireland to the Royal Societies of England and Scotland. The Royal Society of Antiquaries of Ireland corresponds to the Societies of Antiquaries of London and Edinburgh, both of which Societies have long been supplied with ample, in fact stately, accommodation by the State, through the Office of Works, has also relieved them of all rates. In no respect is the work of this Irish Society less useful, and if numbers in membership be a test of public appreciation, its claims are greater than those of any other. Besides the two Societies of Antiquaries in Great Britain, the State provides in London, in Burlington House, the suitable housing of some half-dozen other Societies, free of rent and taxes—the Royal Society, the Geological Society, the Linnean Society, the Chemical Society, the Royal Astronomical Society, &c.

The Society has long enjoyed the patronage of the Royal Family. Her late Majesty Queen Victoria became Patroness of the Society, and conferred on the Society its proper name, with the title "Royal." His Royal Highness the late Prince of Wales became a member, and so continued until his death. His Majesty King Edward VII. became a patron long before his accession to the Throne, and during his recent visit to Ireland, H.R.H. the Prince of Wales became a patron. The Society employs no paid officer, but one clerk; and if the necessity of paying rent, &c., all its funds are applied to the better production of its present publications, and to issuing others of great interest, which hitherto been unable to undertake. It now asks to be placed in the same position as the kindred Societies in England and Scotland have long enjoyed. The Royal Society of Antiquaries of Ireland, though younger than the kindred

Societies of England and Scotland, now greatly exceeds them all in membership, as the following quotation from the last Presidential address shows:—"The Society of Antiquaries of Scotland at the close of 1900, after a net loss of twenty-three in the year, numbered 687. The great Society of Antiquaries of London in 1899, after a less loss, numbered 750, so that there is not such disparity as might be expected between the antiquarian zeal of North and South Britain. The Royal Irish Academy, according to numerical summary appended to its list of members in 1902, was reduced to 255 members (besides 63 honorary), and of these science would probably claim half as exclusively its own. The number on our roll as to-day reported is 1,248, so that our Society in membership nearly equals those of the English and Scottish societies combined. If the roll of the Academy be added to ours, Ireland, comparatively small and poor, shows a larger number of persons devoted to the study of antiquities than does the British Isles styled Great."

One of the new lecture-rooms in the College of Science could be used for afternoon and evening meetings of the Society. There would not be more than two afternoon meetings and six evening meetings in the year. The number attending would not exceed 150 to 200. An ante-room suitable for use as a temporary tea-room on these occasions would be required. The rooms should afford comfortable seating accommodation, and as no doubt an apartment of this kind will be required by the Department of Agriculture for evening meetings and popular lectures, its occasional use as above by the Society would not entail any inconvenience. If the occasional use of a lecture-room in the College of Science were granted, it would follow that it would be more convenient to have the use of a business room in the same building. One fair-sized room might, under the circumstances, suit for both Council meetings and office, but it would require to be reserved for the exclusive use of the Society. If the room to be given for the exclusive use of the Society were large enough—say 700 or 800 feet superficial—it would probably be found sufficient for the 3,000 volumes which form the Society's library. The room to be appropriated for use as council-room and library would require to be furnished. We would also require fuel, cleaning and attendance, and it would be more convenient if the lighting were provided from the installation for the college than by a separate arrangement.

Mr. Birrell said he was in favour of the Society being taken into the new College of Science. He consulted Mr. Russell about the matter, who told him that the space in the new College of Science was already engaged. He would strongly represent the case to the Treasury, as he was satisfied of the justice of the claim for housing in the new College of Science, or, in the alternative, a grant to provide for it.

## THE REVIVAL OF CLASSIC ARCHITECTURE.

A LECTURE was delivered under the auspices of the Architectural Section of the Royal Philosophical Society of Glasgow, by Mr. J. Baird Thomson, on "The Revival of Classic Architecture." The lecturer gave a brief history of the revival or introduction of Classic architecture into England in the reign of Queen Elizabeth, and traced its developments during the reigns of the succeeding monarchs down to the present day. The reign of Elizabeth, he said, brought peace and religious liberty, and prosperity was the result. The Reformation was now accomplished, and the old idea of superstition and gloom as embodying true religion was now happily at an end. The demand was made for dwellings of all kinds of a light and cheerful appearance, and the old defensive castle was a thing of the past. Artists travelled that they might get new ideas. Among these was Inigo Jones, who became architect to King James I. of England, and we were indebted to him for introducing the Classic style as it existed in Italy. The new style became popular at once, and was practised by a succession of architects, such as Sir Christopher Wren, who succeeded Inigo Jones as king's architect, and had the honour of designing and executing the new cathedral of St. Paul's, London, one of the finest examples of the revival in its infancy. Sir William Chambers and the brothers Adam, among others, had given fine examples of the style. The lecture was illustrated with lantern views giving examples of the more important buildings which have been erected throughout Britain in the revived Classic style, which showed the gradual develop-



ment from a somewhat fantastical mixture of Gothic and Classical features to the more severe rendering of the first half of the nineteenth century, when the Grecian style was more practised than the Italian, and concluding with the mixed style of Italian or Georgian of our own day.



#### Illuminated Advertisements.

SIR,—The enclosed letter is being sent to the following societies:—The Royal Institution of British Architects, the National Trust for Preservation of Historic Spots and Natural Beauty, the Society for Protection of Ancient Buildings, the Society of Antiquarians, the Architectural Association, the Topographical Society, the Society of Arts and the London County Council.

I hope you will be able to find space to insert it.—Yours obediently,

JOSEPH PENNELL.

14 Buckingham Street, Strand, W.C.:

December 13.

The plague of flashing electric light advertisements and sky signs in our cities at night is on the increase, and seriously threatens the beauty and impressiveness of London, destroying architectural scale and dignity, and vulgarising most of the striking and interesting spots of our Metropolis. We have recently protested in the public Press against the vandalism of a prominent firm in spoiling a splendid river view by defacing the shot tower by an illuminated advertisement.

The chief offenders in this way are a few large, well-known firms, and it becomes a question, vital not only to artists, but to every one who values the architectural beauty and artistic aspects of London how long we are going to tolerate these insults to the eye. Why should a few pushful firms be allowed to trample on public rights of vision?

There is, however, a worse danger in allowing their continuance, and this is the danger quite real, that the public, growing accustomed to such intrusions, might, from enduring, actually grow to like these dazzling deformities.

We would respectfully urge that united action should be taken on the subject, and beg to suggest that, if your powerful and influential body would co-operate with other distinguished artistic associations and the leading societies for the protection and preservation of the public rights in the beauty of historic buildings and places, this gross abuse of advertising could be restrained in the true interests, as well as the dignity, of the nation by effective legislation.

We have the honour to be, yours obediently,

Walter Crane.

George Whale.

Joseph Pennell.

A. H. Spokes, K.C.

J. Kerr Lawson.

Sidney Lee, D.C.L.

T. Fisher Unwin.

Henry B. Wheatley, F.S.A.

G. H. Radford, M.P.

Jane Cobden Unwin.

Capt. the Hon. F. Hemphill,

Oscar Browning.

Deputy-Chairman L.C.C.

Thomas Seccombe.

Sir Robert H. Hudson.

J. F. Green.

#### GENERAL.

The German Emperor was so pleased with the manner in which Mr. Guy Laking has arranged the armour in Windsor Castle, as well as in the Wallace Collection, that he has conferred upon him the Royal Order of the Crown of the Third Class.

M. Francois Flameng has nearly completed the portrait of Her Majesty, which will be exhibited in the next Salon exhibition.

The Competition for the decoration of the Mairie des Lilas, Paris, has passed through the first stage. MM. Gorgnet and Leroux, with M. Tardieu and M. Maret have been selected for the second competition. Medals have been awarded to MM. Abel Truchet, Casimacker, Cazes, Crébassa, Vielhorski.

Mrs. Fanny Peach, who died on November 27, daughter of the late Lieutenant W. Clarke, R.M., of Epperstone, Notts, bequeathed to the city of Nottingham a considerable number of paintings, engravings, curios and works of art, to be placed in the Museum at Nottingham Castle, and known as the "Clarke Collection."

Subject to the Approval of the City Council, the chester war memorial, the work of Mr. Hamo Thornycroft will be erected in St. Ann's Square, and will face Market Street. The base as proposed has been diminished in size to allow of the free passage of traffic.

Mr. Banister Fletcher is a candidate for the common councilman for the Ward of Farringdon Within.

A Society has been formed under the title of the "Architectural and Topographical Society," with a view to a complete architectural survey of Great Britain and Ireland. It is proposed to publish the information contained in quarterly parts and in some form convenient for reference. Further particulars as to subscribers and terms of reference will shortly be published.

Five Paintings have been stolen from the Musée d'Amiens. Two are by Fragonard, two by Vanloo and one by Boucher. The value of them is estimated at 10,000 francs.

A Subway is proposed to be constructed under the Champs-Élysées, Paris, at the Rue Marboeuf, at a cost of 67,000 francs. If successful others will afterwards be opened.

At a Meeting of the executive committee of the Abbey restoration fund at Selby on Tuesday, the proposal for the elevation of the abbey tower to its original height, in accordance with designs prepared by Mr. J. Oldrid Scott, London, was gone into and the tender of Mr. Thomas Ullathorne, of Selby, to carry out the work at a cost of 5,416*l.* was accepted. The work will be proceeded with immediately. The main oak choir screen is to cost 600*l.*; 10,000*l.* is still required to complete the restoration.

At a Meeting of the Lichfield City Council last week a letter was received from Mr. J. Frederick Green, secretary of the Johnson Club, London, stating that it had been resolved to support the appeal made by the Mayor and the Joint House Committee of Lichfield for the reparation and restoration of Dr. Samuel Johnson's birthplace at Lichfield and to co-operate with them in the bicentenary celebration of his birth. A letter was also read from Mr. W. B. Fitzgerald, stating that good progress was being made in the restoration of the statue of Boswell, which he intends to present to the city. The statue is to be placed beside that of Johnson in the Market Square. Mr. Fitzgerald had done all the designs on a small scale, and he thought it would be a very handsome addition to the city. It is expected to be finished within six months.

The Next Ordinary General Meeting of the Surveyors' Institution will be held on Monday, January 13, next. The paper will be read by Professor Henry Robinson (F.R.S.) entitled "Foreshore Erosion and Reclamation."

Mr. John C. L. Sparkes, who has been known for many years as a successful art master, died in his seventy-ninth year at his residence Newhurst, Surrey. His school at Lambeth was a nursery for Academicians and Associates of the Royal Academy. He was also for a time headmaster of the South Kensington School. He rendered services to Messrs. Doult & Co. in connection with the art department of their potteries.

The London County Council on Tuesday agreed to erect a statue of the late Sir Wilfrid Lawson to be given by the Victoria Embankment Gardens. The statue will be placed opposite Cleopatra's Needle.

Tenders have been Accepted for the erection of the new building for the fine art section of the Scottish National Exhibition, which is to be held next year in Edinburgh. It will be a collection of works by Scottish painters from the time of Jameson.

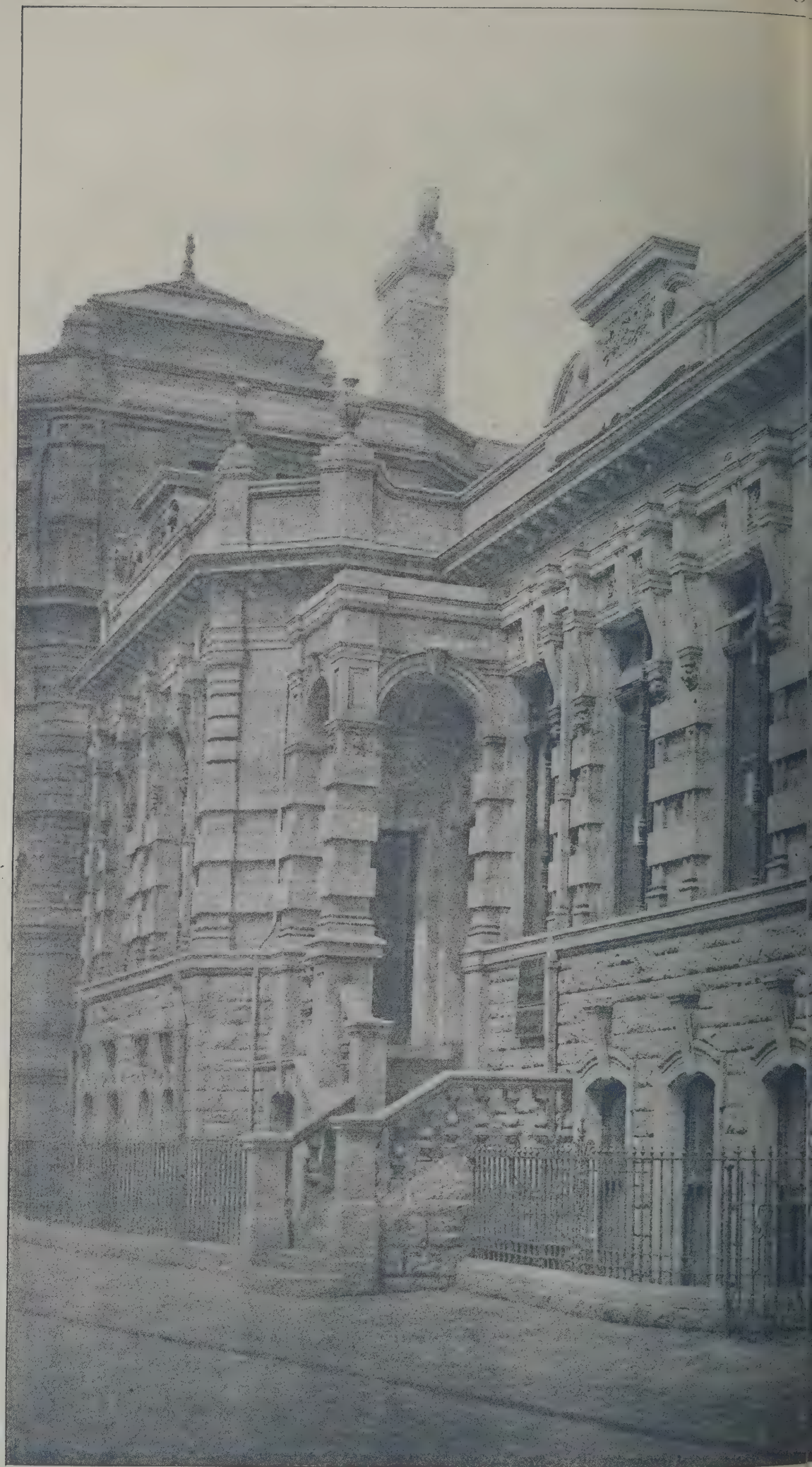
The Holborn Borough Council last week adopted a recommendation from the works and general purposes committee to make a new thoroughfare to run from Torrington Square to Montague Place, and to terminate at the new north front of the British Museum building. It has been decided to erect. The cost of the scheme is estimated at 6,460*l.*, and the Council's share of the expenditure during the first year would be 1,300*l.* The Council proposed to give towards the cost of making the new street three-fifths of the amount.

The Paddington Borough Council have agreed to contribute 2,112*l.*, or one-ninth of the estimated cost (19,000*l.*) of forming a crescent carriageway, 85 feet wide, terminating at the rear of the Marble Arch, and thus isolating the arch. The Westminster City Council have agreed to contribute a similar sum.













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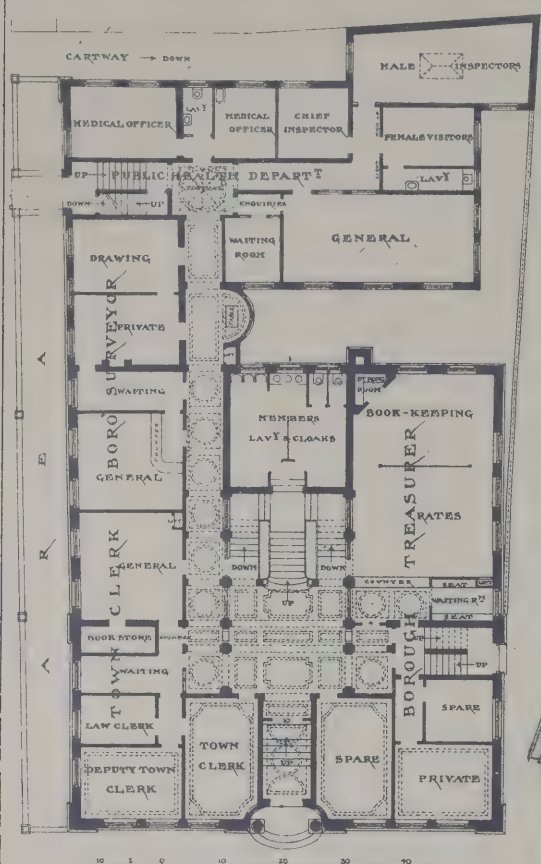












SCALE OF 10 20 30 FEET

GROUND FLOOR.







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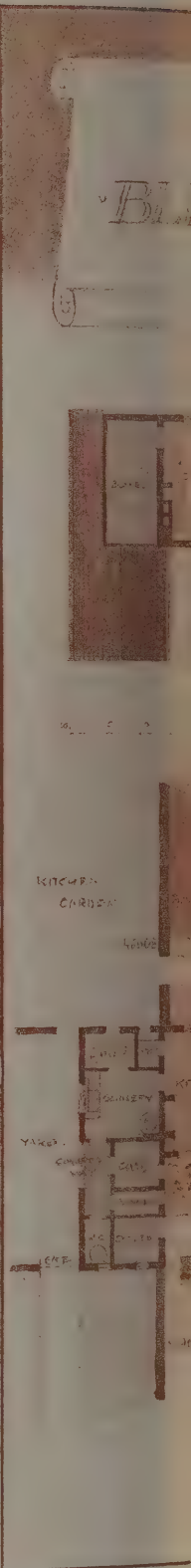






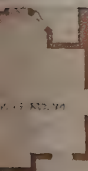
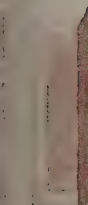








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Architect -  
LONDON

CRASS



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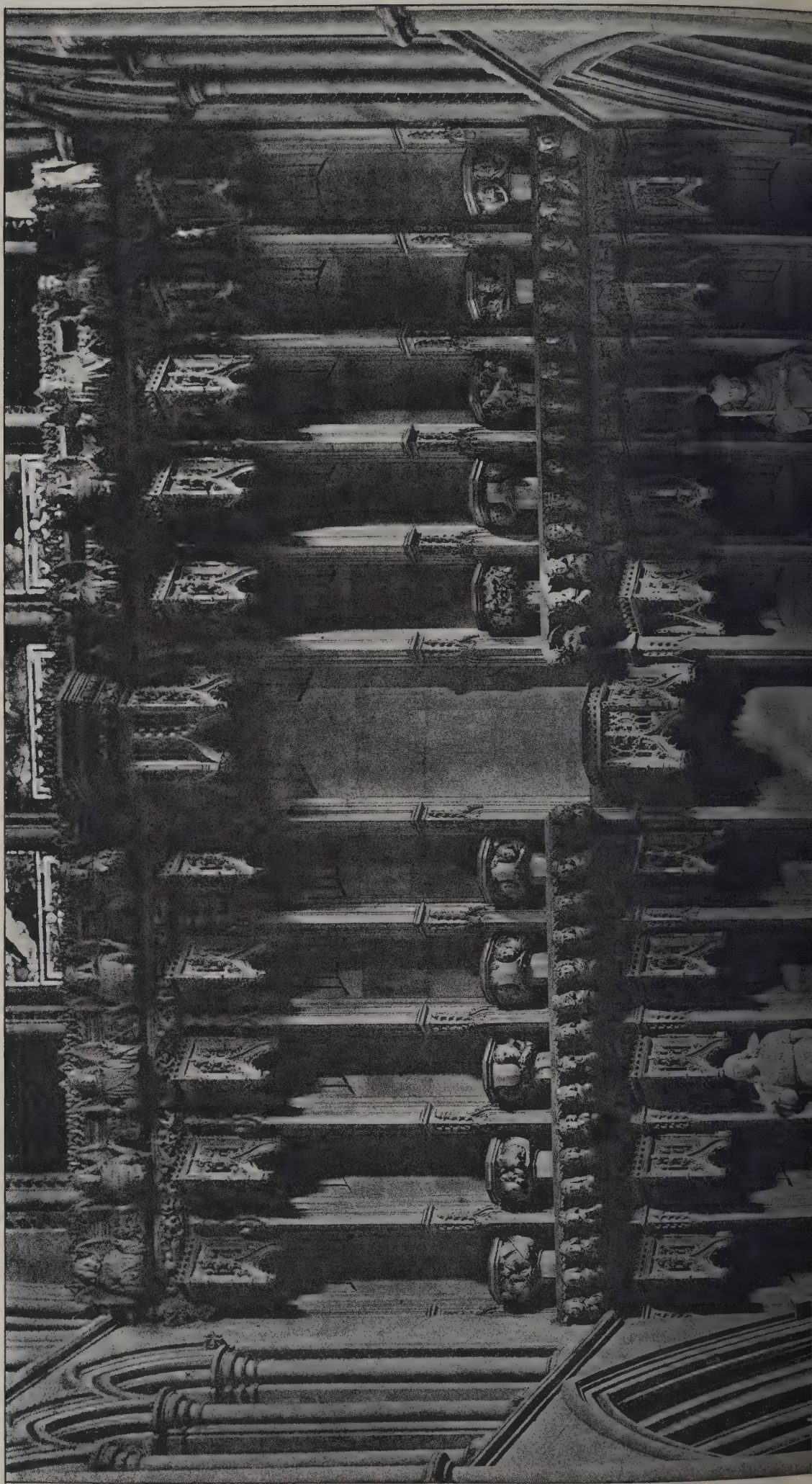








The Architect, Dec. 20<sup>th</sup> 1907.













# The Architect.

## THE WEEK.

te FREDERICK STACPOOLE, who died on the st. in his ninety-fourth year, was nearly the last English engravers. Between 1858 and 1893 he ited several plates to the Academy exhibition. o 1858 he was represented by paintings, and rom 1894 to 1899. He won medals in the y schools in 1839 and 1841. He will be remem- y his engravings. He began with "The Straw- irl," after REYNOLDS, and then produced plates rraits by GRANT and GORDON. His first large is a "Drawing-room at St. James's Palace," which ibited in 1869 and became popular. Among ates of his which are to be seen on the walls of ouses are "The Palm Offering" (F. GOODALL), "Out" (T. FAED), "School Revisited" (G. D. "Quatre-Bras, 1815" (E. THOMPSON), "Forget- s" (J. SANT), "The Shadow of the Cross" (N HUNT). Mr. STACPOOLE engraved no less than plates after Mr. BRITON RIVIERE's paintings of Mr. BURTON BARBER'S. His style was mixed well suited for reproduction of modern paint- fr. STACPOOLE was elected an associate engraver Judging from the present practice, it is not that he will be the last representative of the r's art to be admitted among the members of yal Academy. Originally engravers were ex- although they were admitted in all the Academies Continent. The rule was made through dislike RT STRANGE. Afterwards BARTOLOZZI was Subsequently it was agreed that engravers come associates, and the first representative seal engraver to the KING. Later it was re- to have six engravers, but they were to be s of a special class who were not to have the voting on any occasion. The alleged reason opposition to engravers was that engraving was for art not fitted to rank with painting, sculpture hitecture.

Corporation of Glasgow, undaunted by the of the former attempt to obtain possession of s without paying for them or paying an inade- ice, have resolved to make another experiment. as been prepared by which a register is to be p in which will be entered the width of each he distance between the centre of road and line, the character of the street and other ars. Copies of the entries are to be sent to the of property in order that they may appeal if y. All the appeals are to be heard by the who has the power to alter the register. At first e Bill, which seeks authority for the preparation mended register, appears to be innocent. But e revolutionary measure which contemplated tion in connection with a similar register, it is to suppose that the Corporation have no other a-view than the compilation of a more satis- record of property in the streets of Glasgow e which has served for over forty years.

to be hoped there will be no further impedi- o the proposal for utilising the site of the Royal y at Manchester for a public library and art After the careful report of Mr. T. E. COLLICUTT, it vitable that such a project would be adopted by a of the City Council. The site could, no doubt, ted for various purposes, or it might be wholly ally left as an open space, which would add to thinness as well as the amenity of the city. But : worthy public library and art gallery is l than at present exists, and if the Infirmary site t utilised for the purpose it is doubtful when equally eligible would be obtained. By a large t it has been decided that the special committee-

be instructed to prepare for submission to the Council a scheme embodying instructions to architects for com- petitive designs for a new building to be erected on the Infirmary site, for the purpose of meeting the require- ments of the libraries committee and the art gallery committee, and any other committee or committees as shall hereafter be determined by the Council on the recommendation of the special committee.

THE ancient cathedral town of St. Pol de Leon, with its great spire, which is nearly 400 feet high, is known to students and tourists in Brittany. Near it is the small town of Roscoff, and opposite the latter is the Ile-Bas. All these places are associated with the life of MARY Queen of Scots. At a recent meeting of the Antiquarian Society of Edinburgh, Lord GUTHRIE discussed the questions, "Did MARY STUART land at Roscoff in 1548; and did she erect there the still exist- ing but ruinous chapel called locally sometimes La Chapelle de Marie Stuart, and sometimes La Chapelle de St. Ninian?" A letter is still extant in which the courtier who accompanied MARY from Scotland wrote, "Nous fimes notre descente en ce lieu de St Pol de Léon," and there were doubts whether the words should be translated, "We landed here at St. Pol de Leon," or "We arrived in this place of St. Pol de Leon." It is possible that MARY landed at Roscoff, or rather Ile-Bas, and would have erected a church in thanksgiving for her safe voyage. Lord GUTHRIE said there is a chapel which locally goes by the name of the chapel of MARY STUART; an adjoining ancient house, with a quaint garden, is said to be the house and garden of MARY STUART, and in the big church at Roscoff they cherished among their chief treasures a silver statue of the Blessed Virgin and an amber rosary of rare and beautiful workmanship as gifts of the Queen of Scots to the chapel before it was wrecked at the Revolution, and removed at that time to the parish church. Most important of all, the chapel was known locally not only as La Chapelle de Marie Stuart, but also as La Chapelle de St. Ninian. If the Roscoff people are asked who St. NINIAN was, they will answer that the name had often puzzled them. He had had letters from French antiquaries in other parts of Brittany asking where the saint hailed from, for they could not find his name in any list of French saints. In Scotland they knew St. NINIAN or St. RINGAN as the founder of Whithorn, in Galloway, a favourite pilgrimage church of the Royal STUARTS, MARY'S ancestors. Lord GUTHRIE showed a number of lantern slides from photo- graphs taken by his daughter, exhibiting the present deplorable state of the roofless building.

STANDARDISING has been found advantageous in engineering, but it is difficult to employ it in the fine arts. All agree, for instance, that their aim is the pro- duction of beauty. But who can determine a standard which will be not only generally applicable, but will be accepted by artists and theorists? The problem of proportion may be said to resolve itself into one of measurement, or, in other words, nearly approaches science. But there never was a painter or sculptor of any note who did not believe that he followed a standard of his own, and could afford to be dubious about those deduced by anatomists. As for colour there is still more uncertainty, and able painters sometimes fail in demonstrating that they are equal to semi-barbarian craftsmen. It is possible, however, to devise a standard which can be useful in many of the industrial arts. An attempt of the kind is seen in a volume published by MESSRS. SCOTT, GREENWOOD & SON, "Three Hundred Shades and How to Mix Them," of which the author is a French decorator, M. DESAINT. Each colour is represented by an example which is large enough for use, and they are protected by tissue paper, which will serve to make them enduring. At the end is a classified list, easily understood, which will enable painters to arrive at the tint desired.



## THE INELASTIC LAW COURTS.

THE famous old court of Lincoln's Inn, of which the occupation was gone since the Law Courts in the Strand were erected, was recently utilised and the latest appointed judge, Mr. Justice EVE, presided in it. Like other proceedings connected with the Chancery Division, that event was taken as inevitable, and no complaints were raised by judges, counsel, solicitors or clients. But when last week a temporary court was fitted up in the Grand Hall of the Strand building and Mr. Justice DARLING took possession of it for a day, the event was treated by his Lordship partly seriously and partly humorously. He said:—"The number of judges has been increased, but naturally enough the number of courts has not. If we all have to sit somewhere, it is obvious that I could sit nowhere but in this particular place, and it was pointed out that this hall has served in the past no purpose whatever. This is a Gothic building, with, to my mind, a most ornamental façade and full of windows that exclude light and passages that lead to nothing, but ill-designed for the administration of justice. I hope that no one will think that in sitting here I have been guilty of any radical departure from old rule, because this is really a return to the time when the King's Bench sat, as it was called by BRETT, *in aula Regis*—in the hall of the king—and we are simply returning to the practice of Norman times. I mention this because I myself should regret to be guilty of any modern innovation. This Court sits precisely as it did in feudal days, and will attempt to administer justice in the old way."

His Lordship is courageous, and he might therefore have pointed the moral of the improvised court by stating the historical fact that the Law Courts were devised by a body of able lawyers, and that most of the defects, if not all, are owing to that circumstance. The majority of people who read his Lordship's remarks no doubt thought that the new enclosure was the result of an architect's blundering, like the windows which exclude the light. As to the passages which lead to nothing, they were necessary for the completion of the quotation. But the words were hardly applicable to the Strand building, or, indeed, to any other. One of the aims of the legal committee was to have not only the various courts combined as it were under one roof, but to bring near them the numerous officials more or less connected with the administration of the law. In consequence there are several corridors for the purposes of communication. It may often seem unnecessary to have a long approach in order to reach an official who may be considered unimportant by the judges. But all those officers were contemplated as indispensable by the committee of lawyers.

It is worth remembering that the Courts of Justice Commission began its work in 1865. After forty-two years the history of the body is likely to be forgotten. It may therefore be stated that what was known as the Carey Street site was fixed on before the Commission was appointed. What the Commission had to do was to report to the Government about the best way of erecting the courts of law. The members did not regard the site as too small. It was to cost 750,000*l.*, and a similar amount was to be expended on buildings. A preliminary plan was prepared by Mr. ABRAHAM, an architect; and a committee, of which Lord CRANWORTH, who held the office of Lord Chancellor, was chairman, considered the plan was adequate for the requirements of the courts. Afterwards it was decided that the Wills and Bankruptcy Courts should be struck out, and that Doctors' Commons should remain where it was. The committee were not depending altogether on their own experience. From the Foreign Office information was obtained respecting the accommodation of law courts throughout Europe. The judges when they went to the assizes made inquiries concerning the courts. It is curious, but one of the advantages of the

Strand site was stated to be that the public was prevented as much as possible from attending the courts. Compared with the old courts at Westminister and at Lincoln's Inn, which were open to all, the Strand buildings are most inaccessible, considering the manner in which the public could get to the courts, that is not altogether a disadvantage.

Before a final decision was arrived at a different site was suggested. It was proposed to erect buildings on the south side of Howard Street, the principal frontage to the Thames Embankment, Clare Market and its purlieu was supposed to be unworthy of such a building, and the land which had been purchased in the neighbourhood of Carey Street it was believed could be utilised for buildings of a different class. Mr. STREET made fresh designs for a new site, which he considered was far better adapted for architectural display. In the Strand the Law Courts could not be seen from the Houses of Parliament, but, according to him, there would be a commanding view of them if they were erected at the Howard Street site. Mr. ROBERT LOWE was then Chancellor of the Exchequer, and one of his ideas was to have the new buildings erected according to the plan which INIGO JONES prepared for the Palace of Westminster, and of which only the banqueting-hall was carried out. That fact was by itself almost enough to revive the uncertainty prevailing after four years' deliberation over a great many projects. Another proposition was that the style of Somerset House should be employed. Subsequently the Government returned to the plan originally proposed. With superiors like Lord ALBERT Ayrton it was difficult for the architect to say anything about what he was to perform, for with the notion of being economical and saving the Treasury, suggestions of change were continually arising.

Take one instance which is closely related to the improvised court. Westminster Hall was indispensable when the courts were held alongside of it. So the Continental law courts possessed similar places for meetings and consultations. A great hall was therefore considered to be necessary in the new courts in the Strand. But JAMES FERGUSON, who had been Director of Works during the commissionership of AUGUSTUS P. LAYARD, considered the hall the most objectionable feature in all the objectionable features in the design. He described it as an imperforate, gloomy and solid mass, and prophesied that sooner or later the superior authorities would order its demolition. Most of the visitors represented an expenditure of 100,000*l.* A majority of visitors in our time would be inclined to say that the hall was the only place where a visitor could breathe in the building. But Mr. JUSTICE DARLING, who we suppose, like the majority of the judges, enters the building by the northern entrance, does not regard the hall to have no purpose whatever, and we suppose he regards it as so much wasted area. Yet the hall might be turned to account for temporary courts and, as his Lordship pointed out, with precedents for their existence.

Even if it should be allowed that the weakness of the building is found in the planning, it can be said that contemporary architects generally agreed that Mr. STREET's plan was not entitled to take the first prize. That of EDWARD M. BARRY was awarded the first prize in the competition, while Mr. STREET's attracted little or no attention. Any defect which arises should, therefore, be attached to the Government of the time, and not to the architect. Gothic was then in fashion and a great many influential people, and it is not to be wondered at if a stalwart representative of the style was able to triumph over the general convenience. Subsequently Mr. STREET's design was altered, but with the sacrifice of the principal façade it was impossible to secure perfection of planning.

When the project for the erection of the law courts was determined, it was believed that the provisions were ample for the administration of justice on a



Some of the higher English officials believe in ration, and the Law Courts exemplify the. Whether the advantages are more than al is a question which should be made the of a royal commission. A large amount of legal gone through without any appearance in one of ts. It was Mr. STREET's aim to suggest that edure which is followed is not uniform, and in ence the eastern façade, near which the offices id, differs in treatment from the western part. t was proposed to sacrifice the Carey Street the sake of the Howard Street site, there ome experts who suggested that great compromise, for they said that instead of ale withdrawal of courts and offices, only them should be transferred southwards. An n of the existing courts would be difficult, for roperty in the neighbourhood has increased in ad some public buildings have been erected would be unwise to supersede. If temporary o not satisfy the judges—and it must be owned nent structure is more in keeping with ideas of ustice—the only way out of the difficulty will be re some of the offices or "nothings" to which ages lead and to convert them into courts. It o doubt be more or less unsatisfactory in an ural sense, for the new courts might not be ve, but it would at least satisfy the advocates on," for they could pass from one court of o another without leaving the building.

#### WITHIN THE GREEK TEMPLE.

EW years before the Germans began their xploration of Olympia not one house marked of what many scholars considered to be the cred area in all Greece. Tradition alone was pended on when it was decided to remove the ted earth—in parts 20 feet in depth—from ous enclosure. The results of several years' now known throughout the world. ntion was of course mainly bestowed on the g of the Temple of Zeus, of which LIBON was nitect. What remains has increased our know- the arrangement of a great temple. PAUSANIAS d it was not covered with ordinary tiles, but bs of Pentelic marble cut in the form of tiles, e believed were the invention of BYSES, a . Apparently they allowed a soft light for the tion of the interior. There was a gallery, and se a staircase, from which could be seen the the great statue of the god, which was modelled OMER's description by PHIDIAS, the son of DES, an Athenian. This masterpiece of ivory l stood in the western division of the temple. as a middle division which the winners of the games had the privilege of entering, and the division was more or less public, for every day ple of Olympia offered sacrifices to ZEUS. IAS was unable to approach sufficiently close to ue to give a description of the details or to e the height and breadth. great temple was the most important of those nopia. PAUSANIAS, like most visitors, was pro- verwhelmed with the majesty of the statue and ocations of the building. He seems to be more ase when describing the Heraion, or Temple of hich was found close to the northern boundary aced enclosure near the treasuries. The traveller Romanised Greek, and he knew the respect in ERA or JUNO was held in the capital. Accord- e enters into unusual detail when describing the of the goddess. tells us it was a Doric temple surrounded by s, but the name of the architect was unknown. IAS observed that one among the columns was hich we suppose was a survival of a more

ancient building. The preparation of a pepum or veil for ATHENE was an event for Athenian maidens, and in Olympia sixteen matrons every five years embroidered one for JUNO, and they also had prominent parts in the festivals of the goddess. Their daughters also competed in special races over a shortened course, and the victors were crowned with wild olive. They were permitted to eat of the meat offered in sacrifice, and might even have their portraits taken as memorials. The origin of such a peculiar celebration was attributed to HIPPODAMIA, the bride of PELOPS. According to another account, in one of the quarrels between the people of Elis and Pisa sixteen matrons conducted the negotiations for peace, and the event was kept in remembrance by the ceremonies described above. PAUSANIAS says that in his time there were eight tribes, and each selected two matrons for representatives.

Within the temple was a figure of HERA seated on a throne. ZEUS was near, and appeared with a helmet on his head, which was unusual. Apparently the figures were ancient and rude. There were also figures of the Hours, of THEMIS, the Hesperides, ATHENE, CERES and PROSERPINE, APOLLO and DIANA, LATONA, Fortune, BACCHUS and a Winged Victory. PAUSANIAS says they were all ancient and formed of gold and ivory. He mentions others which were more modern in style, such as a *Mercury Carrying the Baby Bacchus* on his arm by PRAXITELES. There is no doubt that he was referring to the noble work found at the Heraion, and which, although incomplete, is almost a sufficient reward for the labours of the Germans. There were also seen by PAUSANIAS a *Fortune* by the same master, a *Venus* in bronze, &c.

Probably none of the statues received so much attention from visitors as a coffer of cedar of which the upper part was adorned with figures of animals, some in gold, some in ivory, while others were carved on the cedar. We may suppose that chryselephantine work was familiar in Olympia, and therefore PERICLES ordered the figure of ZEUS, which was to be an offering, to be executed in a similar manner. According to tradition, CYPSELUS of Corinth was concealed when a baby in the coffer, and it was afterwards offered in thanksgiving to the temple. Strange inscriptions were seen on it which PAUSANIAS was unable to interpret. Some legends were illustrated by paintings or carvings. One was the chariot-racing of PELOPS, in which many figures were introduced. Apparently that race suggested others to the artist, which were more ancient, until at last HERCULES himself appeared drawn by four horses. On the left side of the coffer a woman was seen holding two infants—one black, the other white; they symbolised Death and Sleep, and the woman was Night. Another woman was seen beating a second, and suggested Justice punishing Injustice. Two women were represented pounding something in mortars, which, we suppose, was also allegorical. MENELAUS was seen with a sword pursuing HELEN, MEDEA appeared on a throne with JASON and VENUS at the sides, APOLLO was conducting a concert of the Muses, ATLAS was holding the golden fruit; MARS and VENUS, THEBES and PELEUS came next, and finally the two winged sisters of MEDUSA were shown in pursuit of THESEUS. Other myths served as subjects for the opposite side. BOREAS was shown carrying off OREITHYIA, the beautiful daughter of the King of ATTICA; HERCULES fought with the triple-bodied GERYON; THESEUS was playing the lyre for the delight of ARIADNE; ACHILLES fought with the young MEMNON; MELANION stood beside ATALANTA; HECTOR and AJAX were incited to fight by DISCORD (and, as PAUSANIAS observed, the figure of the goddess was repeated by CALYPHON of Samos in the Temple of Diana at Ephesus), and HELEN of Troy with the DIOSCURI. On the back of the coffer warriors were represented, but there was a difference of opinion concerning the interpretation, for, in spite of their familiarity with the legends of their country and the skill of the artists, doubts often arose about the meaning of subjects.



PAUSANIAS believed that what the artist had in view was an incident in the history of CYPSELUS. The subjects on the upper part were also obscure. They were taken to mean ULYSSES and CIRCE, the death of PATROCLUS, and VULCAN giving armour to THETIS. A centaur was seen with forefeet like a man's. There were also winged horses; and HERCULES, as well as NAUSICAA, were connected with the scene.

PAUSANIAS found objects in the temple which were deserving of notice. There was a small bedstead inlaid with ivory which was said to be a gift from HIPPODAMIA, the queen of Elis. A table of gold and ivory was used to support the crowns of victors. On a quoit which belonged to IPHITUS, a king of Elis, were inscribed the rules of the Olympian contests. Another series of rules was to be found in a secluded part of the temple. Statues of ZEUS, HERA, APOLLO, DIANA and the Mother of the Gods and other divinities were among the ornaments of the interior. PAUSANIAS was informed that on one occasion, when repairs of the Temple of Hera were necessary, the dead body of an armed soldier was found under the tiles of the roof. He was placed there as a vantage point when the Spartans had fought their way within the enclosure of the temples. Their arrows were well directed, for he died of his wounds and was forgotten. PAUSANIAS believed the body was preserved because in such a place the air remained unchanged.

The Temple of the Mother of the Gods was near to the Heraion. It was smaller in size but was also Doric in style. PAUSANIAS was doubtful about the dedication, for he found the temple was without a statue of the mysterious deity. The only figures it contained were those of Roman emperors, a circumstance which indicates the change which time and war had brought about. There were no other temples within the Altis enclosure. The statues were, however, numerous. Gods, emperors, athletes appeared to be so much alike, PAUSANIAS found it necessary to be careful in describing them. ZEUS appears to have been the favourite of all parts of Greece. In one part six were found which were made of bronze, and the traveller was informed they were all made of the coins which were paid as fines by athletes who tried to cheat by evading the conditions. Receivers as well as donors of bribes were mulcted. Roguery must have been often practised, for several series of statues owed their origin to it.

If we relied on the description of PAUSANIAS it would not appear that HERA or JUNO received much worship from the Greeks. They believed that she fought for them at Troy, but it was mainly through offended vanity. Besides Olympia, the only temple of the goddess which PAUSANIAS visited was that of Argos. According to him the columns were sculptured with such scenes as the Birth of ZEUS, the Combat of Gods and Giants, the Fall of ILION. In front of the temple were statues of priestesses. Within the temple was a bed used by the goddess, and what was of far more importance an enthroned figure of HERA by POLYCLETES. On her coronet the hours and graces were represented; in one hand was a sceptre, and in the other a pomegranate. Next it was a column supporting a more ancient statue of the goddess. There was a third statue of a more primitive kind. Among other objects were an altar of silver on which the Marriage of HERCULES and HEBE appeared in bas-relief, and a peacock of gold enriched with precious stones—a gift from the Emperor HADRIAN—besides a golden crown and purple veil which were presented by the Emperor NERO.

The inventory which PAUSANIAS furnishes of the Olympian temple and that of Argos can be considered as typical of the contents of many other interiors. They were museums and art galleries. Objects which had legends connected with deities were honoured, although the evidence concerning them was baseless. Statues in course of time rivalled in interest the more ancient and rude attempts at carving. All, however, formed part of a system which those who admire paganism in the abstract cannot have considered.

## THE LEGAL LIABILITY OF THE ARCHITECT

(Concluded from last week.)

### 2. In his Relation to the Contractor.

THE relations of the architect to the contractor are such that those he may maintain in his capacity as agent to the building owner, and as long as he acts within the limits of his authority he cannot incur any personal liability to the contractor. Even if he acts improperly or negligently in exercising his rightful authority, he is not liable to the contractor for any loss which may follow from his act. Where an architect was sued by a builder for negligently certifying for a much less sum than was properly payable to the builder, it was held that no action lay.\*

But directly an architect exceeds the authority conferred on him by the building owner and inflicts damage on the contractor, then the contractor can successfully maintain an action for damages against the architect. On the other hand, the contractor is a party to the building contract which defines the scope and limits of the authority conferred on the architect, and in order to succeed the contractor must be required to prove that he had been deceived as to the extension or alteration of the architect's authority, or the temporary or total removal of the limiting clauses of which he had such undoubted notice.

The architect, in such a case, is liable to be sued of course, for breach of contract, but for damages for breach of warranty of authority,† and, if so, it does not matter whether he did so exceed his authority innocently or with knowledge.

The architect is not liable to the contractor for a defect in his drawings and specification which may render them unpracticable, for he does not impliedly warrant practicability.‡ If he chooses to warrant them expressly in one capacity or another, then he would become liable should they fail in any capacity for which they have been warranted. Nor does he impliedly warrant any calculations or any estimates which he may compute when acting within the scope of his employment; but if the contractor based on these inaccurate calculations it is open to the contractor, if he exercise due diligence, to bring an action for the rescission of his contract, and in that case the architect incurs a liability to his client for any damages that thereupon accrue.

It must be remembered that there is no privity of contract between architect and builder; the architect is at all times a party to the building contract; and nothing short of an express undertaking by the architect can render him liable when acting within his authority, liable to the builder.

But if the architect commit a tort—that is to say, be guilty of a wrong to others—he may readily become liable to the contractor. If while a building is being erected injury occurs to the public, the contractor is suable and generally sued; but if the injury resulted from an act ordered by the architect, he in his turn becomes liable to the contractor, and if the architect had not exceeded his authority in ordering the act, the building owner would also be liable.§ Thus if a building in the course of construction, through defective planning, fell down upon a person and injured him, then an action would lie against the contractor by the person aggrieved, and against the architect by the contractor. If the employer, with notice, had authorised the defective planning, an action would lie against him. But the architect has no action against his principal; there is, indeed, no question of agency in tort: all persons who take part in the doing of a wrong are personally liable for the consequences of that wrong-doing. And in the event of an architect acting fraudulently towards the contractor he would be liable to an action of deceit, whether his employer had been a party to the act or not.

### 3. In his Relation to Public Authorities.

The obligation on the architect to know where he comes into contact with the practice of his profession exposes him to a liability to public authorities as well as to his client. With certain exceptions, his relationship to public authorities is not different from his relationship to private individuals, and it will be shown later that in these he may readily contract serious liability.

There is, however, a special liability to public authorities; but it is not of a general or onerous nature, because the various Building Acts do not impose their penal clauses

\* Stevenson v. Watson (1879), 4 C.P.D., 148.

† Richardson v. Williamson and Lawson (1870), L.R. 6 Q.B. 276.

‡ Thorn v. Mayor of London (1874), L.R. 9 Ex., 163.

§ Jolliffe v. Woodhouse (1894), 10 T.L.R., 553.



on the architect, but upon the builder or the occupier or owner. Still, the architect remains liable to public authorities and bodies for any fraud or trespass or negligence which he may commit to their detriment, and under & 53 Vict. c. 69 (Public Bodies Corrupt Practices Act, 1899), he is specially liable for any corruption when holding office under a public body. Again, & 38 & 39 Vict. c. 55 (Public Health Act, 1875) and its amending Acts; & 57 Vict. c. 73 (Local Government Act, 1894) and many other Acts impose on architects liability to penal actions for corrupt practices.

On the other hand, when employed by a public body, he may escape a liability which would remain upon him if employed by a private individual. Thus, it is a good defence for an architect when so employed to set up that he has acted in accordance with the statute under which the public body was at the time acting, and done or made bona-fide, or may have a simpler defence in the fact that the statute under which the public body was acting includes a clause rendering these acts legal.\* The latter defence is also open to the architect when acting for a private employer.†

#### 4. In his Relation to Adjoining Owners and others.

The architect will be liable in damages to adjoining owners and others whenever they suffer injury or damage from his acts or from acts authorised by him or from acts which are done in an improper manner authorised by him. These acts are generally connected with trespass—such as the building upon a stranger's land, and damage to redempible minerals; or they arise out of the perpetration of a nuisance—such as interference with a right-of-way or a right to water, air, light, or support; or they are due to negligence on the part of the architect or on the part of those authorised by him to do or leave undone certain acts.

If an architect through failure to make proper inquiries, or failure to put the building owner himself upon inquiry, should inadvertently place his building or a portion of it on an adjoining owner's land, he at once becomes liable to that adjoining owner in an action for damages on account of trespass, and, as stated above,‡ he renders his employer liable to have the building appropriated or destroyed by the adjoining owner or to an action for damages by him; and the architect further becomes liable to an action by his client. Trespass may be of the slightest character to become actionable: the driving of a nail, for example, into another person's wall.§ And consequently it is of importance that the architect should act warily when he is likely to commit an invasion of a definite corporeal right of property, and should remember that it is not necessary, to support an action of trespass, to allege any actual damage. That the damage is trifling is no defence, and the trespasser cannot shield himself behind the old legal maxim, "De minimis curat lex." And although in certain cases and for certain purposes a person may have a licence given by law to enter upon another's land, yet if that person subsequently misuses his right as to abuse it, then he becomes liable for his actions, and his entry is converted into a trespass which dates back to his original entry on the land. The subsequent act is held to show the intention with which he originally entered.||

So with the interference of rights enjoyed by other persons. Here again the old legal maxim, "Sic utere tuo ut alienum non lædas," applies specially to the architect. He must do nothing on the site upon which he is building which may damage those outside it. Whatever he brings on—such as water or solid substances—he must keep it at his peril. If water come there unhelped by him he is not bound to keep it in, but he may not, except at his expense, use any means to send it away.¶ He is, in fact, responsible, together with all other persons who assist or contribute, for any damage arising from water, filth, fire or any noxious thing which he has caused or allowed to pass on his land on to another's; for any damage to another's land or to support caused by the excavation of his own site; or any damage arising from the improper use of a natural stream—he may not even bank his land against the ordinary

flooding of a stream if this shall send more water on his neighbour's land;\* and for any interference with or obstruction of every kind of easement and profit à prendre.

The architect, however, can limit his liability in this respect by showing that his breach of any duty imposed on him by law is really due to the act of God, the king's enemies or some other kinds of *vis major*. An act of God is due to natural causes directly and exclusively, without human intervention, and such that it could not have been prevented by any amount of foresight and pains and care reasonably to be expected,† and it belongs to that class of casualty which is occasioned by the elementary forces of nature, e.g. earthquake, storm, flood, lightning, but not fire unless caused by lightning. The king's enemies means foreign enemies, and they are included because the person is in law liable for the wrong committed no default and has no remedy over against those who did the wrong. And other *vis major* would include an inevitable accident in respect of which the person ordinarily liable would have no remedy over. Thus, where the rain water from a roof was collected by gutters into a box and a rat gnawed a hole in the box and without any negligence of the defendant the rain water flowed through the hole and flooded the premises of the plaintiff, it was held that the accident amounted to *vis major*.

So, too, with negligence. What is negligence? The late Baron Alderson held that it is an omission to do something which a reasonable man, guided upon those considerations which ordinarily regulate the conduct of human affairs, would do; or doing something which a prudent and reasonable man would not do.‡ But mere omission is not actionable unless a duty is imposed on the person omitting. Responsibility and obligation must precede it; and the damage arising from it must be proximate and flow directly from it. Given these, the absence of due care constitutes legal negligence and may be expressed in damages and other remedies.

Thus, if an architect designs without due care a building which wholly or partially falls down and injures a passer-by, the architect is liable to an action for damages for his tort or wrong; if he lowers or raises a weight, the duty is cast upon him to take all reasonable care, whether he does so above a public road or private ground, as long as he knows or should know that persons may be passing below; but, on the other hand, it has been held that a person pulling down his own house (and similarly an architect when superintending the work) is under no duty to take care as to the owner of a modern adjoining house.§

All these liabilities may and often do arise in connection not only with private persons, but, as has been shown, in connection also with ownership or occupation by companies, corporations, public bodies and public authorities. Similarly, the liability is not confined to the architect, but extends to all and every person concerned in doing the wrong; and as a rule, action is taken against the building owner or the contractor, rather than against the architect.

Further liability attaches to the architect in respect of any frauds committed by him, either singly or in conjunction with others; or in respect of libel, slander, malicious prosecution and other wrongs; and, obviously, of course, in respect of any offence, misdemeanour or felony which he, either singly or associated with others, may commit. But the view taken here of the legal liability of the architect does not include liabilities which do not properly arise within the practice of his profession, and as a consequence these more serious matters may well be left untreated.

#### 5. As Valuer and Arbitrator.

There remains the liability of the architect as valuer or as dispute-preventer or as arbitrator or quasi-arbitrator.

The distinction between valuation and arbitration or quasi-arbitration is, briefly, the difference between a process which reaches a decision by the exercise of special knowledge and skill, and a proceeding which reaches a decision on the balance of evidence tendered at an inquiry. The former process is of the nature of an appraisal and the latter has that of a judicial proceeding. In building contracts the former is intended to prevent disputes arising, and the latter to settle them when they have arisen.

The question of the architect's liability as a valuer depends upon the facts of the case. If he has contracted

Ward v. Lee (1857), 7 E. and B., 426.

Truman v. London, Brighton and S.C. Rly. (1885), 11 Q.B., 45.

See *supra*.

Lawrence v. Obee (1815), 1 Stark, 22.

Six Carpenters' Case (1610), pt. 8 Rep., 146 b., p. 432.

Whalley v. Lancashire and Yorkshire R.-Co. (1884), 13 Q.B.D., 131.

\* Menzies v. Breadalbane (1828), 3 Bli. N.R., 414.

† Per Mellish, L.J., Nugent v. Smith (1876), 1 C.P.D., 444.

‡ Blyth v. Birmingham Waterworks Co. (1856), 11 Ex., 784.

§ Chadwick v. Trower (1839), 6 Bing. N.C., 1.



to value and this duty is not separable from his position as architect, or is separable from his judicial position as quasi-arbitrator or arbitrator, then he becomes liable to his client for any want of knowledge, care or skill which he may display.\* He undertook for reward that he was competent to discharge this duty and it is for the breach of this undertaking that he is liable to be sued. As valuer, too, he is obliged to take out an annual license costing 2*l.*, renewable on July 6 in each year, and the penal clause of the Inland Revenue Regulation Act† prescribes a forfeiture of 50*l.* for appraising or valuing without such license. A valuation by an unlicensed valuer has no force.

But an architect may act as a valuer in a judicial sense, and as such no liability save for fraud, collusion and the like would attach to his valuation. If the building contract constituted him a valuer for the purpose of determining a question between two or more parties—such, for example, as the quality of materials or work, or the amount of money due to the contractor—he is a valuer in a judicial sense, and is not liable for any want of knowledge, care or skill which he may display. He is really, as quasi-arbitrator, acting for both parties, and Chief Baron Kelly held, in *Pappa v. Rose*,‡ that it is for the parties themselves to see that the person in whose judgment they confide shall possess the requisite skill to exercise it properly. If, however, while giving his certificate upon his valuation as to the amount of money due to the builder, the architect should act negligently, the building owner is not necessarily concluded from proceeding against the architect for his negligence.§ In the case of *Rogers v. James*, it was contended that the architect could not be held liable for negligence when acting as arbitrator, but it was decided that under the building contract in question his decision was only final as between the building owner and the builder and that the building owner was not stopped from proceeding against the architect. The clause under which the architect acted as arbitrator gave him no power to bind the building owner as against himself.

A dispute-preventer may or may not be an arbitrator. If his function is to decide a question by the use of his own knowledge and skill, he is not an arbitrator: if he is asked to decide by holding an inquiry and basing his decision on the facts then brought to his notice, he is an arbitrator. In building contracts, however, his duty is not to determine disputes, but to prevent them arising, and in that capacity he is a valuer. As Lord Esher held in a well-known case,|| “If a man is, on account of his skill in such matters, appointed to make a valuation in such a manner that in making it he may, in accordance with the appointment, decide solely by the use of his eyes, his knowledge and his skill, he is not acting judicially; he is using the skill of a valuer, not of a judge. In the same way, if two persons are appointed for a similar purpose they are not arbitrators, but only valuers.” And the same great lawyer held that where a person is appointed to ascertain some matter for the purpose of preventing differences from arising—not of settling them when they have arisen—it is a case of a mere valuation.¶ If in such a case he holds himself out as a valuer, he is liable for any ignorance, negligence, or want of skill he may show; if he is selected by both parties to act as valuer on account of the confidence they repose in his knowledge or judgment, he is not responsible, except for fraud and the like, to either—they must abide by their choice; but if he is an arbitrator and his appointment is wide enough, he is liable for nothing but fraud, collusion, corruption, partiality and the like misconduct.

An arbitrator is liable to be removed if he has been guilty of misconduct which would be ground for setting aside his award when made. Such misconduct would include fraud, corruption, partiality and any circumstance which would be inconsistent with judicial impartiality. If he act honestly no action will lie against him for want of care or skill or negligence.

#### 6. The Duration of Liability.

The liability of the architect does not cease with the completion of the contract he has been employed to super-

intend. Under the Statute of Limitations\* he remains liable for negligence for the full term of six years from the date of the act of negligence, and he has been held liable even though the damage had not yet accrued. Obviously the discovery of a defect in a building may greatly postpone, but, nevertheless, this fact does not extend the duration of the architect's liability. Nor does the fact that an architect is appointed by the contract to be sole judge and arbitrator in all questions of dispute, that he decides any given question, conclude the building owner from an action against the architect on that question, though such decision may be and is final as regards the builder.†

In the case of trespass by or authorised by the architect, such, for example, as an excavation under an adjoining house—the Statute of Limitations would run not from the date of the trespass, but for six years from the occurrence of any damage. It was held in *Mitchell v. Darley Main Colliery Co.*‡ that each successive subsidence gives a fresh cause of action. Lord Bowen pointed out in that case that a fresh action may be brought as each fresh subsidence occurs, although the successive subsidences are due to the same excavation; for when the excavation has once been made and the adjoining land is kept in an unsupported state, there is “not merely an original act the results of which remain, but a state of things continued.”§

It should be added that the architect's liability is much reduced in point of time should he be superintending work under a public authority. The Public Authorities Protection Act of 1893,|| enacts that an action, prosecution or proceeding shall not lie or be instituted “unless it is commenced within six months next after the act, neglect or default complained of, or, in case of a continuance of injury or damage, within six months next after the ceasing thereof.” It was held in *Crumbie v. Wallsend Local Board*,¶ with reference to a somewhat similar but less precise provision in the Public Health Act of 1875,\*\* that on the authority of *Darley Main Colliery Co. v. Mitchell* (see *supra*) a further subsidence which took place within the six months before action constituted a distinct cause of action in respect of which the action was maintainable, and this led to the repealing of the section in question, and to the substitution of the more definite clause in the Public Authorities Protection Act of 1893. But while this limits the liability of the architect in the great majority of cases to a period of six months, it still leaves, in certain cases, a liability for a longer and, in one instance at least, an indeterminate period.

#### CHINESE HOUSES.

THE following report on the construction and equipment of houses in China has been sent by Consul W. Gracey, of Tsingtau:—

The Chinese get along with very little and have few desires, especially when it comes to a house to live in. It must be admitted that the native architects can put up solid and to a certain extent beautiful structures, but these are the rare exception and not the rule. The dwellings are generally primitive and not durable. The Chinese do not understand the building of arches. The most they attempt is a simple arch in bridges or doors, but even here it is necessary for them to first erect a mud-brick support for the arch, the former being torn away when the latter is completed. The great mistake made in walls is the poor binding between the outside layers, there often being hollow spaces in the middle which are only filled with loose dirt or crushed rock if they are filled at all. When rains this interior filling gets wet, it settles, and the wall wedges apart at the bottom. It thus often happens that the outer walls of a house collapse, while the inner ones which have not been wet, remain standing. The usual preventative for collapsing houses is to rest the beams and roof timbers on wooden posts, which are built into the wall and completely surrounded by the masonry. Thus when the walls give way these pillars hold up the roof and keep the whole house from coming down on the occupants.

\* 21 Jac. I., c. 16.

† *Rogers v. James* (1891), 8 Times L.R., 67; Hudson on Building Contracts, vol. ii., p. 113, 2nd ed.

‡ (1886), 11 App. Cas., 127.

§ *Darley Main Colliery Co. v. Mitchell* (1884), 154 Q.B.D. 138.

|| 56 & 57 Vict., c. 61, sec. 1.

¶ (1891), 1 Q.B.D., 503.

\*\* 38 & 39 Vict. c. 55, s. 264 (now repealed).

\* *Jenkins v. Betham* (1854), 15 C.B., 168.

† 53 & 54 Vict., c. 21, s. 21 (1).

‡ (1871), L.R. 7 C.P., 32, 525.

§ *Rogers v. James*, 8 Times L.R., 67, and see Hudson on Building Contracts, vol. ii., p. 113, 2nd ed.

|| *In re Dawdy and Hartcup* (1886), 53 L.T., 800.

¶ *Re Carus-Wilson and Greene* (1887), 18 Q.B.D., 7.



case of two-storey buildings these wooden frameworks always built before the masonry work is started. The of mortar is also very faulty. The commonly used tar consists of finely slaked lime, with no addition tever of quartz sand, but for cases of economy the lime ten adulterated with very fine river sand.

The mason tests the soundness of every brick by hitting ith his knife-shaped trowel, and, like every Oriental esman, works slowly. Where stones are used, they are ys fitted into proper place on the outside and are ight to rest in the proper place by having little stones underneath them. As in the case of a mud wall, the w part between the two outside layers is filled with e chips. Only the outside edges are filled with mortar, the danger of collapsing in time is always present. houses of burnt brick are usually not found in the try, but in the cities and larger market villages, because the wealthy can afford them. The great masses are ent in stable-looking dwellings, whose floor is the earth, se walls are mud, and whose roofs are straw. The l house is divided into three equal parts by two beams sing it horizontally on top of the masonry walls. In the of houses with straw roofs, a light framework is ed on these beams. To protect the roof from wind, it ten weighted down with large stones.

n the great plains the farmhouses are made entirely of with flat roofs. Here the crossbeams rest on two n dividing beams. On top of this is placed a layer of hum straw, and that is then covered over with loess. i roofs need yearly renewing. They are built so that can be used to defend the farms, the walls being some t higher than the roof, so in time of need the men can n to them armed, and thus fight from a sort of parapet. use the rains are very disastrous to these walls, they often strengthened with a layer of tiles on the outside. difficulty with this construction is that the inner mud gives way and collapses when it gets wet, leaving only thin outer tile part standing. This usually results in wing the entire weight of the heavy roof on the light construction, and the whole house collapses. Many of e flat-roofed mud houses are destroyed during every , and whenever the rivers overflow the valleys practi- every house is ruined. There are no building laws or e regulations in China tending to better the class of es now constructed and thus make living in them e safe.

t will be seen that the only opportunity manufacturers e for the sale of building materials and hardware for use ng the Chinese is in supplying the cheapest quality of is. The articles which always command a sale are p iron hinges, locks, screws, nails, bolts and corrugated roofing, which is now being used for the better class of es, store-rooms, &c. Wire mosquito netting is also ing into more general use. All of these goods must, ever, be of the cheapest quality irrespective of strength, almost all of the goods mentioned find a sale because can be manufactured more cheaply by machinery than and labour, even where the wages of blacksmiths are about 10 cents a day.

Modern sanitation has been recently introduced into gtau, and buildings both old and new are being fitted ith bath-room furnishings of the latest patterns. The s dealing in these goods are entirely German and are rally inclined to use German goods. British manu- red wares are, however, found on the market and find od sale. Chinaware closets of British and German ufacture retail on this market at approximately 15 dols plete with washer and connections. Wall urinals cost 3 dols. to 7 dols., while those used in the public places anufactured entirely of enamelled ware and are much per. Bath tubs are used generally and cost 20 dols. zinc, 39 dols. for cast-iron enamelled and 45 dols. for t steel enamelled; washstands at 4 dols. to 16 dols.

The Germans manufacture an arrangement for rapidly ing water for bath-rooms. These consist of large ght tanks a foot in diameter, under which is a small e, the water being connected in the usual way from e pipes. These tanks need only one or two small els full of coal, and will keep burning for an hour, ing sufficient hot water for two or even three baths. r using one tank full of water it is merely refilled and in a few moments is ready for a second bath. These used in every house in Tsingtau, and could be well duced with a little energy in the other ports of China e running water is not used. The article costs at 1 40 dols. to 50 dols.

During the year 1906 stoves and grates were imported into China to the value of 178,402 taels (1 tael=83 cents), the largest portion of which, a value of 131,887 taels, coming from Germany. These stoves are used almost entirely by the European and other foreign residents of China, and only to a small extent by the Chinese natives. Small heating stoves are, however, gradually coming into use among the Chinese, and as coal becomes more plentiful throughout China there is every possibility that there will be a greatly increased call for these goods. The class of heating stoves used by the natives themselves are locally-produced brick structures built in the shape of a bed, and known as a "kang." A fire is built under this and serves to keep the family partially warm when they sit or recline upon it. Charcoal braziers are also used in the better class houses, and a small charcoal brazier enclosed in a basket is worn under the clothing by the natives, suspended from the waist, and carried around with them wherever they may go. The better class of Chinese are now taking to the use of foreign stoves, generally of the type known as direct-draft surface burners, which sell at retail on the Shanghai market at about 7 dols. 50 cents each. Cheaper imitations can be obtained for about 3 dols. or 4 dols. The larger stoves sell at higher prices, and are finding a sale among the Chinese wishing to secure a better class of article. The German stoves sell on the Tsingtau market at the following prices:—Basket shaped, first quality, from 2 dols. 25 cents to 4 dols. each; second quality, from 1 dol. 70 cents to 3 dols. each; upright shaped, first quality, from 6 dols. to 15 dols. each; second quality, from 5 dols. to 10 dols. each; third quality, from 4 dols. to 7 dols. 50 cents each; fourth quality, from 2 dols. 50 cents to 4 dols. 50 cents each. The demand is for cheap stoves, and the German makes appear to have preference over those of American manufacture from the fact that they use a smaller quantity of fuel. Fancy stoves would naturally command a better sale, but they are too expensive for the Chinese people.

#### CHURCH BUILDING.

THE Incorporated Society for Promoting the Enlargement, Building and Repairing of Churches and Chapels held a meeting on the 19th inst. at the Society's House, 7 Dean's Yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money varying in amount from 200*l.* to 10*l.* were made towards the building, enlarging or otherwise improving the accommodation of several churches. In addition to this the sum of 336*l.* was paid towards the repairs of nine churches from trust funds held by the Society. In the multitude of other claims it is a matter of regret that the Incorporated Church Building Society should be overlooked. At this season especially, when Christian charity is generally more widely dispensed than usual, it is earnestly hoped that attention may be directed, and that successfully, to the large work that is being carried on by the committee and the very much larger work that might be done if Churchmen would contribute more liberally to its funds.

"Cowper's House," a large, red-brick mansion at the east corner of Olney market place, Northamptonshire, underwent many regrettable alterations in the course of the last century. The year 1892 saw the chief "restoration," when the bluest of slates replaced the old-fashioned red tiles, which are now, it is said, in the United States, roofing a replica of the poet's old home. The trustees of the house had for long under consideration the project of altering the house to give it again as far as possible its eighteenth-century look. The work was begun some six months ago, under the direction of Mr. Alexander Anderson, architect, Northampton, and is now completed. The restoration, while not extensive, has been done with care and reverence. It concerns almost exclusively the exterior. The cement patching has been replaced by stone, matching the original stonework. The original side piers have been restored to their condition in Cowper's time, as far as can be judged from the numerous old prints which Mr. Anderson studied on undertaking the work. His only recommendation which the trustees did not adopt was that tiles take the place of the slate roof. The builder concerned was Mr. W. Revitt, of Olney.



## NOTES AND COMMENTS.

A MEMORIAL of the late Empress of AUSTRIA, who was murdered at Geneva, is to be erected in Trieste. Designs are sought in competition, and the character of the memorial is left to those who take part. The only condition that is specified is that there must be a bust in bronze of the Empress, which is to be cast in Austria. The outlay is to be about 80,000 crowns. There will be two competitions. The first designs are to be sent in before March 1, 1908, and the scale must be one-tenth full size. They are to be signed with a device, and the name of the artist is to be enclosed in an envelope bearing the same device on the outside. The jury of five will be composed of three sculptors who are professors of the Academy of Fine Arts in Vienna, the director of the Industrial School at Trieste, and M. PULGHER DOMENICO, architect, of Trieste. They will select three designs, and the artists will prepare others at a scale of one-fifth full size before June 15, 1908. The second designs will become the property of the committee, and each of the authors will receive 1,000 crowns. The design selected may be modified according to suggestions derived from the other projects. The secretary is M. LUIGI DE BERNETICH TOMMASINI, Trieste.

LOYALTY is strong in Scotland, and this may explain the desire to have the two offices of King's Limner and King's Sculptor, which are now vacant, filled by artists duly appointed. The Limner's office goes back to the time of JAMES VI., when ARNOLD BRONKHORST secured the dignity. His name is not, however, mentioned by WALPOLE. In 1700 the position was held by a shopkeeper and in 1739 by an infantry captain. At a more recent time GEORGE IV. was anxious to uphold old offices. When he visited Edinburgh in 1822 HENRY RAE BURN was made one of the knights, and in the following year became His Majesty's Limner. Sir DAVID also received the title. In 1841 DAVID ALLAN succeeded to the office of Limner to the Queen, and was knighted. In 1850 the holder was Sir JOHN WATSON GORDON. The last Limner was Sir NOEL PATON. Apparently there has been only one Sculptor for Scotland, Sir JOHN STEELL, and the office has been vacant since his death in 1891. The appointments would be pleasing to the people of Scotland as well as to two artists, and as the emoluments are very modest, they would not cast much of a burden on taxpayers.

It appears that the Paris Municipal Council intend to erect at the Franco-British exhibition a pavilion in which it is contemplated to display objects of historical interest connected with the city of Paris, together with plans, models and literature of municipal work and improvement undertaken by the Municipal Council. They have suggested that the London County Council should erect a similar pavilion. The project has been considered by a sub-committee of the Council who have submitted a design of a pavilion, together with a list of objects which might form the exhibit to be displayed therein, the total estimated cost being 8,000/. Having regard to the expense involved, the general purposes committee announced that they were not prepared to recommend the Council to adopt the proposal, and directed that the executive committee of the exhibition should be so informed. The sum mentioned would not largely increase the debt of the Metropolis, and the educational advantages derived from it might be worth the expenditure. Evidently the Paris Municipal Council are eager to display evidence of the system which is adopted in the administration of Paris. To some extent it would be possible for the London County Council to exhibit plans, models, diagrams, apparatus which would compare favourably with those produced in Paris, and

in some of them London could claim superiority. certain shortcomings of our Metropolis would be manifest, and in that way questions would arise whether reforms might not be introduced. The elected authorities of both cities are fond of making visits with the purpose of investigating institutions. The two pavilions would serve to impart similar lessons to those who supply the money in both capitals. That end is likely to be attained, for the general purposes committee have withdrawn their opposition in deference to the majority of the Council.

## ILLUSTRATIONS.

THE HENRY BRASS MEMORIAL CHURCH, LONDON ROAD, REDHILL, SURREY.

THIS design was submitted for competition open to local architects as a memorial to the late HENRY BRASS, of Redhill, and was one of three selected by the assessor, Mr. W. H. SETH-SMITH, F.R.I.B.A., for final adjudication. In the conditions the committee desired accommodation for 650 people at a cost of £6,668/-. The design proposed that the church be built of brick with stone dressings and tiled roof. The design is based on the English Perpendicular Gothic. The materials for the exterior are red bricks with weathered and undercut joints, with dressings of Weldon stone. The roof tiled and the doors in oak. Internally, the stones and dressings in Ham Hill stone, roof timber in pitch-pine left clean from plane and chisel, wall-panels in oak, flooring of pitch-pine, those to passages of hard wood or tiles, floor of chancel tile or marble. Heating by low-pressure hot-water system. The estimated cost of the building as given by a qualified quantity surveyor was 6,668/-. for a seating accommodation for 658, and this sum excluded the upper part of the tower, which the committee propose to leave for the present.

ADDITION TO HOSPITAL, GRAVESEND.

ALMSHOUSES, GRAVESEND.

NORWOOD, HUDDERSFIELD: THE HALL.

THIS house occupies a very fine position on high ground in a well-timbered park; the exterior is faced with York stone; the roofs are tiled with Broseley tiles. The hall is panelled to a height of 10 feet with oak, with a carved mantel and overmantel, the ceiling being divided into panels by oak beams carried by fluted pilasters. The dining-room is also oak panelled with oak mantelpiece, the ceiling of fibrous plaster with projecting oak beams. The morning-room has mahogany dado, screens, bookcases and mantelpiece, with plain ceiling and enriched cornice. All the woodwork in drawing-room is finished with white enamel, the inglenook, ceiling and decorative work being in fibrous plaster, all finished white. The woodwork in billiard-room, including screen and mantel, is of fumigated oak; the ceiling, which is arched, is of fibrous plaster, divided into panels by oak ribs carried on brackets. The staircase is of oak. Mrs. KAYE's bedroom has specially designed fittings all in inlaid mahogany. The floors of all reception-rooms and hall are of solid oak parquet. The vestibule, loggia and conservatory have all marble mosaic pavings. The whole of the walling was carried out by Messrs. MALLINSON & SONS and Mr. BOTTOMLEY, the carpenter's work being done by the estate workmen. Messrs. BURT & POTTS supplied the iron casements. The whole of the work was designed and carried out under the superintendence of Mr. J. HATCHARD SMITH, F.R.I.B.A., of 41 Finsbury Pavement, E.C.

MYHOLME, MERRY HILL ROAD, BUSHEY.



## THE ARCHITECTURAL ASSOCIATION.

MEETING of the Association was held on Friday evening last at Tufton Street, Westminster, Mr. Walter Bagehot, president, in the chair.

It was announced that the annual dinner of the Camera Pictograph Club would be held at the Café Monico on Monday, January 23rd.

J. R. Young, of Belfast, was elected a member. On the motion of the President, votes of thanks were given to Mr. Hugh Stannus for a donation of pencil portraits of Wren made by him in 1878, and to Mr. H. F. Waring for a water-colour drawing of a portion of Hampton Court.

FRANK KNIGHT read the following paper, illustrated by lantern slides, written by Mr. Arthur Keen, who was invited to attend:—

## Sir C. Wren's City of London Churches.

The buildings I want to discuss this evening are the ones built in the Classic manner by Sir Christopher Wren in the City of London, and I may say at the outset propose to look at them entirely from the architectural point of view, and not from the archaeological. An interesting paper was read here lately by Mr. Oliver, in which a great deal of information was given about the ancient history of the streets and ecclesiastical establishments of London, and I propose to consider the buildings as matters of

fact, and not of the chief considerations I had in mind in choosing this subject. The fact was that these churches, which ought to be preserved by all as one of the chief glories of London, are year by year getting fewer in number, and as I take it that the only way to check the destruction is to develop and educate the body of public opinion, I feel that every architect should do what he can to influence general opinion and help the public realise how great and irreparable is the loss that is taking place.

Wren built forty-nine churches in the City besides repairing or adding to others, and at the present time eighteen have disappeared, three having been destroyed within the last few years. This year the church of St. Peter le Poer, a true, built by Wren, has been sold and demolished; although it was not a fine church, its loss is to be regretted because it was the only instance in London, as far as I know, of a church lighted entirely from the top. It was a regular church with a domed ceiling springing off a circular cornice, and having a circular eye at the top with light coming over it. The light was beautifully diffused and the interior was altogether good.

I call attention to the City Churches' Preservation Society, of which my friend, Mr. A. E. Moore, is the secretary, as a useful agency, and one that all of us should join? There is no subscription, and meetings are held, I believe, only when particular occasion requires. The intention is to have a good list of names of persons interested in the matter, so as to be able to bring pressure to bear when it is required. The Society has been instrumental in saving St. Mildred's, All Hallows, Bread Street, and St. Mary Woolnoth, and it ought to have long support from our profession when, if ever, churches are threatened. The secretary's address is 11, Abchurch Lane.

It is well known that Wren's churches were built on the sites and often on the actual foundations of the old Gothic churches—such churches, for instance, as St. Dunstons, Hart Street; St. Helen's or St. Giles's, Cripplegate; and the few that survived the Fire—and this fact adds to the greater prominence of the wonderful power of Wren's displayed by the architect. His work was that of a new departure entirely. For, although the Classic manner had become general by his time—as evidenced by such work as the old street fronts at Green, dated 1658, treated with brick pilasters and a classic cornice—it must be remembered that the first St. Catherine Cree, built by his immediate predecessor, Inigo Jones, was in all essentials a Gothic church, even such Gothic work as the fan tracery vaulting of the staircase of Christ Church, Oxford, was possible in Charles I.'s reign (1640).

A great point that strikes one is that all these churches, new and original as they were, show no uncertainty or hesitation, and the variety of types that they are quite extraordinary, whatever standpoint they are judged from. Wren was a scholarly man and an original thinker in all departments of his work and study. The distinction in all branches of science as it was

understood in those days; so much so that Evelyn spoke of him as "that rare and early prodigy of universal science." But his versatility and imagination are shown even more in the variety and originality of his City of London churches. Here is a view of an old London Gothic church, All Hallows, Barking; here, a plan of another, St. Olave's, Hart Street. Here is Inigo Jones's church, which you will see is still a Gothic building expressed more or less in Classic language, and here is one of Wren's first efforts—the church of St. Mary-le-Bow, 1671 (exterior, detail, and interior).

Of course, it has to be remembered that Wren went to France the year before the Fire of London, and saw work by Bernini and other Classic men; but his originality is remarkable enough even in face of this. And it may be pointed out that the building in Paris that is most like Wren's work—the Hôtel des Invalides—was not begun until five years after Wren's visit, and neither St. Sulpice nor the Panthéon was built.

Now as to the scheme or general arrangement of the churches regarded as interiors rather than exteriors. They comprise buildings of all sizes from about 76 feet by 40 feet (St. Matthew, Friday Street) up to about 144 feet by 90 feet (Christ Church, Newgate), and many types of plan from the simple oblong without a column or recess up to the full three-aisled example like St. Peter's, Cornhill, or the many-columned St. Stephen's, Walbrook—some with galleries, some without, and some with chancels more or less after the Gothic fashion, but mostly without. Wren had a fine feeling for the difference in scale that exists between Gothic and Classic design, and he seems to have felt instinctively that the effect of length and comparative narrowness given by a Gothic interior was out of harmony with the bigness of treatment required by the "good Roman manner" in which he worked, and therefore he generally threw the whole space into the general scheme in preference to treating the chancel as an adjunct or a separate feature. Take such a church as St. Anne and St. Agnes to exemplify this. It is only 53 feet square inside, but if treated after the Gothic fashion it would no doubt have had its nave and aisles and chancel with their arcading and chancel arch, clerestory windows, buttresses, open timber roof and other accessories. Instead of this it has merely four columns and two great barrel-vaults intersecting over a central square, and the result is a fine, dignified architectural effect. Even when the building was large there was seldom a chancel or at most a mere square or shallow recess as at St. Bride's or St. James's Garlick Hythe.

The various churches may be divided into classes according to the arrangement of their ground plans, or by reference to the treatment of their vaulting—or rather of their ceilings—for as the vaults are formed in plaster they must, I suppose, be called ceilings.

Taking the ground plans first, it may be pointed out that there are hardly any instances where the tower enters into the architectural treatment of the interior; perhaps the only one left is St. Martin's, Ludgate Hill, and even there it forms merely one of a series of three great arched openings that occur along the south side of the church. Generally the tower is used either as an entrance lobby or vestry, and if it comes within the main walls of the church it shares with an organ recess, and perhaps a staircase, a strip taken off from the main area and having little connection with the design of the rest, as at St. Swithun's.

The simplest form of plan is that which shows in the interior a mere oblong without columns or recesses, such as St. Mildred's, Bread Street, or St. Nicholas Cole Abbey. Then there is a similar plan with the addition of a recess such as St. Clement, Eastcheap. Then the same form with a fully developed aisle like St. Margaret, Lothbury, or St. Vedast. And next, of course, the central nave and two aisles, either with or without clerestory windows—a good form of church where galleries are wanted, but treated very successfully by Wren in both ways. St. Andrew Wardrobe and St. Magnus the Martyr are good examples (or St. Bride's). Then we have the square or approximate square with an inside square formed of four columns; this is a very interesting class, and we shall have more to say about it later. And lastly, we get the domed church in various forms; the dome springing off the walls or off columns, or in the orthodox fashion by means of pendentives over the angles of a square or octagon. In this class I might call attention to the two churches of St. Benet Fink and St. Antholin. Neither of them remains for us to see, but the interiors of both must have been among the most delightful of Wren's works. Both had elliptical domes



standing on columns with an aisle running right round behind them. In St. Benet Fink there were six columns, and between each two was thrown an arch which ran back as a barrel-vault butting against the wall, and the four small corner spaces had flat ceilings. The dome was of a full high pitch with a central lantern for light, and the effect of support given to it by the transverse barrel vaults all round it must have been very marked. The barrel ceilings stood on a cornice and architrave from the column to the wall in each case, and the dome rose off a strongly marked cornice. The church stood where the Peabody Statue now stands, behind the Royal Exchange, and it was removed under an Act for "improving the approach to London Bridge," but as it stood in a street that runs in another direction, it is difficult to see how this purpose was served.

St. Antholin's, sold and destroyed in 1875 under the Union of Benefices Act to help to pay for two other churches, was similar to the last in the arrangement of its plan, but the dome was much larger and higher in proportion to the rest of the building, and the columns, instead of carrying arches and barrel-vaults, were finished with an entablature, from the cornice of which the dome started; and the aisles behind the columns had flat ceilings, with beams running from the columns to the angles. The dome had a rise of about 16 feet, and was lighted by four bull's-eye windows. Except as regards the shape of its plan and the fact that the columns were isolated, the treatment of the dome was very much like that of St. Swithun's, Cannon Street, and the general composition must have been very picturesque and interesting.

In all three classes there is endless change in the use of ordinary architectural forms: simple columns carrying entablatures, columns carrying arches, columns with arches between them, piers carrying galleries and running up to form a nave arcade, and other combinations.

Let us take St. Bride's as a very beautiful and fully-developed example, and one in which great attention has been given to details. It has a wide nave and aisles in five bays, and a central tower at the west end with a staircase on either side. The arcade is carried by coupled columns not quite separated from each other, and having a projecting pilaster on each side to support the gallery. Then comes a good strong entablature binding the columns together so as to form a good seating for the arcade, and immediately above the arcade springs the semicircular ceiling with circular clerestory windows breaking into it. The aisles have groined vaults springing at the same level as the nave arcade. The whole design is sound, sensible and obvious, and on the negative side there is nothing whatever to take exception to. On the other hand, however, we have every characteristic of a good design illustrated; beautiful proportion without any loss of freedom, fine broad effects of light and shade combined with good interesting detail, great judgment in the handling of such awkward features as the transverse arches that cut into the main vault, refinement and strength in every part, picturesqueness, in fact, all of the "essentials" that Mr. Belcher has dealt with in his book, and all attained with apparently the greatest ease. The manner in which the gallery fronts are carried and the treatment of their detail are quite admirable; the organ is a fine feature and splendidly placed.

The class consisting of four interior columns within the square of the external walls is interesting on account of the great diversity of treatment that the principle lends itself to. For instance, St. George's, Botolph Lane—now, most unhappily, destroyed—belonged really to the class of central nave and two aisles, because the columns carried a barrel-vault running from end to end of the building, with clerestory windows cut into it; and the spaces to north and south were actual aisles with flat ceilings over them.

St. Martin's, Ludgate Hill, on the other hand, forms two narrow-barrel vaults intersecting in the centre so as to form a cross. And St. Mary-at-Hill again becomes a central square covered by a dome on pendentives with arched recesses on the four sides and flat ceilings in the corners. The possible combinations arising out of such a plan are endless; with the interchanging of columns and piers, arches and entablatures, vaults, domes and flat ceilings, clerestories, wall lighting and lanterns; and when one considers how well adapted it is for congregational purposes (and particularly in Nonconformist churches) the plan is worth careful attention.

Of the domed plans the noblest, of course, is St. Stephen's, Walbrook, and one need never be weary of studying and admiring the skill on the one hand and the instinct for beauty on the other with which this interior is

managed. Among other things this church illustrates a characteristic that always appeals to me as a student and interesting one in Wren's interiors—I mean extreme picturesqueness. The freedom of treatment, breadth of light and shade, the boldness and dignity of the essential parts, and the general interest of the composition, together with the beauty of the carved and moulded work, the quaintness and charm of the old brass chandeliers and iron sword rests, the touches of gold on stucco plaster, all combine to produce delightful subjects for the painter.

St. Martin's, with its three great deep arches, beautiful columns and entablatures, is another good example, and St. Bride's is another. And the octagon dome of St. Swithun's until a year or two ago was another, decorated in a wonderful old grey-blue colour relieved and toned with gold in the happiest manner possible, but unfortunately disappeared a year or two ago in favour of a scheme of decoration about which I need not speak, to say that it has taken all the expression out of the face of the church, and made the dome look flat and uninteresting, instead of, as it was before, full pitched and vigorous.

It occurs to me to point out here one great element of difference between Wren's work and much of even the best of modern work, and one that I think is much in his favour. It is the way in which he treated walls in broad, unbroken surfaces. He made but little use of pilasters, engaged columns, panels, rusticated quoins, and other devices which wall surfaces are commonly "relieved" and decorated with nowadays. The Gothic revival, with its buttresses, ribs, its wall shafts and panelling, has left the modern architect with an uneasy feeling that every division of a building should be expressed on its outer wall, and every feature occurring high up should grow out of something below, so that many breaks and projections, ornamental details possessing very little reference to construction or even to intelligent design appear on the sides of their walls to the destruction of all broadness and dignity. In fact, the tendency is to over-design buildings, which is a thing that Sir Christopher Wren never did. He was content to leave a good thing alone without attempting to make it better; and none of his buildings give the impression that he regarded them as his last work, or perhaps his only chance of distinguishing himself.

Now as regards the design of the ceilings of churches: as I have said before, the buildings may be arranged in well-marked classes by taking the plan, forms and treatment of their ceilings as the basis of comparison, and it would not be difficult to deal with them. Viollet-le-Duc and many others have dealt with them, vaulting, showing a gradual evolution from the simplest types of flat and coved ceilings up to the complex, sculpturally-designed and admirably beautiful vaulted and domed ones, only this method would not in the present case be a historical one—that is to say, the simplest forms could be shown to be the earliest. For instance, St. Benet Fink (1673) with its domed ceiling, is earlier than St. Nicholas Cole Abbey (1677) with its flat one. However, looking at the matter as a question of design, there are many between such a treatment as that of St. Peter's, Cambridge, with its great barrel-vault over the nave and its transverse vaults over the aisles, and the flat ceiling with a cove which it that occurs in so many instances. The cove being large, it has vaults cutting into it, it becomes associated with regular groined vaults which cover recessed spaces. The barrel-vault is used in all kinds of ways; it runs uninterruptedly from end to end as at St. Peter's, Cambridge, it has arches cutting into it as at St. Mary-le-Bow, it is used in sections as at St. Anne and St. Agnes, it leads up to a dome as at St. Stephen's or St. Mildred's; and in all cases the architect has dealt with the particular form in the easy, unforced way of a master.

Let us start by accepting three leading classes—the flat ceiling, the vaulted ceiling and the dome. Of the first we have St. Nicholas Cole Abbey as a good example, the ceiling divided into panels by beams crossing each other. The walls are divided into five bays by flat piers carrying a big entablature, and the beams, of course, correspond with these pilasters. The west end of the church has three big arches, one into the tower and the other two containing the organ gallery, with pilasters between them, and the effect of these arches and the richly-detailed work of the doorways and organ seen in comparison with the simplicity of the interior generally is fine and impressive. Indeed, the whole church is interesting as an example of judicious and effective design, a fine interior produced



tively simple materials. Then we may take s's Garlick Hythe as an example of the flat ceiling ve round it, and this church shows the cove in its ghly-developed form, divided up into a series of openings over the window heads, and with barrel-ver the wide centre bay cutting into the cove and a sort of transepts. Mr. Birch, speaking of this n his book, regrets that the light is obscured by stained glass and by the decorative colours being but the church has now been redecorated and is tly light. I think the view we have of the interior at once that the composition would have been r if there had been no light at all in the aisles. very narrow, and a good, strong shadow in them ve been effective in itself and would have ved the transept effect of the wide central bays. ide of this church is very fine and would make a of drawings.

edast's Church, close to the General Post Office, is good example of a coved ceiling, and it has some modelled plasterwork in bold relief introduced in dings of the cove and the ceiling panelling. The t of the south side of the nave, with its simple columns and its broad wall surface above the arches, d lesson in strong, unaffected design. There is g very dignified and satisfying about it, and it is at a fine interior is marred by the east wall not right angles to the rest of the building. We have example of the fine effect resulting from a dark rasting with a well-lighted nave.

imilar treatment occurs in St. Clement's Church, e deep shadow and the organ standing in the centre ess mask the fact that the south wall is at an acute th the west. The present arrangement is not the one, but the gallery that formerly occupied the ould have had the same effect.

ost hesitate to offer St. Peter's, Cornhill, as an on of the type of church with a great unbroken ult from end to end of the nave, because the church recently decorated in such a way as to take much nity out of it, and to contradict the general lines of ae.

corator seems to have been actuated by the single eparating each particular detail from its surround- at every moulding and panel, archivolt, rib and a different colour from the ground on which it is d the architect's design is cut up into strips and f colour. One thing in particular that strikes the is that the large modelled wreaths applied to the rface of the vault by some error of judgment on of the plasterer, no doubt, are seen in their dis- ape with painful distinctness. They could easily e treated in such a way as to be hardly noticed, ecorator's principles seem to have been stronger judgment. However, leaving the pink and green v out of the question for a moment, we may call to the main features of the design of the building. ave and two aisles in five bays. The arcades have e piers and semicircular arches crowned by a fine Then comes a plinth with projecting dies to mark and then a fully-panelled and ribbed barrel-vault. gorous effect of support and strength is given by ng of the aisles—transverse barrel-vaults running n the arches of the arcade, and carried in their rches thrown from the piers to the aisle walls. ore direct or obvious could be imagined, and ore successful or satisfying. There is no light d in the ceiling of the nave, but the aisles have h windows, and there are numerous windows in vall, so that the interior is fully lighted. All the details of the church are good, the pulpit, the en, which runs right across the church, the organ allery it stands on, all are of the best kind, and church is a fine architectural conception, and an one for a modern designer to base his studies on. ry-le-Bow is an interior that approximates to the general treatment, but it has vaults cutting into barrel. St. James's, Piccadilly, of which we have though it is not in the City, is another.

very fine example of a three-aisled church with a el-ceiling over the nave, we may take St. Andrew e—in my judgment a fine interior in every way, d example of the use of galleries. Good, square led piers carry the gallery, and then run up as hite-panelled posts or columns of rather slender n to carry the vaulting. The transverse arch of

the groined vaults over the aisles runs through into the nave vault so as to form a kind of nave arcade, and the effect of it is extremely refined and interesting. These vaults are plain, but the one over the nave is richly decorated with surface panelling and ribs, and a certain well-judged emphasis is given to it by the nave projecting slightly beyond the aisles at both ends. There is a fine organ in a west gallery carried on Tuscan columns. The ceiling of this church is finished in dead white throughout, and it could be very much improved by a little coloured decoration. The lighting is done by a double range of windows in the north and south aisle walls, and a big east window.

Time will not allow us to examine the various churches with clerestory windows to the nave, and with endless inter-changing of entablatures and arcades, piers and columns, groining and flat ceilings, although there are many that are worth careful study. We will pass on to one or two views of churches on the four-column plan which will be interesting. The two churches of St. Anne and St. Agnes and St. Martin, Ludgate Hill, are both of them fine examples—one wide and low, and the other narrow and lofty—both of them with flat ceilings in the corners, and segmental vaults intersecting over the crossing. St. Anne's presents a fine dignified effect, combined with a certain homely picturesqueness that is very pleasing, and it is such a building as might well be adopted in the present day.

St. Martin's is a more architectural interior and a stately composition and a well-designed church in all aspects. The lighting of these churches is very satisfactory, and the contrast between the deep shadows in the corners and the light in the centre portions is a good feature in the design.

The other church of this kind that is left standing is St. Mary-at-Hill, Billingsgate. It is in the Greek cross plan in its purest form—that is to say, with a well-defined square in the centre covered by a dome on pendentives. When allowance is made for the use that this church is put to by the Church Army with its magic-lantern sheets, gramaphones, band, teacups, and other accessories of popular religion, it must be felt to be one of the most beautiful buildings in London. With the exception of the east front, the exterior does not call for notice; it was mostly rebuilt early in the nineteenth century, and it will be noticed at once that a great deal of work was done inside the church at the same time, the details of the vaulting being obviously later than Wren's time. They lack the boldness and ease of the earlier work, although they are sound and refined, and handled with a good feeling for scale. The width of the central aisles is but 24 feet, the whole church inside being but 61 feet wide, but the treatment of the few parts that form the composition makes it impressive and dignified. There is most beautiful joinerywork in the church, and some well-designed ironwork, and I hope it may one day form the subject of one of the Fletcher bursary drawings.

Before we come to the more elaborate of the domed churches there is one church to be mentioned as a kind of intermediate treatment, a very beautiful one, although quite small. This is St. Mildred's, Bread Street, already alluded to as having the simplest possible plan, but presenting a beautiful interior. It has a flat dome in the centre of its length, of the full width of the church, 36 feet, carried on four pendentives contained between four arches forming the central square; wall arches to the north and south, and actual vaults to the east and west, carried on corbels and arches so as to dispense with a continuous cornice—which would have been an awkward feature to deal with on account of the high windows. All the plasterwork treated in the usual bold, masterly fashion, effective, in spite of the doubtful light of the City, and contributing very well to the scale adopted. It may be pointed out that the freedom of the plaster detail in these churches of Wren's is very valuable in masking the irregular spacing and unequal angles that arise out of the awkward shape of the sites in many cases. In this particular church there are irregularities that are not readily found out except by careful study. The organ is in a fine west gallery, under which is the entrance vestibule screened off by beautiful panelling and Ionic columns. Almost everything in the church is interesting and well designed—pulpit, reredos, font, chandeliers and some good ironwork and wall tablets. The lead spire, too, is a good example.

The two domed churches of St. Swithun and St. Mary Abchurch are almost precisely similar in plan, a square with a tower outside it at one corner, and a recess the same depth with tower, but utterly different in the method of design adopted. Each has a column dividing the recess, and



at St. Swithun's the column is repeated by seven half-columns so as to form the corners of an octagon. Round the octagon is a rich entablature very fully detailed, and this entablature carries an octagon dome ribbed in the angles and panelled and decorated on all sides. The width of the octagon is 43 feet between the columns.

In the other church corbels in the form of capitals take the place of columns, and arches are formed between them with pendentives carrying a big circular cornice from which the dome springs, the dome and its pendentives forming a full hemisphere. The surface of the dome, as you probably all know very well, has painted decorations by Sir James Thornhill, representing the heavenly choir, but they have become so black that they can only be seen with great difficulty even on a sunny day, in spite of four windows in the dome, and a judicious cleaning would probably be well worth doing. The arches under the dome run back into the west recess in the form of barrel-vaults, and where the corners of the square occur a mitre is formed and the surface of the vault twisted and forced into forming an arch on each face of the square, in which a window is set. It is the kind of contrivance that we are accustomed to in Gothic vaulting, where the ribs run in true curves and the fillings twist themselves into any required shape; but we hardly expect to find it in the work of a great mathematician like Wren, and the appearance of it is more curious than beautiful. The work altogether is of the most haphazard and uncertain kind, and irregularities occur in all directions. Wren has been called the last of the Gothic architects—in consequence of his versatility and imagination in design—and the Gothic spirit shows itself also in the calm indifference shown here and in many other churches to the laws which govern the development and intersection of curves. In St. Mary Abchurch, again, the interior is full of beautiful things—the organ front is a fine one, and the font, with beautiful little figures of the Evangelists on its cover, is a gem of design.

With regard to St. Stephen's, Walbrook, we may certainly say it is one of the finest interiors in London, and most people must feel that there are few more perfect architectural compositions to be seen anywhere. The scheme of it consists, briefly, in a dome carried on an octagon of eight columns, and from four faces of the octagon run out the chancel, the nave and two transepts. Then four columns are added to form the octagon into a square below the entablature, and between these and the columns of the octagon run out aisles to the nave and chancel; then, in order that the dome may stand on disengaged columns instead of partly on columns and partly on pilasters, the north and south walls are kept a little distance from the aisle columns so as to form a second aisle each side. To my mind there are three things that detract to some extent from the success of the design—first, a certain weakness in the springing of the eight arches that carry the dome; second, the fact that the entablature stops where it reaches the walls, except at the west end, instead of running along them; and third, that the outer aisles are narrower than the inner ones. Mr. Penrose, by dint of industrious study, found well-defined proportions existing between the various dimensions of the building; but surely, if the site had been wider these outer aisles would have been allowed the benefit of it. It is no doubt ingenious to discover that certain proportions in a building are as four to seven and seven to ten, and so forth, but one has an uneasy feeling that they might equally well have been four to six and seven to nine, especially when it is remembered that the whole effect of proportion may be varied at once by the use of circular features instead of square ones, by difference in projections, by colour, by surface decoration and many other things. However, the aisles serve the main purpose that the designer must have had in view—of detaching the dome and its columns from the walls—and their narrowness is not a serious defect. The points of excellence in the design are too numerous to mention; the freshness of it, the skill in composition, the sense of strength and firmness given by the boldly-modelled entablature and the deep shadows behind it, the richness of the many columns, and the fine comparison between the elaboration of the dome and the simplicity of the vaults that lead up to it. Added to these are the richness and beauty of the organ, the pulpit, the font—which, again, has little carved standing figures on the oak cover of it—the reredos, and the panelling round the walls. And not the least of the good qualities of this church are the dignity and solemnity which suggest its purpose and intensify the influence of its service. It may be as well to

add that the present square bases of the columns are the original ones, but were formed in 1887, I believe, the authority of an old drawing of the interior, in the old octagonal ones. This was at the time when high pews were removed by Mr. Penrose and replaced by the present benches. Whether the change of seating such an advantage as is commonly thought is a question. I have heard it said by those who knew the church before the alteration that the proportions were better with the high pews, and I am disposed to think my view of the matter is correct.

There are many more churches to which I might have referred, and much more might be said about those I have described, but we have seen a fairly representative selection of them, and I hope sufficiently interesting ones to show that the churches of Sir Christopher Wren's are valuable and important architectural monuments for the most jealous care and exercised in the preservation of them from injury or destruction. The plea that they are little used and that for the one it is possible to build three or four useful churches in the suburbs, is an utterly unworthy one, fit, as a writer in the *Saturday Review* has pointed out, to be classed with the plea that was once made for an alabaster box of ointment, precious, which might have been sold for 300 pence given to the poor. I have no doubt we could extend the rates of London for ever by letting Hyde Park building plots, or we could finance a missionary society by selling the Crown jewels. There is no limit to the suggestion that may be done if the merely utilitarian principle is admitted. The people who built these churches have weakened and impoverished by civil war, by plague, by fire, and they were in constant danger from their exposure across the sea, and yet they made the sacrifice required to build them. If their descendants in the London suburbs want churches, let them pay for them themselves or show their richer brethren good reason for doing so. They have no right to rob an historic city of the memorials of those who made it great, no right to destroy the beauty they cannot replace, and no right, I think, to deprive those who do use them—there are very many who do—of the opportunity of coming into these churches to say their prayers and to rest and meditate—of their escape from the worry and hurry of City life. Mary Howitt has expressed the matter better than any words of mine can.

Mr. PHILIP NORMAN in some notes upon the subject of the Great Fire of 1666, wrote:—A dire catastrophe is apt to call forth the efforts of the master mind that can grapple with it. This was the case when, after the Great Fire of 1666, Sir Christopher Wren, at that time hardly a professional architect, attracted his attention to the City. He first produced a plan for a general rebuilding, which would have given free scope to his genius, though at the same time destroying many of the buildings of the past. The chief public buildings were to have been grouped round the Royal Exchange, which would have formed an important centre, St. Paul's Cathedral approached from the east by two broad converging streets. A river quay in part adorned by the City Halls would have extended from Blackfriars to the Tower of London, and the churches were to occupy commanding sites, their burial-grounds being outside the City. The minds were not ripe for such a change; the narrowness of the streets would have entailed a large displacement of the population. The difficulty of adjusting private property to the requirements of the public would also have been extreme, and so the City grew more or less on its old irregular lines. To Wren, however, was assigned the task of rebuilding or repairing the churches of the City. St. Paul's Cathedral, but if one includes St. Mary Woolchurch, and St. Sepulchre (both only repaired), no fewer than 17 churches of the City. In carrying out this work he had a unique opportunity which he turned to marvellous account. Living at a time when the principles of Gothic architecture had completely died out, he accepted the Classic style, but from them he evolved more or less a style of his own, suitable for the requirements of the time and climate. His originality, this power of adapting himself to circumstances, that he diverges from his great predecessor Inigo Jones, who had studied in Italy (Wren never going beyond France), and who had more completely assimilated the teachings of Vitruvius and the example of Palladio. Helped by his knowledge of mathematics and geometry, he was also a skilful constructor. His churches were made for Protestant worship as it was understood in his day. What he has said on the subject is clearly set forth in his own words, "It would be vain to make a parish church larger than the number of all who are present can both hear and see. The Royal



may build larger churches; it is enough if they hear the murmur of the Mass and see the elevation of the Host, and the Host is to be fitted for auditories."

Christopher started with no school of artists or men to help him in the detail of his buildings. As time went on he gathered together round him capable men as Strong the master mason, Jennings the carpenter, Tijou the metal worker, Grinling Gibbons created quite a school of English carving, Sir James Gandon, and others, so that he could use appropriate embellishment as far as the means at his disposal allowed. Following the example set him in the great City churches, he seldom built chancel-chancels, but usually formed a quasi-chancel by a carved screen standing upon the pews, which in some sort represented the ancient rood-loft. At St. Andrew's, the Great and St. Peter's, Cornhill, there were important screens. Pews and galleries, when occurring in ancient churches, had been usually of the nature of excrescences, but both formed an integral part of his design; for although in a letter printed in the "Parentalia" in 1711 that he would have preferred benches to pews, for reasons which are there given, he followed the then prevailing fashion. The organ, when introduced, was enclosed in some case, and was placed in a gallery at the west end so occupied by the choir. The pulpits were finely carved, and with their large sounding-boards looked very important. At the east end was a high carved oak altar, usually surmounted by the Royal arms and flanked by the Lord's Prayer, the Creed, the Ten Commandments, and paintings of Moses and Aaron. The fonts were basin-shaped vases supported on baluster shafts, and as a rule a well-carved oaken cover. Where a site was hidden away in an obscure corner he lavished his art on the interior. Inside, alas! these great works of the great Protestant architect have most of them been terribly falsified by a succession of ignorant and tasteless alterations. A common defect with the "Wren churches" is that by the addition of deeply leaded glass—often also by the blocking of windows—they have become extremely dark, so that it is necessary to use gas or electric light, the former most destructive of masonry. Upon a careful study, the rectilinear lines of Wren's glazing, at first sight a trivial detail, will be found an essential element of his design. The injury, therefore, done to the churches by the introduction of stained glass having irregular leading cannot be estimated. The introduction of machine-made tiles, far from the standards of pseudo-Gothic design, may also be added among the abominations which have disfigured the churches. It is only by visiting a succession of churches and by piecing together what one sees, that it is possible to conjure up in "the mind's eye" their probable appearance as he left them.

The churches of the City of London are gradually passing to changed conditions and the utilitarian ideas of the present day. Eighteen of Wren's buildings have already been destroyed, besides many of later date. The first to disappear was Christopher-le-Stocks, when the Bank of England was built in 1781. St. Michael, Crooked Lane, was swallowed up in the approaches to New London Bridge in 1811. St. Bartholomew-by-the-Exchange made way for the Exchange Office, and shortly afterwards St. Benet Fink was pulled down on account of its proximity to the present Exchange. Since the passing of the Union of City Act in 1860, fourteen churches designed by Wren have succumbed, and attacks on others are withered off. It is earnestly to be hoped that the public mind is now awakened to the value of Wren's churches, and that we shall endeavour to preserve one of his work that remains.

ALFRED MOORE (hon. sec. City Churches' Preservation Society), in proposing a vote of thanks to the author, Mr. Knight for reading the paper, said some of them went back to the study of the City churches with a new mind and he hoped ponder on the genius of Wren and the work of his Master. It was to be hoped, he said, that "the public," as Mr. Keen had satirically called the gentleman responsible for certain recent renovations, would profit from the remarks. There could not be too many books and papers written about London churches, for the people had yet to learn their beauty and their use. He ended by saying a few words with reference to the "City Churches' Preservation Society," mentioned by the lecturer. The wonderful Act was passed, known as the "Union

of Benefices." Apparently at that date the destruction of nearly all the City churches was contemplated, because St. Stephen (Walbrook), St. Martin (Ludgate), St. Peter (Cornhill), and St. Swithun (Cannon Street), and those only, were exempt from pulling down by clause 14 of the Act. Under its powers seventeen churches had been destroyed, twelve of them Wren churches, the others mentioned by Mr. Keen having been taken for so called improvements. When the Churches' Preservation Society was revived in 1894, three Wren churches were doomed beyond redemption, two of them having fallen into disrepair, but since then no church by him had gone. Three more were "commissioned," but the efforts of the Society prevented the vandalism. When All Hallows, Lombard Street, was under notice, those chiefly interested in the parish were interviewed, and the Society eventually, aided by friends, saved it.

MISS PHILLIMORE seconded the vote of thanks.

Mr. H. H. STATHAM, in supporting the motion, said it occurred to him while they were going through the examples to consider what it was that Wren's churches exactly showed architecturally, and what could be learned from them. He thought the great lesson was that the essentials of that fine architecture after all did not lie so much in the detail, good as that was in its way, so much as in the power of giving expression to good variety of plan and treatment of section. Each of those buildings by turn seemed to be almost a distinct idea. The shape of the ground seemed to have suggested the architectural method of treatment, and they had one after the other buildings as varied as possible, and of which the treatment in section was as varied also. They each formed a sort of architectural idea. He was inclined to dwell on that point, because it did not do to exalt Wren's detail too much. A great deal of it was probably not Wren's at all; he gave the general design of the church, and probably the greater part of the decoration was really the habitual work of the carvers of the day. Some of Grinling Gibbons's work was beautiful in execution, though he, the speaker, had never admired it from an æsthetic point of view. Another reflection he made, said Mr. Statham, was what a pity it was that the interiors they had seen were not carried out in monumental materials.

Mr. S. FLINT CLARKSON also supported the vote of thanks.

Mr. W. MILLARD said they had heard and seen a good deal of the interiors of Wren's churches, but he did not think a want of monumental effect could be charged against the exteriors of those buildings. Virtually they were big public buildings which stood up well above the houses and were not swamped as now by their surroundings. The dimensions of the churches, too, suggested how beautiful in scale the City of London must have been for a century after they were erected.

The vote of thanks was passed by acclamation.

## INSTITUTE OF IRISH ARCHITECTS.

THE annual general meeting of the Royal Institute of Architects of Ireland was held last week.

Mr. Frederick Batchelor, president, was chairman.

The hon. secretary (Mr. James H. Webb) read the report of the Council, which stated:—The Local Government Board, with a view to facilitating the formation of schemes for the erection of cottages under the Labourers (Ireland) Act, 1906, promoted a competition amongst architects by asking for designs for a labourer's cottage at a cost not exceeding 130*l.* complete. Your Council viewed with considerable disapproval both the principle of such a competition and also the conditions laid down by the Board. Several communications were received from members dealing with the working of the regulations under the Act, and your Council decided to ask the Local Government Board to receive a deputation to further explain the views of the Institute. As, unfortunately, the Board declined to receive the deputation, a statement clearly setting forth its views was prepared by your Council and forwarded to the Board. To this statement no satisfactory reply was forthcoming. Some further correspondence passed on the subject, but your Council regrets that this important public department does not apparently understand that by placing the responsibility for the erection of these cottages in the hands of unqualified men it is not promoting the public welfare, and is, by its action, creating a vast number of so called "architects" throughout the country who will engage in practice in competition with qualified men, greatly to the detriment of the public and the prestige of our profession.



The President delivered an address. Having returned thanks for his election, he said he desired to address them briefly on the duty that was laid upon that Institute, in common with all other architectural societies, to arouse public interest in architects, their functions and their responsibilities—in other words, the duty of educating the public in the fundamental knowledge of what an architect was. He believed that the secret which lay at the bottom of a great deal of the employment of unqualified men throughout the country might be traced to the ignorance which existed amongst the vast majority of their fellow-countrymen in regard to the duties and qualifications of an architect. He was not sure that that ignorance prevailed to the same extent in England, but in Ireland, and more particularly in the country districts, the very nature of an architect's work was enshrouded in mystery. Was it any wonder that whilst such ignorance existed it should appear to most people an unnecessary extravagance to employ an architect when there were so many builders to be found ready to prepare the drawings free of cost? Was it any wonder that such ignorance existed, seeing it was but the reflection either of ignorance or of indifference on the part of those who ruled in high places in regard to the development of the fine arts, and more particularly of the art of architecture? What will be the opinion of those who come after them concerning the refinement and culture of this age if they were judged by the standard of art as reflected in the buildings which were being erected by the county and rural councils through the country, or, to go even a step lower, by most of the cottages which were being constructed in such wholesale fashion under the provisions of the new Labourers (Ireland) Act? That Act, to which reference had been made in the annual report, would have, he feared, far-reaching consequences inimical to their profession, and as a natural corollary inimical also to the public interest. They had heard how the Local Government Board received a strong protest made by their Council. Mr. Birrell in a letter to the Council, in reply to our protest, stated that he fully agreed in the view expressed by the Local Government Board, viz. that the architectural work in connection with the erection of these cottages was not such as to require specialised knowledge, and that the Bill was accordingly framed so as to admit of the employment of persons who were not qualified architects. The result of that unwise policy would undoubtedly be that every person appointed under that Act to supervise the erection of these labourers' cottages would thenceforward consider himself entitled to take rank as a fully qualified architect. This was a very serious state of things, for how was the public to discriminate between men who had acquired such culture and technical skill as they possessed, after long years of apprenticeship and of unremitting study and toil, and those who had no greater right to the title of architect or civil engineer than that which might be claimed by the proverbial "man in the street"? Until the public was brought to recognise that the diplomas conferred by the R.I.B.A. and by those societies which, like their own, were in alliance with it, were the only standard of professional proficiency on which the public can place any reliance, apart from the personal reputation of the architect; until the public was able to discriminate between these diplomas and the spurious titles they should have to suffer the rivalry of the unqualified "C.E." It might be asked were these diplomas any real guarantee that those who held them were possessed in any degree of the divine gift of artistic design. Did they denote a high standard of mental culture or of architectural ability? Did they, in fact, do more than show forth to the public that their possessors were members of a trade union? These were hard questions, and if they would be honest with themselves they must admit that the standard of technical proficiency on which their diploma was conferred had hitherto been fixed less with the view to enable the public to distinguish between the real architect and his counterfeit, as with the object of enlisting within our ranks every person who, having entered the profession through recognised channels, had passed the prescribed period in the study or practice of architecture, but with little, if any, regard to the knowledge he had acquired during those years. It was this consideration, supported as it was by the urgent request of the Architectural Association that they should supply some incentive to its members to pursue the systematic course of study provided for them, which influenced that Institute in its decision to create the class of students to which reference had been made in the annual report. The qualifying

examination, the passing of which would be made a condition precedent to admission, would, he trusted, afford the required stimulus; and in order to induce a spirit of emulation among the candidates he proposed to revive the practice which obtained in former years of presenting a medal similar to the one which used to be known as the "Fitzgerald Medal," and which was presented by Fitzgerald, one of the first presidents of their Institute, some seventy years ago. Now, it must be recognised that by establishing that examination and by determining after a certain date, which had yet to be fixed, medals should be recruited solely from the studentship class, the Institute had embarked on a course which would, if successful, remedy some, at least, of the evils to which he had referred. But they must face the fact that the way to success lay through registration, and he regarded the recent decision of this Institute as the first definite step in that direction. He felt that there existed in Ireland a pressing necessity for the protection which would be provided in a measure for the statutory qualification of architects.

Council for the year 1908 consists of the following Messrs. George C. Ashlin, W. M. Mitchell, R. C. O'Connell, C. H. Fishworth, G. P. Sheridan, C. A. Owen, H. Allen, A. E. Murray, C. J. MacCarthy.

#### APPLIED ARTS AND SCIENCES.

THE committee on applied arts and sciences of the American Institute of Architects was instructed to consider such questions as, first, "How to overcome unsatisfactory conditions due to the severance of intimate relation once existing between architect and craftsman;" second, "How to facilitate the delegation of design to craftsmen;" and third, "How to secure assistance to the architect in his work from the arts and crafts movement." The following report is the result of their inquiry:—In order to know how to overcome the unsatisfactory conditions due to the cause above stated, it is necessary to understand the nature of the original conditions and the reasons underlying the changes which have led up to and still compel "the severance of the intimate relation once existing between architect and craftsman." Even with a knowledge of the facts, power to do not always follows desire to do, and to overcome or to know how to overcome the unsatisfactory conditions is not within the power of a single committee, a single body, or a single generation. A partial knowledge, however, may suggest mitigations, where it cannot effect radical change. The intense apathy of the great public toward art, the general lack of knowledge or care as to what constitutes art, the art touches life, the utterly commonplace and devitalised attitude on part of public and designer, of seeking the path of least resistance, of harking back to something which is well known and can be recognised on the instant—all this conspires against the elevating of art standards and the architect, if he would, cannot rise above the general flood of wilful and self-satisfied satisfaction. It seems perfectly demonstrable that in great periods of art everybody loved and appreciated beauty, whether actual producers thereof or not. The power to create and the capacity to appreciate it sprang from the conditions of life and inherited in all classes—at least the capacity for appreciation was general. The artists themselves, until the Renaissance, were drawn mainly from one class, and that not socially a high one. They were banded as brothers; their training was within and was developed by association; their minds were of about the same calibre, and mutual sympathy in the art and ideal made for the best. Class distinctions in art do not exist in the lofty periods as they do now. Even in a great democracy these distinctions are most clearly marked. The doers, that is the craftsmen, are of the lower class; the designers are a grade higher in the social scale. The architects are coming more and more from the cultivated class, and, unfortunately for art, many of the independent means are seeking the profession because the work is genteel. The art patrons and they who may dictate the monumental art of the world are of the moneyed aristocracy. The assumption of knowledge and the possession of it in the upper classes begets in the mind of the worker a dull subservience which does not make for art, and on all accounts is to be deplored. The general system of education is herein at fault, for it touches life superficially and gives to "educated persons" a



attering of the non-essentials of art and to the workman-ness knowledge, the sole end of which is its mintable-ity. And life has not gained by that phase of modern-ization which devotes its energies to developing art-lucers. Once art was lived, now it is taught. "Schools-t" have come to be considered necessary. But schools-not seem to have justified themselves, while they do-in no small measure to justify the proverb, "When-ols come in, art goes out."

an irrational system of general education, then, and-ly drawn class distinctions, especially in the field of-production, would seem to be marked factors in this-stance of ties between architect and craftsman. ising the great advantage to the art worker in the old-ate conditions, many great and rare minds have-ated an advance beyond the unsocial and wholly-onal tendencies of modern life, to an ideal existence-r State socialism, viewing the matter as one falling in-ange of political economy. It would seem that in this-have not been wholly justified, for the great creative-ds of art and those referred to during which love and-ociation of art have been general, have occurred under-d forms of government and have been wholly inde-ent of the nature of the governmental structure. The-r is largely one of social ethics, of mental development-f social economics, and not at all of governmental-s. The socialism which shall bring joy in labour is-cessarily governmental, but it is greatly to be feared-the socialism which is governmental will operate to-e humanity to one dead level of incentive, of capacity-ievement, and may be of recompense, though that is-not importance. The arbitrary apportionment of task-1 must almost of necessity accompany any system-ate initiative and supervision of activities cannot-ise than stunt personality and individuality. But-phase of socialism will hardly endure, for the-ilation of the distinctive functions of the various-pers can no more prevail in the body politic-it can in the individual, the body natural. For by-e and design (if we grant to the great universe a-ing force) certain individuals, as certain members, are-nted—not condemned, but consecrated—to do certain-and the pleasure and profit to the individual need not-arily be in the work he performs, except as that work-essary to the wholesome life of the body general. In-words, the feet are not to take upon themselves the-of the hands; the heart finds itself in deep and-ed waters when it takes upon itself the functions of-ain; the brain is incapable of doing the work of the-

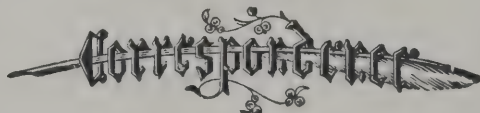
The effort of a new civilisation should be, not to-individuality, not to smooth to a dead level the face-ure, the southern slope which catches the sun and the-l eminence which shields it from the winds, but to-life tolerable where it has been intolerable, to make-bloom where no beauty has been, to minimise as-possible the burden of irksome toil and to make the-l conditions of life productive of the higher happiness.-gh education and better environment the State may-he general life fruitful of sane enjoyment. A broader-ion, a wider sympathy, a deeper knowledge of the-s of life, a developed love of beauty in the mind of-e and a passionate zeal to express it, will reunite the-ed relation of intimacy which once existed between-, interpreter and laity; that is, architect, craftsman-ublic.

til an advanced state of art endeavour and of art-iation has been reached the architect need not-ily concern himself with the matter of delegation of-to craftsmen. The question is, rather, how far shall-rsonal equation be allowed to enter in the inter-on of a sketch by the craftsman? No broad-minded-ct shuts himself off from the suggestions of draughts-r craftsman. But unless there be a singleness of-t and purpose in the minds of architect, assistant and-eter, an understanding born of long seasons of sym-c interchange of thought and idea, suggestions will-arely toward a unified expression. The wise archi-ill seek to have about him understanding and-hetic assistants in all branches, but the architect need-k to escape the travail of creation. Does the work-own upon him? He must realise that beauty comes-1 stress, perfection through infinite pains, life comes-rough death. The practical solution of the problem-ay would seem, then, to be for the architect to bring-as far as possible into the same relation with the-an that he holds with his assistant over the board,

and failing that should seek the craftsman whose work expresses a parallelism of idealism and motive, and having found, employ that hand to execute the work and that mind to interpret the sketch.

The so-called arts and crafts movement, we must frankly realise, has not yet entered the stage in which it can be of much or of any assistance to the architect. The movement as such has not yet affected the great body of craftsmen. Artists and craftsmen connected with the movement have confined their thought and activity mainly to the design and execution of single and simple objects of use or beauty, such as pieces of furniture, household utensils and bits of decoration. In most of this production the amateur spirit is manifested and not any of it bears upon the greater problem of architecture. Most of the artist-craftsmen have no intimate knowledge of architectural principles, which is to be regretted; and, too, they have had no architectural schooling, upon which they are to be congratulated, at least those of them to whom such schooling would mean the acquirement of an academic method and a frame of mind which expresses itself in the application of architectural details to the various simple objects rather than in a lucid recognition of the limitation of materials and a frank adaptation of form to use. It is in the design and execution of stained glass for windows and ornamental metalwork and carvings, which the arts-craftsmen are called upon occasionally to accomplish, that the want of appreciation of architectural and structural lines most manifests itself. Now and then arts-craftsmanship has undertaken to impress its spirit upon some modest example of cottage architecture, and has succeeded; but these are sporadic cases, and do not affect in any way the general tendencies. The architecture of the cottage, of the lesser house, of the villa, of the mansion, of the palace, is but a reflection of the greater architectural spirit, and until architects have learned to handle the greater architectural problems, and to solve them on their merits without reference to conventions established in other climes, under other conditions, the lesser architecture will suffer from and express the same want of capacity for freshness of invention and directness of thought, the same inability to more than rehash old *motifs* which finds expression in the greater and the monumental architecture of the day.

It were unjust to place upon the architect the entire blame, for blame there is, in all this abuse of tradition. It were better to attribute it in the large part to the lack of taste and of knowledge which exists because of the certain deficiencies in our civilisation, the lack of correct methods in education which fosters the general ignorance of and indifference toward all forms of art. The germ of hope lies in the attitude of some of the lesser architects, and in the arts and crafts movement—not so much in what it has accomplished as in the spirit which animates it. The movement portends an awakening to art consciousness. But great and monumental architecture must be the expression of a deep, broad, spiritual life, and cannot be built up by accretions to any movement, however vital, sincere and wholesome it may be. The lesser architecture must, in the final expression, follow and reflect the greater. Yet even to-day, while in special instances the architect may enjoy the assistance of the individual artist-craftsman, architecture in general reaps no advantage from the arts and crafts movement.



#### The United Arts Club Pictures.

SIR,—Referring to the full report you gave last month of the proceedings in the Court of Appeal, when I failed to get protection for the 195 artists whose pictures, &c., were seized by the superior landlords of the club's premises, your readers will be pleased to know that with the assistance of a few kind sympathisers and the forbearance of the superior landlords, I have succeeded in buying back the artists' property, and the works are being returned to the owners free of expense to them. I am also glad to say that after December 31, when the exhibition now being held at the Grafton Galleries ends, the club will continue to be carried on at Rumpelmayer's in St. James's Street, where excellent premises have been secured for the accommodation of members and the holding of exhibitions, concerts, &c., as heretofore.—Yours faithfully, F. C. T. CHALLONER.

Grafton Galleries : December 1907.



## GENERAL.

**Mr. T. E. Mansh**, stated to be the oldest member of the Institute of Civil Engineers, died on the 19th inst. at Grosvenor Place, Bath, aged eighty-nine. Deceased was assistant to Mr. Brunel, the engineer, who constructed the Great Western Railway.

**Mr. David A. Donald, C.E.**, Newport, has been unanimously appointed burgh surveyor of Grangemouth. The salary is 160*l.* per annum.

**The Arrangements** for the third international congress for the development of drawing and art teaching, which is to be held in London from August 3 to August 8 next, are being rapidly pushed forward. H.R.H. the Prince of Wales has consented to become the patron of the congress. The branch of the congress dealing with the application of art to industries will be very representative, and has already aroused the interest of many large manufacturers. It is hoped that the congress will not only give an impetus to the teaching of drawing in all schools, but will form the basis of a better co-ordination of art instruction from the primary schools to the schools of art or craft schools.

Since **Mr. Burns** became president of the Local Government Board, in December 1905, the Board's inspectors have held inquiries into 91 housing schemes (49 being formal, after public notice, and 42 informal), and 62 have been sanctioned. The total amount of the loans which have thus been authorised is 332,955*l.* The items include the following:—Bangor, 6,919*l.*; Birmingham, 4,000*l.*; Bolton, 4,540*l.*; Bradford, 21,858*l.*; Chiswick, 11,100*l.*; Coventry, 13,630*l.*; Hornsey, 45,390*l.*; Leeds, 34,681*l.*; Liverpool, 1,864*l.*; Manchester, 14,867*l.*; Merthyr Tydfil, 13,760*l.*; Richmond (Surrey), 20,002*l.*; Sheffield, 19,120*l.*, 29,208*l.*; Sunderland, 29,633*l.*

**A Deputation** from the Stockport Town Council visited Birmingham last week to inquire into the question of the housing of the working classes in the city. They were received by the chairman (Mr. J. S. Nettlefold) and other members of the housing committee, and were driven to several parts of Birmingham and shown the improvements that had been carried out.

**A Lecture** was given by Mr. E. W. Harvey Piper before the Architectural Association Camera Club on "Southwell Minster." It was illustrated by over a hundred lantern slides, and described details fully.

**The Finance Committee** of the Liverpool Corporation have appointed a sub-committee to continue negotiations with the Docks Board and the Custom House authorities for the purpose of combining in one building a Custom House and salt-water baths, the latter in the basement of the block. Architects had expressed the opinion that it was possible to build the combined building on this site, which is 3,700 square yards in extent, and which the Docks Board (it was hoped) would dispose of at 5*l.* per square yard. The mutual difficulty lies in the determination of the Docks Board that no building higher than two storeys be erected on this site, as it would detract from the appearance of the new docks building. It is now hoped that the Board, who are strongly in favour of the new Custom House, will waive this stipulation, otherwise the scheme cannot be recommended to the City Council and the Treasury.

**At a Meeting** of the Town Councils of Banff and Macduff, as the administrative body of Duff House, an animated discussion took place on the question of the utilisation of the gift. Plans with estimates of the cost of adapting the building for the purposes of a hydropathic were submitted, and it was agreed to advertise inviting a syndicate or any person to make an offer for leasing the building.

**The University of St. Andrews** has resolved to confer the honorary degree of LL.D. upon the following:—Lord Avebury, Mr. Francis Darwin, president-elect of the British Association; Mr. Philip Norman, treasurer of the Society of Antiquaries; Sir E. J. Poynter, president of the Royal Academy.

**A Meeting** of the Holyrood Chapel restoration committee of the St. Andrew's Society was held in the City Chambers, Edinburgh. The meeting had before them a letter from the agents of the trustees appointed by the late Lord Leven in which, it is understood, they state the adherence of the trustees to their former decision. The letter was in reply to a communication sent by the committee, who forwarded the views of builders and architects as to the feasibility of the restoration of the chapel. The committee decided to place the whole correspondence and relative documents before the public at an early date.

**The International Society of Sculptors, Painters and Gravers** will hold two exhibitions following each other at the New Gallery, the first the ordinary general exhibition which will have an unusual show of the most advanced foreign work, and the second a modern exhibition of "Women." MM. Blanche, Bernard, La Gandara, Bolognini, Rodin and all the great foreigners will be well represented and there will be a special collection of the British section. The private view of the first exhibition will be held on the evening of January 7.

**There was a Large Gathering** at the Municipal School of Art, Birmingham, on Saturday, consisting of the numerous members of the staff and past and present students, to show their regard for Mr. Charles Morgan, who, after forty years of service to the school, is retiring, in accordance with the provisions of the superannuation scheme. He has served under three successive head masters, and since 1898 filled the post of second master. The parting gifts consisted of an address, together with a sum of money sufficient to defray the cost of a prolonged continental tour.

**The Crewe Education Committee** have announced that Earl of Crewe had accepted the offer of the Cheshire Education Committee of 6,050*l.*, for ten acres of land on the Crewe Hall estate, to be used as a site for the proposed training college for teachers. The college will command a fine view of Crewe Hall Park. Dr. Hodgson, chairman of the County Education Committee, said the college would be easily accessible to students from all parts of Cheshire in touch with Crewe's model school.

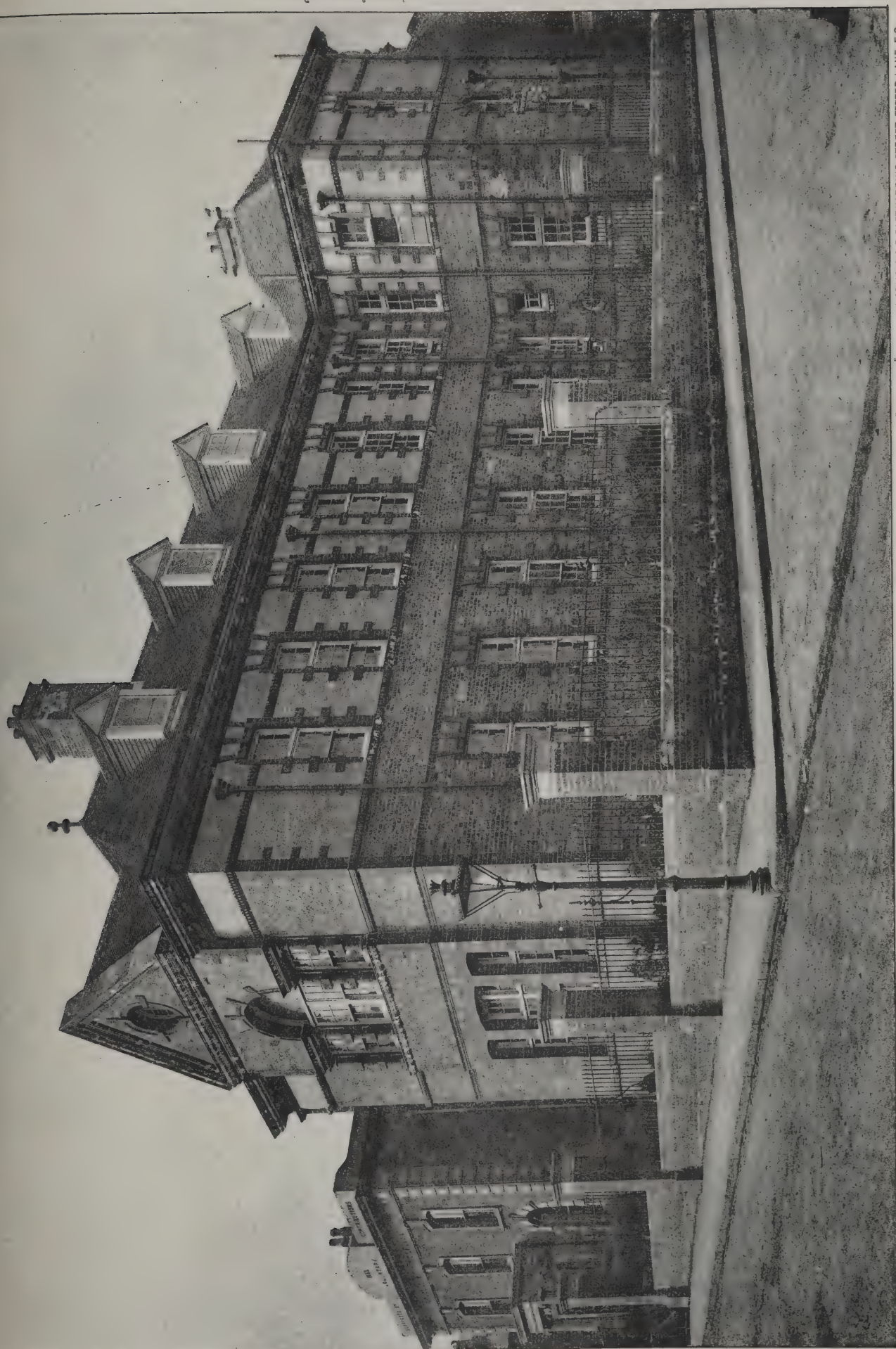
**Mr. John B. Westcott**, for thirty years architect and surveyor to the Office of Works, died suddenly on the 16th inst. Mr. Westcott entered the department as an assistant surveyor in December 1877, and was many years in charge of the post-offices and other buildings in the south-east district of England. In 1893 he was made first assistant to Sir John Taylor. On his retirement, in 1898, Mr. Westcott was appointed to succeed him as architect and surveyor in charge of the Royal Palaces, Houses of Parliament, British Museum, and public buildings generally in London. He carried out extensive internal alterations at Windsor Castle and Buckingham Palace. More recently he was responsible for alterations at the Houses of Parliament, a vaccine station at Hendon for the Local Government Board, the extension of the Patent Office in Fumival Street, and alterations and additions at the Royal Mint. He was at the time of his death in charge of the new block of the National Gallery.

**Formal Notice** is given of the intention to promote in the ensuing session of Parliament a bill relating to the Malvern Hills. Among other things this will propose to enlarge the powers of the conservators, to prohibit quarrying on any part of the Malvern Hills in a manner that may prove to be a temporary or permanent disfigurement of the scenery, and to empower the conservators to make and enforce by-laws for regulating the operation of quarrying on any part of the hills.

**We Regret** to have to announce the death of Edward George Hayes, A.R.I.B.A., which took place at his residence, 18 Norfolk Road, St. John's Wood, N.W., on the 21st inst. Mr. Hayes was for over thirty years a member of the firm of Searle & Hayes, of 66 Ludgate Hill. He was formerly of Paternoster House, E.C., from which he retired only a few years ago. In his earlier career Mr. Hayes served in several offices in connection with the Architectural Association, including that of President.

**A Quarterly General Meeting** of the Glasgow Institute of Architects was held on the 18th within the secretaries' chambers, St. Vincent Street, Mr. James M. Monro, president, in the chair. The following were unanimously elected Fellows of the Institute, viz.:—David V. Wylie, 102 Bath Street; Robert Wemyss, 103 Bath Street; Charles E. Whitelaw and Henry Mitchell, both of 219 St. Vincent Street; and it was reported that Messrs. Balfour Abercrombie, 131 West Regent Street, and James Allan Lauchlin, 9 London Street, had been elected associate members. The Institute resolved to support a motion to be made at a meeting of the R.I.B.A. on January 6, by Mr. G. A. Middleton, dealing with the question of alterations in the existing by-laws of the Royal Institute so as to provide for the competency of demanding a poll on any resolution of the fellows and associates, provided that such poll be demanded by at least twenty-five members, of whom the majority shall be fellows, and that the resolution has been either passed or negatived by a majority of less than two-thirds of the present and entitled to vote. The dinner of the Institute to celebrate the union of the Institute with the Glasgow Architectural Association will be held in February.





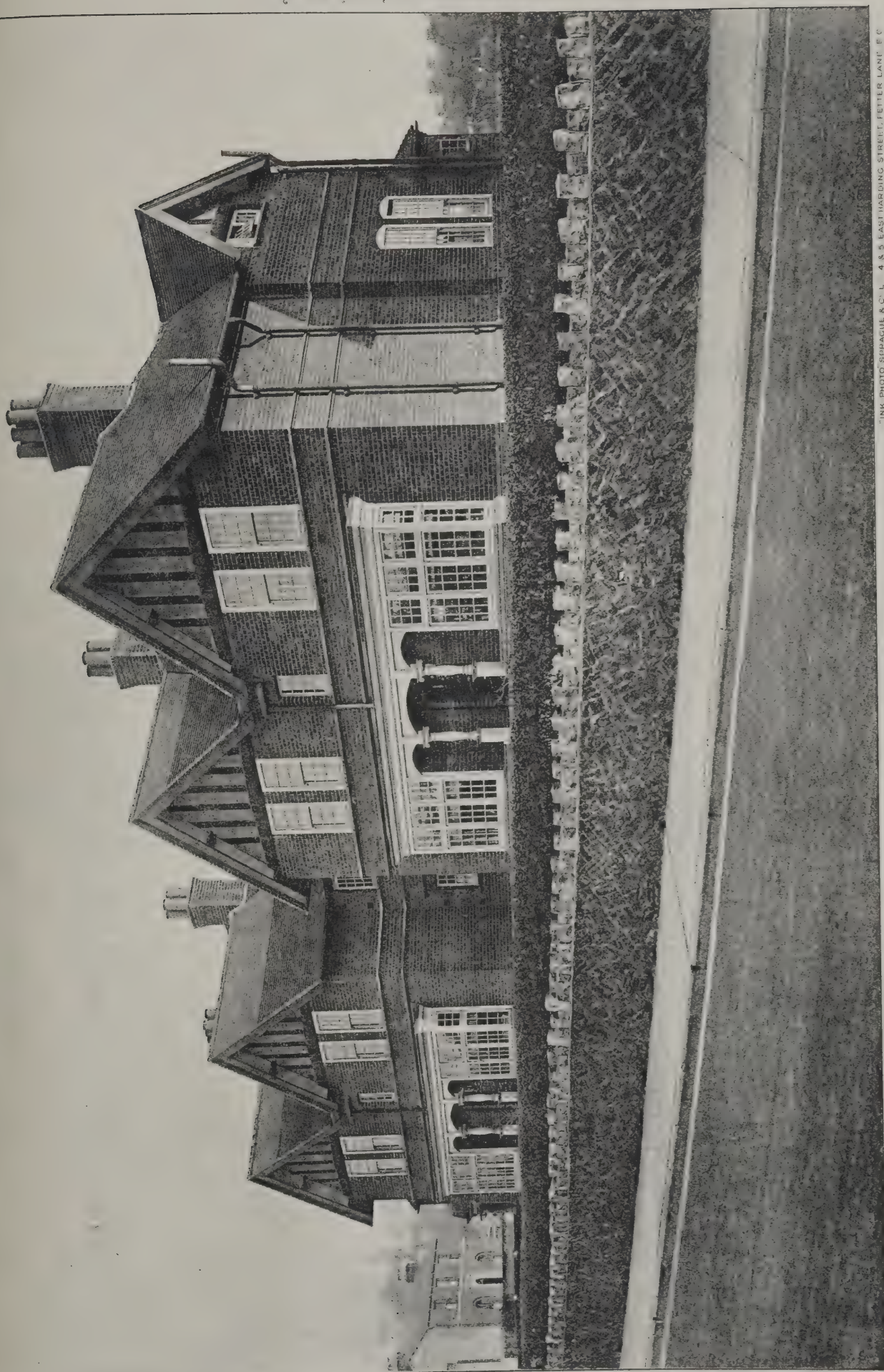
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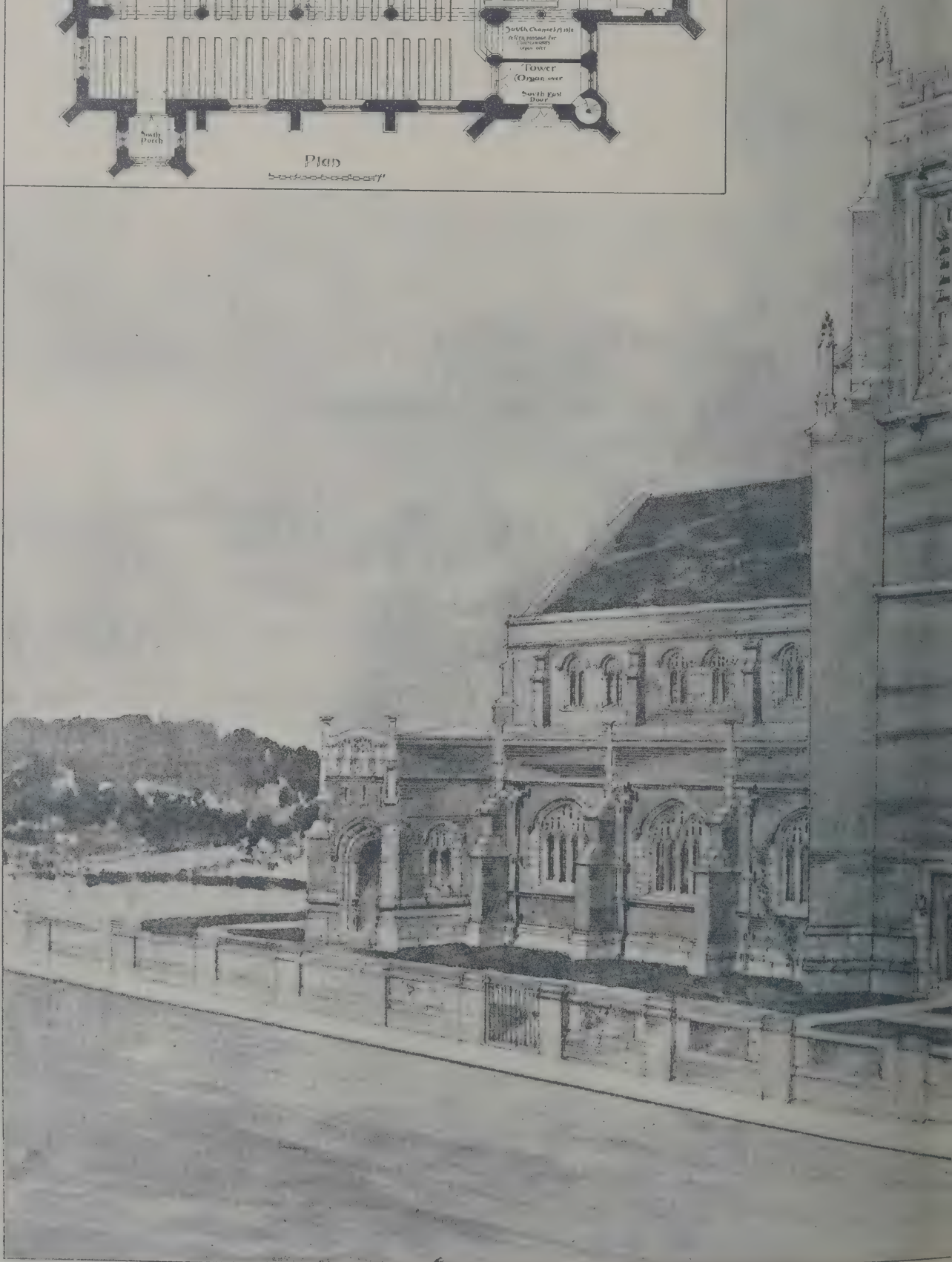
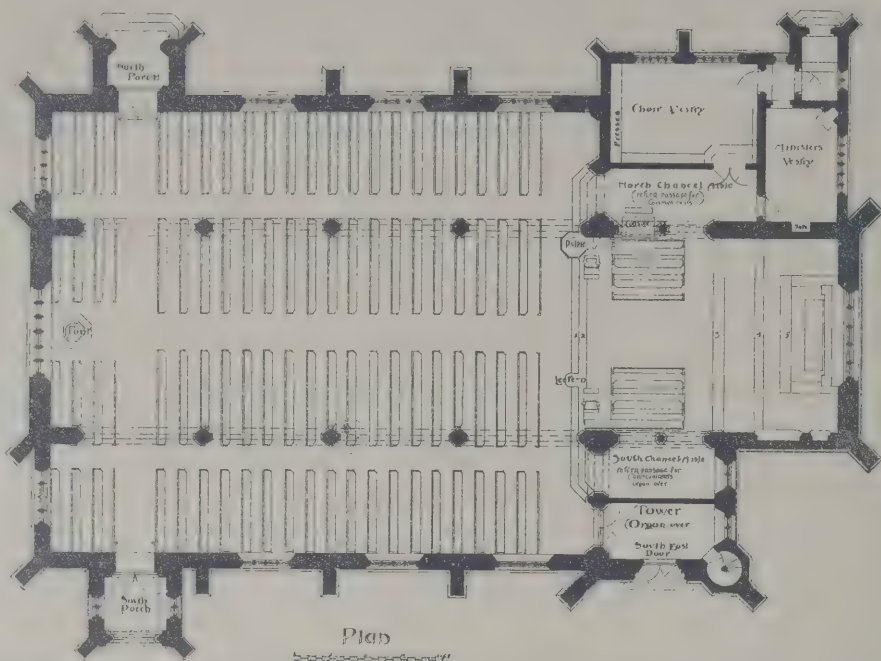
















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# THE Architect and Contract Reporter.

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## EDITORIAL NOTICES.

of the many difficulties which are certain to arise in  
connection with the law, practice rules and procedure under  
the Workmen's Compensation Act, we have added to our  
staff A VERY EMINENT BARRISTER, who has  
made the subject a special study, and will be glad to answer  
the columns of this paper any questions relating to the  
complicated matters arising from the provisions of this  
difficult Act. Our LEGAL ADVISER will further  
answer any legal question that may be of interest to  
our readers. All letters must be addressed "LEGAL  
ADVISER," Office of "The Architect," Imperial Build-  
ings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications  
as brief as possible. The space we can devote to Corre-  
spondence will not usually permit our inserting lengthy  
communications.

The Editor will be glad to receive from Architects in London  
and the Provinces results of Competitions and Tenders  
and other particulars of Works in progress in which they  
may be interested.

No communication can be inserted unless authenticated by the  
name and address of the writer—not in every case for  
publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must  
necessarily be held responsible for their contents.

## TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-  
appearance of Contracts Open, Tenders, &c., it is par-  
ticularly requested that information of this description be  
forwarded to the Office, Imperial Buildings, Ludgate  
Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

IRELAND.—July 20.—The County of Cork Joint Hospital  
Board invite competitive plans for a sanatorium for con-  
sumptives with accommodation for seventy patients. A  
prize of 100l. will be paid for the plans which the Board  
may adopt, provided that said plans are sanctioned by the  
Local Government Board, and said plans shall become the  
absolute property of the Board. Intending competitors  
will receive a map of the site and other information on  
sending P.O. for 10s. to Mr. E. J. Murphy, secretary of the  
County of Cork Joint Hospital Board, Court House, Cork.

WEYMOUTH.—July 30.—The Weymouth Town Council  
invite designs for a pavilion to be erected on the north side  
of the pier. One hundred guineas will be awarded for the  
selected design, such design to become the property of the  
Council. Mr. H. A. Huxtable, town clerk, Municipal Offices,  
Weymouth.

## CONTRACTS OPEN.

ASHEN AND STOKE.—July 11.—For the erection of a  
bridge over the river Stour, between the parishes of Ashen  
and Stoke, Suffolk. Mr. H. Brown Thake, surveyor, Haver-  
hill.

ASHFORD.—July 11.—For the erection of a cloak-room,  
lavatory and other alterations at the pupil-teachers' centre,  
Fairlawn. Mr. J. Creery, secretary to sub-committee, 11 Bank  
Street, Ashford, Kent.

BARNCOOSE.—July 8.—For providing additional cloak-  
room accommodation at the Council school. Mr. Sampson  
Hill, architect to the committee, Green Lane, Redruth.

BARNLEY.—July 10.—For alterations and additions to  
business premises, 97 Sheffield Road. Mr. Ernest W.  
Dyson, architect and surveyor, 10 Regent Street, Barnsley.

BARNLEY.—July 15.—For the following works to be  
carried out at Hoyle Mill C. school during the Midsummer  
holidays, viz. painting inside and outside of mixed depart-  
ment, painting outside of infants' department, repair of roof  
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necessary, pointing round offices and making boys' urinal satisfactory. Mr. T. Graham, divisional clerk, West Riding Education Office, Obelisk Chambers, Barnsley.

BASSINGBOURN.—July 13.—For alterations at the mills, Basingbourn, Cambridgeshire. Messrs. Nash, Son & Rowley, estate agents, Royston.

BASINGSTOKE.—July 8.—For the erection of a Council school at Basingstoke, Hants. Deposit 2*l.* 2*s.* Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

BEDLINGTON.—July 8.—For the reconstruction of Red Row bridge, near Bedlington station, Northumberland. Mr. J. E. Johnston, surveyor, Bedlington.

BOILINGTON.—July 9.—For the erection of a Conservative club. Deposit 1*l.* 1*s.* Messrs. Whittaker & Bradburn, architects, 19 King Edward Street, Macclesfield.

BRAMLEY.—July 6.—For the slater, plumber, plasterer and painter's work in the erection of seven houses. Mr. John A. Webster, architect and surveyor, 2 Basinghall Square, Basinghall Street, Leeds.

BRAITHWAITE.—July 17.—For sliding partition, also for colouring and whitewashing, at the Braithwaite school. The Headmaster.

BRYMBO.—Aug. 9.—For additions and alterations to Sion Cottage. Mr. E. Jones, Sion Cottage, Brymbo.

BURNOPFIELD.—July 14.—For the erection of business premises and three houses (stone). Mr. J. W. Thompson, Bute House, The Fold, Burnopfield, Durham.

BURY.—For extensions and alterations at Huntley schools, Bury. Mr. D. Hardman, architect, Agur Street, Bury.

CARDIFF.—July 16.—For conversion of windows into doorways and French windows at the Cardiff and Ely work-houses. Mr. Arthur J. Harris, clerk, Union Offices, Queen's Chambers, Cardiff.

CARLISLE.—July 13.—For the erection of a mixed secondary school at Brampton (deposit 1*l.* 1*s.*) and girls' secondary school at Carlisle (deposit 2*l.* 2*s.*). Messrs. Grayson & Ould, architects, 31 St. James Street, Liverpool.

CARLISLE.—July 16.—For making improvements to prisoners' waiting-rooms, Crown Courts. Mr. Geo. Dale Oliver, county architect, Carlisle.

CHURWELL.—For the whole or the various required in the erection of Wesleyan Sunday Messrs. Danby & Simpson, architects, 73 Albion Leeds.

CLAYTON-LE-MOORS.—For repairs to external pointing, and for painting required in the cemetery ings. Mr. Henry Ross, architect, 15 Cannon Accrington.

COCKFIELD.—For the whole or any portion of the required in the erection of premises at Cockfield Work Club and Institute. Mr. F. H. Livesay, architect and veyor, 107 Newgate Street, Bishop Auckland.

COVENTRY.—July 8.—Schemes and tenders for the required to be executed and materials supplied in erection of a dust destructor, boiler plant, &c., on a Bishopsgate Green, Foleshill Road, Coventry. Depos Mr. J. E. Swindlehurst, M.I.C.E., St. Mary's Hall, Cove

COVENTRY.—July 10.—For the supply and constructi the Foleshill gasworks of reinforced concrete floor the retort-house, &c., having approximate area of super yards. Deposit 1*l.* 1*s.* Mr. Fletcher W. Steve engineer and general manager, Gasworks, Coventry.

CREWE.—July 20.—For secondary school for 350 p to be erected in Ruskin Road. Deposit 1*l.* Mi Beswick, county architect, Newgate Street, Chester.

DONINGTON.—July 10.—For additional classrooms, c rooms, &c., at the Cowley's Grammar school, Donin Spalding. Deposit 2*l.* Mr. Jas. Rowell, architect, Ch Lane, Boston.

DROXFORD.—July 15.—For repairs to Calcot br Curdridge. Mr. A. V. Carter, surveyor, Droxford.

DUNDALK.—July 10.—For building villa resid Messrs. Hague & MacNamara, architects, 50 Dawson S Dublin.

EARBY.—July 15.—For the various trades require the erection of 21 houses at Earby. Mr. W. H. Atkin architect, Colne.

EDINBURGH.—July 8.—For the mason, carpenter, s plaster and plumber's work to be executed in taking-d two tenements in Potterrow and reconstructing tene 21 South College Street. The Burgh Engineer, Chambers, Edinburgh.

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BLETON.—July 8.—For alterations and additions to water grates and the erection of ventilating shafts. W. Walton, clerk, Alnwick.

TH.—July 12.—For works at the following public elementary schools for the Erith education committee:—(1) vedere boys' school, painting and repairs; (2) Picardy and caretaker's house, painting and repairs; (3) Book Street schools, sundry repairs and painting; (4) block; (5) central schools, painting and repairs; (6) Augustine's Road schools, painting and repairs; (7) Saints schools, sundry repairs; (8) St. Fidelis, sundry repairs. Mr. W. Egerton, architect, Erith's Road, Erith.

GATESHEAD.—July 10.—For erecting a motor-repairing Gateshead-on-Tyne, for the directors of the North-East Railway Company. Mr. William Bell, architect, Station, Newcastle-on-Tyne.

GLoucester.—July 25.—For alterations and additions at Hill Council school. Bills of quantities may be not later than July 6 from Messrs. Vale & Kings. Alldate Street, Gloucester, on payment of 2l. 2s. S. Phillips, architect, Shire Hall, Gloucester.

AT AYTON.—July 15.—For the erection of an elementary school, including boundary walls, out-offices, &c. Mr. H. Brierley, architect, 13 Lendal, York.

AT BROUGHTON.—July 8.—For the erection of two Messrs. W. G. Scott & Co., architects and surveyors, 2 Park Lane, Workington.

L.—July 10.—For the erection of five shops on the side of Jameson Street. Deposit 2l. 2s. Mr. Joseph H. City architect, Town Hall, Hull.

OCK.—July 10.—For the erection of an isolation ward at Market Bosworth, namely, one for a building of cast iron and wood and one of brickwork with roof. Mr. W. M. Sykes, surveyor, Chapel Street, Market Bosworth.

ITCH.—July 13.—For alterations of and additions to municipal secondary school for girls in Bolton Lane. 17. 1s. Mr. E. T. Johns, architect, Tower Chambers, Ipswich.

IRELAND.—For the erection of the Richard Lyttle memorial school at Moneyrea, co. Down. Messrs. Hobart & Heron, architects, 120 Scottish Provident Buildings, Belfast.

KEIGHLEY.—July 12.—For the erection of a fireproof mill, with boiler-house, chimney, &c., Becks Road. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

KNARESBOROUGH.—July 8.—For the mason, joiner, plumber, slater and painter's work in connection with the taking-down and re-erection of the laundry buildings, for the Guardians. Messrs. Bland & Bown, architects, North Park Road, Harrogate.

LEEDS.—July 9.—For the erection of business premises in Meadow Lane. Mr. C. S. Nelson, architect, Sun Buildings, 15 Park Row, Leeds.

LEEDS.—July 10.—For the erection of additional loose boxes and office at the Dock Street sanitary depot. Mr. W. T. Lancashire, city engineer, Municipal Buildings, Leeds.

LEEDS.—July 18.—For the construction of a cemetery chapel, boundary-wall and other works at the New Fewstone burial-ground at Meagill Lane. Mr. Charles G. Henzell, M.I.C.E., Municipal Buildings, Leeds.

LEWES.—July 9.—For building a larder, and painting, distempering and general repairs at the children's home at St. Anns. Mr. Ernest H. Fuller, architect, 19 High Street, Lewes.

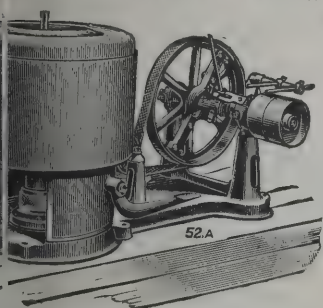
LEWES.—July 9.—For alterations to the laundry at the union workhouse, Chailey. Deposit 1l. Mr. E. H. Fuller, architect, 19 High Street, Lewes.

LISBURN.—July 22.—For the erection of the William Foote Memorial schools in Seymour Street. Rev. A. Egan, Methodist Manse, Lisburn.

LONDON.—July 8.—For jobbingwork at their asylums in Cleveland Street, W., and Colindale Avenue, Hendon, N.W., for the Managers of the Central London Sick Asylum District. Deposit 2l. 2s. Mr. William Lockwood, architect, 12 Sherwood Street, Piccadilly Circus, W.

LONDON.—July 8.—For structural repairs in underpinning at their asylum in Cleveland Street, W., for the Managers of the Central London Sick Asylum District. Deposit 3l. 3s. Mr. William Lockwood, architect, 12 Sherwood Street, Piccadilly Circus, W.

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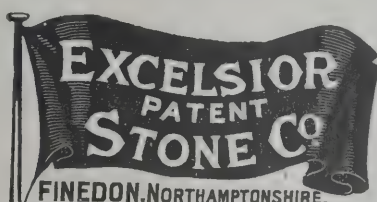


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LONDON.—July 8.—The Tottenham education committee invite tenders for summer repairs to the various schools in their district. Separate tenders are invited for repairs to playgrounds. Deposit 1*l.* 1*s.* Mr. W. H. Prescott, surveyor to the committee, Council Offices, Tottenham.

LONDON.—July 9.—For the erection of branch stores in High Road, Tottenham. Deposit 1*l.* 1*s.* Mr. H. Seymour Couchman, architect, 522 High Road, Tottenham.

LONDON.—July 9.—For building additional storeys to reception block, &c., of the Bromley asylum of the Poplar and Stepney Sick Asylum district. Deposit 5*l.* Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

LONDON.—July 11.—For alterations and improvements at St. Bartholomew's school, Sydenham Park. Deposit 3*l.* 3*s.* Mr. A. H. Ryan-Tenison, architect, 21 Great Peter Street, Westminster, S.W.

LONDON.—July 23.—For the erection of the superstructure of additional buildings at Colney Hatch asylum, New Southgate, N. Deposit 5*l.* The Clerk of the Asylums Committee, London County Council, 6 Waterloo Place, London, S.W.

MANCHESTER.—July 15.—For erection of an infants' school and for alterations and additions to the existing Ardwick Municipal school, Hyde Road. Deposit 2*l.* 2*s.* The Education Offices, Deansgate, Manchester.

NEATISHEAD.—July 19.—For putting new roof on Neatishead Baptist chapel. Rev. H. J. Andrews, The Manse, Neatishead.

NEWBOTTLE.—July 15.—For the building of twenty-one houses at Newbottle (stations, Fence Houses and Penshaw). Mr. James Palliser's Office, Philadelphia, Fence Houses.

ROCHESTER.—July 9.—For the erection of a seamen's institute, High Street. Deposit 1*l.* 1*s.* Messrs. Drake & Boucher, architects, 115 High Street, Rochester.

SANKEY.—July 13.—For the erection of a police station at Sankey, near Warrington. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

SCOLE.—For proposed vestry to Scole Church, Norfolk. Messrs. Lacey & Upcher, architects and surveyors, 6 Upper King Street, Norwich.

SEDGEFIELD.—July 8.—For the erection of ten cottages at the Durham County asylum. Mr. William Crozier, architect, Shire Hall.

SMARDALE.—July 10.—For erecting a cottage at Sarncliffe, for the Directors of the North-Eastern Railway. William Bell, the company's architect at York.

SMETHWICK.—July 12.—For the erection of a fire station in Rolfe Street. Deposit 3*l.* 3*s.* Mr. C. J. Foxborough surveyor, Council House, Smethwick.

STOCKTON-ON-TEES.—July 15.—For new hall at St. George's Church. Mr. E. A. Whigham, architect, 59 High Street, Stockton.

SWANAGE.—July 10.—For alterations and additions to parish church. Messrs. Clifton & Robinson, architects, Northbrook, Swanage.

TREOES.—July 10.—For altering, repairing and rebuilding the Saron Congregational chapel, Treoes. Rev. S. Jones, Waterton Hall, Bridgend.

TRURO.—July 9.—For work to be done during summer holidays at the following schools, for the Corporation education committee:—Voluntary—Truro Wesleyan, mantle Street, Practising, Feock, Mabe, Gerrans; Cornwall, Penwartha, Constantine (girls'), Chyvelah, Balldhu, lanes End. Detailed specifications may be seen at the schools. Mr. Arthur B. Coomb, District Education Officer, Truro.

USWORTH COLLIERY.—For the erection of the P.M. & C. Mr. J. W. F. Phillipson, architect, Murton Chapel, 8 Grainger Street, Newcastle-on-Tyne.

WALES.—July 6.—For the erection of fire station at Llanelli. Deposit 1*l.* 1*s.* Mr. W. J. Jones, engineer and surveyor, Council Offices, Pentre, Rhondda.

WALES.—July 8.—For repairing, papering and painting the Greyhound inn and Britannia inn, Tredegar. Roderick, architect, Ashbrook, Clifton Street, Aberdare.

WALES.—July 8.—For building a residence on the water Road, Llandaff. Mr. Geo. E. Halliday, architect, Castle Street, Cardiff.

WALES.—July 8.—For altering, renovating and building a new schoolroom at Ebenezer Welsh Calvinistic Methodist Church, Llanelli.

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Cwmbach. Mr. T. Roderick, architect, Ashbrook Clifton Street, Aberdare.

WALES.—July 9.—For building additions to 10 Brunswick Merthyr Tydfil. Mr. T. Edmund Rees, architect and surveyor, Gernant, Merthyr Tydfil.

WALES.—July 10.—For the following works to be executed (with the exception of No. 8) during the summer of 1907, for the Glamorgan County Council:—(1) Building of new Council school, at Glyncoedwyl Council school; (2) rebuilding of boundary wall, drainagework, &c., at the Cymmer school; (3) alterations and additions to the teachers' school at Gwauncaeurgurwen Council school; (4) heating the new Council schools by the low pressure hot-water system;—Peniel Green (Llansamlet), Kingsbridge (Gorse), Blaengwrach, Godre'rgraig (Ystalyfera), Pentyrch, Fardre, Gilfach Goch, Evanstown and Deri; painting and cleaning work at the following schools:—County schools—Neath, Port Talbot, Pontypridd, Penarth, Bridgend and Hengoed; Council schools, Western Division—Cwmavon, Panteg, Penllergrove, Clyne, Rhigos, Pontardawe, Clydach, Peniel Green, Ynystawe Tirdeunaw, Three Crosses, Coedffranc (girls), Coedffranc (boys, externally), Gorse, Grave, Tonna, Gwauncaeurgurwen, Port Talbot, Port Talbot Eastern, Abergwynfi, Glyncoedwyl, Penclawdd, Velindre, Maesteg, Merthyr, Nant-y-plasnewydd Higher Standards and Aberavon; Eastern Division—Bridgend, Coychurch Lower, Cefn Mawr, Abertridwr, Senghennydd, Troedrihiwfwch, Tirphil (r's house), Nanthir, Braichycymmer, Rudry, Henmaster's house, Pontlotty (master's house), Nant-y-plasnewydd (temporary building); (6) reslating at the Miskin school; (7) erection of a heating chamber, &c., at the new Council school; (8) erection of a new school at Ynystawe. The Glamorgan County Council Offices, 10, Abchurch Lane, Cardiff.

WALES.—July 13.—For the rebuilding of shop premises at Penllergrove. Deposit 1*l.* 1*s.* Mr. John H. Phillips, architect, 10, Abchurch Lane, Cardiff.

WALES.—July 15.—For the erection of a house at Gelli. Deposit 1*l.* 1*s.* Mr. W. D. Morgan, architect, Post Office, Penarth, Rhondda Valley.

WALES.—July 18.—For building a vestry with conveniences and boundary walls at Trelewis. Mr. T. Edmund Rees, architect and surveyor, Gernant, Merthyr Tydfil.

WALES.—July 20.—For the erection of vestry and classrooms, together with minister's house, at Ynyshir, Rhondda. Tydvil House, Tynewydd Crescent, Porth.

WALES.—July 23.—For building boundary walls, &c., at the truant school, Quaker's Yard. Mr. C. M. Davies, 112 High Street, Merthyr.

WARRINGTON.—July 6.—For certain alterations at the Newton Farm school. Messrs. William & Segar Owen, 10, Cairo Street Chambers, Warrington.

WARRINGTON.—July 16.—For the erection of buildings for boiler plant extension. Deposit 1*l.* 1*s.* Mr. F. V. L. Mathias, borough electrical and tramways engineer, Howley, Warrington.

WESTHOUGHTON.—For the erection of a hotel at Westhoughton, Lancashire. Deposit 2*l.* 2*s.* Mr. Ernest W. Dyson, architect and surveyor, 10 Regent Street, Barnsley.

DR. E. P. MANBY, one of the medical inspectors of the Local Government Board, who has made an inquiry as to the sanitary administration of the Brentford Urban District, has reported that the securing of improved dwellings for the poor is the most urgent reform needed in the district, and he advises that the Brentford Urban District Council should without delay give effect to the provisions of Parts 1 and 2 of the Housing of the Working Classes Act, 1890, relating to insanitary areas and to insanitary houses, and should also carefully consider whether it might not with advantage take further action under Part 3 of the Act.

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## TENDERS.

## ACTON.

For summer repairs to schools and teachers' room at the Priory Council school. Messrs. E. C. P. & H. MONSON, architects, 182 High Street, Acton, W.

Christie . . . . .	£209	0	0
Barber . . . . .	194	12	6
Ferris Bros. . . . .	190	0	0
Poore . . . . .	186	17	6
Blackburn . . . . .	173	0	0

## CARDIFF.

For the construction of concrete retaining walls and approach road and taking-down certain houses in connection with the Beresford Road improvement (G.W.R. bridge). Mr. H. HARPUR, engineer.

Maggs & Co. . . . .	£6,256	0	0
Atherley & Co. . . . .	6,169	0	0
Evans & Bros. . . . .	5,740	0	0
Meredith Bros. . . . .	5,650	0	0
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Allan & Son . . . . .	5,196	0	0
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Turner & Son . . . . .	4,817	0	0
TUCKER BROS., Cardiff (accepted) . . . . .	4,482	0	0
Engineer's estimate . . . . .	5,800	0	0

## CASTLE HEDINGHAM.

For the erection of classroom and other alterations and additions to Council school. Mr. WHITMORE, architect, Chelmsford.

Parkington & Son . . . . .	£895	0	0
Rogers . . . . .	866	10	0
Pavitt & Sons . . . . .	860	9	1
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Blakeborough & Sons . . . . .	660
Blake . . . . .	543
Sheepbridge Coal and Iron Co. . . . .	539
Bridgman . . . . .	

For laying and jointing water mains. Mr. T. W. JOYCE, borough engineer.

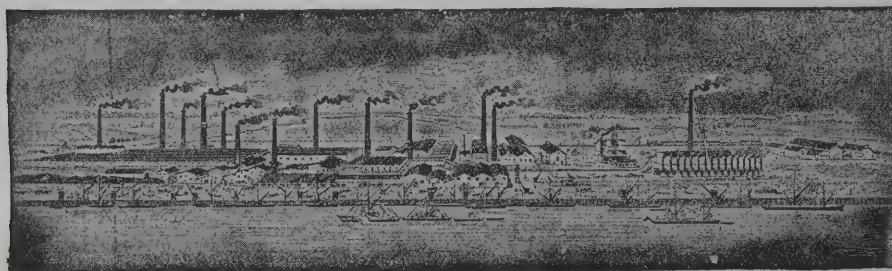
Matcham & Co. . . . .	£1,490
Morgan & Son . . . . .	1,480
Drew . . . . .	980
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Woodman & Son . . . . .	671
Berry . . . . .	638
Narracott . . . . .	567
Coles . . . . .	535
Bennett . . . . .	498
STEER & PEARCE, Plymouth (accepted) . . . . .	447
Bridgman . . . . .	430
Brebner & Co. . . . .	410
Macdonald . . . . .	393

For the construction of filters, small storage reservoir supply tanks. Mr. T. W. JOYCE, borough engineer.

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constructing a covered service reservoir. Mr. T. W. JOYCE, borough engineer.			
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ry . . . . .	1,373	11	9
ke . . . . .	1,362	0	0
odman & Son . . . . .	1,336	14	9
gman . . . . .	1,262	8	6
ar . . . . .	1,224	19	0
donald . . . . .	1,215	12	6
racott . . . . .	1,215	12	0
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rection of pumping station, &c. Mr. T. W. JOYCE, borough engineer.			
ddock . . . . .	£421	13	6
an & Son . . . . .	339	12	9
w . . . . .	325	0	0
nett . . . . .	255	0	0
ke . . . . .	254	15	0
cham & Co. . . . .	230	0	0
gman . . . . .	228	12	2
ry . . . . .	228	10	10
lett . . . . .	207	15	0
racott . . . . .	190	0	10
ts & Back . . . . .	184	5	0
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donald . . . . .	111	4	8

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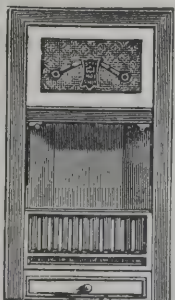
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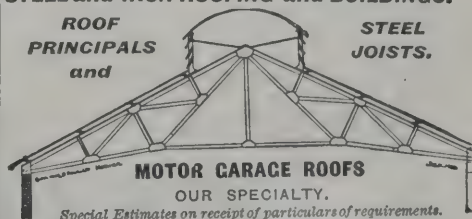
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Williams	6,440	0	0
Law	6,397	0	0
Sanders & Torrance	5,425	0	0
BARKE, Stoke-on-Trent (accepted)	5,363	0	0

For completion of occupation road to sewage-disposal works.

Mr. S. A. GOODALL, surveyor.			
Bullock	£229	15	0
Williams	209	10	0
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**GOWERTON.**

For rebuilding Gower inn. Messrs. J. DAVIES & SON, architects, Llanelly.

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Empire Stone Co.	338	7	6
Griffiths & Co.	330	3	1
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For the erection of a junior school in Stepney Lane. Mr. JOSEPH H. HIRST, city architect.

Arnott	£5,461	14	5
Houlton & Son	4,890	0	0
Fenwick	4,847	0	0
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Quibell, Son & Greenwood	4,699	0	0
Greenwood	4,638	11	6
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**LEOMINSTER.**

For the erection of houses. Messrs. GROOME & BETT, architects, Hereford.

Davies	£1,186	0	0
Griffiths	1,160	0	0
Edwards	1,090	0	0
Powell	1,085	0	0
Smith	1,080	0	0
Watkins	990	0	0
Wilks & Son	880	0	0
JONES, Hereford (accepted)	860	0	0

**LINTHWAITE.**

For the erection of three dwelling-houses, Manchester.

Mr. J. AINLEY, architect, Slathwaite.

**Accepted tenders.**

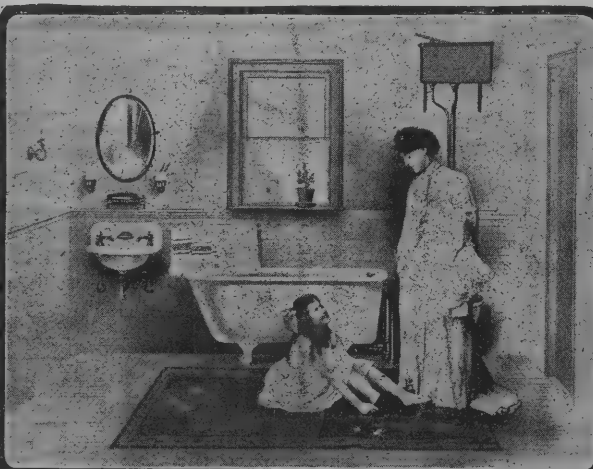
Harrison, mason and bricklayer	£515	0	0
Iredale, carpenter and joiner	180	0	0
Balmforth & Shaw, plumber and glazier	69	0	0
Sutcliffe & Sons, slater	49	0	0
Sutcliffe, plasterer and painter	78	0	0
Cook, concreter	47	0	0

**LONDON.**

For supplying an overhead traveller for the extension power-house, King's Road, N.W.

Larmuth	£1,025	0	0
Spencer & Co.	1,020	0	0
Musker	895	0	0
Carrick & Ritchie	865	0	0
Carrick & Ritchie (alternative)	965	0	0
Broadbent & Sons	855	0	0
Broadbent & Sons (alternative)	736	0	0
Carrick & Sons	849	0	0
Pickerings, Ltd.	795	0	0
Babcock & Wilcox	790	0	0
Heywood	773	0	0
Higginbottom & Mannock	735	0	0
Morris & Bastert	677	0	0
Morris & Bastert (alternative)	747	0	0
Appleby's, Ltd.	655	0	0
Appleby's, Ltd. (alternative)	883	0	0
ADAMSON, RAMSBOTTOM & Co. (accepted)	640	0	0

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## LONDON—continued.

Cleaning or painting certain L.C.C. schools. Tenders recommended for acceptance.

Bow and Bromley, Monteith Road.	£530	0	0
Rettt & Power			
Chelsea, Marlborough Road.	629	0	0
Deptford, Canterbury Road.			
nson & Co., Ltd.	580	0	0
Lewisham, Dalmain Road.			
554	6	0	
Bethnal Green, Somerford Street.			
Rettt & Power	393	0	0
Brixton, Stockwell Road.			
319	0	0	
Camberwell, Mawbey Road.			
397	0	0	
Deptford, Nynhead Street.			
330	0	0	
Dulwich, Bellenden Road.			
369	0	0	
Dulwich, Lyndhurst Grove.			
444	0	0	
Greenwich, Lombard Wall.			
301	0	0	
Hackney, Millfields Road.			
369	0	0	
Kennington, Upper Kennington Lane.			
369	0	0	
Limehouse, Gill Street.			
226	0	0	
Limehouse, Northey Street.			
291	0	0	
Marylebone, Stephen Street.			
337	0	0	
Peckham, Peckham Park.			
367	0	0	
Rotherhithe, Rotherhithe New Road.			
401	0	0	
Southwark, Westminster Bridge Road.			
293	0	0	

## LONDON—continued.

For works at buildings, Bull Stairs Wharf, Upper Ground Street, S.E.

Mowlem & Co.	£9,895	0	0
Rice & Son	9,794	0	0
Nightingale	9,747	0	0
Downs	9,533	0	0
Minter	9,344	0	0
Hyde & Co.	9,328	0	0
Patman & Fotheringham	9,323	0	0
Jarman, Daws & Co.	9,230	0	0
Stewart	9,156	0	0
McCormick & Sons	9,148	0	0
Wallis & Sons	9,137	0	0
Southern Building Co.	9,135	0	0
Wisdom Bros.	9,122	7	11
Wall, Ltd.	9,121	0	0
Shurmur & Son	8,991	0	0
HOLLIDAY & GREENWOOD, Loughborough			
Park Works, Brixton (accepted)*	8,589	0	0

\* Subject to a reduction of 765l. 11s.

For supplying and erecting steel girderwork at power station, King's Road, N.W.

Hadley & Sons	£2,366	0	0
Ralston, Goodwin & Co.	2,091	4	6
Westwood & Wrights	2,043	0	0
Sands & Son	1,914	3	6
Powers & Deane Ransomes	1,893	16	0
Abbot & Co.	1,885	13	2
Dorman, Long & Co.	1,807	0	0
Cross & Cross	1,789	0	0
Motherwell Bridge Co.	1,747	1	5
Wall, Ltd.	1,734	0	0
Cleveland Bridge and Engineering Co.	1,730	11	6
Rowlingsons & Co.	1,705	7	2
Westwood & Co.	1,691	0	0
Braithwaite & Kirk	1,680	0	0
E. C. & J. KEAY (accepted)	1,623	17	4
Redpath, Brown & Co.	1,604	4	7

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**MANCHESTER**  
TRAFFORD PARK



## LONDON—continued.

For enlargement and improvement of Hackney Downs Secondary school.

Stevens & Sons . . . . .	£11,051	0	0
Williams & Son . . . . .	10,099	0	0
Porter . . . . .	9,984	0	0
Wall . . . . .	9,925	10	7
Lawrance & Sons . . . . .	9,815	0	0
Grover & Son . . . . .	9,782	0	0
L. H. & R. Roberts . . . . .	9,741	0	0
Willmott & Sons . . . . .	9,683	0	0
Chessum & Sons . . . . .	9,670	0	0
Perry & Co. . . . .	9,504	0	0
Lawrence & Son . . . . .	9,384	0	0
McCormick & Sons . . . . .	9,096	0	0
Harris, North Woolwich ( <i>recommended</i> ) . . . . .	9,019	0	0
Architect's (Education) estimate . . . . .	9,796	0	0

For the erection of temporary depôt in Tunnel Avenue, with stabling.

Wood . . . . .	£435	0	0
Vigor & Co. . . . .	434	0	0
Proctor & Son . . . . .	425	0	0
Grant . . . . .	385	19	0
Johnson & Co. . . . .	374	0	0
Thomas & Edge . . . . .	372	0	0
C. Wall, Ltd. ( <i>recommended</i> ) . . . . .	368	0	0
Architect's estimate . . . . .	350	0	0

For manufacture, supply and delivery of high and low-tension switchgear (a) for the Islington, Holloway, Hackney, Clapton and Stockwell sub-stations (with basements), and (b) for the Lewisham, Forest Hill and Tooting sub-stations (with galleries).

	(a)		(b)
Evered & Co. . . . .	£20,057	15	0
Ferranti . . . . .	16,565	3	0
Electric Construction Co. . . . .	16,254	17	4
Whipp & Bourne . . . . .	15,198	1	10
Spagnoletti & Co. . . . .	—	—	—
General Electric Co. . . . .	14,801	12	0
British Westinghouse Co. . . . .	14,197	0	0
Johnson & Phillips, Charlton ( <i>recommended</i> ) . . . . .	12,692	1	6
			7,664 17 10

## LONDON—continued.

For taking-down and extending the City Press premise

Half Moon Passage, E.C. Messrs. MERRIN &amp; V. STAFFE, architects, 31 Fenchurch Street, E.C. Quant by Messrs. W. H. BARBER &amp; SON, 22 Buckingham Street, Adelphi, W.C.

F. & F. J. Wood . . . . .	£3,666	0	0
Rossiter . . . . .	3,200	0	0
Johnson & Co. . . . .	3,120	0	0
Lawrance & Sons . . . . .	2,952	0	0
Mather . . . . .	2,950	0	0
Barrett & Power . . . . .	2,703	0	0
Perry Bros. . . . .	2,697	0	0
Mattock & Parsons . . . . .	2,677	0	0

For alterations at Bethnal Green workhouse. Mr. W.

FINCH, architect, 76 Finsbury Pavement, E.C. Quant by Mr. G. T. G. WRIGHT, 3 Great Winchester St. E.C.

Fitch & Cox . . . . .	£3,169	0	0
Johnson & Son . . . . .	3,085	0	0
Patman & Fotheringham . . . . .	3,000	0	0
F. & E. Davey . . . . .	2,947	0	0
Hyde . . . . .	2,891	0	0
Stapleton & Sons . . . . .	2,854	0	0
Wall, Ltd. . . . .	2,824	0	0
Roberts . . . . .	2,740	0	0
Calnan & Sons . . . . .	2,728	0	0
Barker . . . . .	2,697	0	0
Price . . . . .	2,678	0	0
Clayton . . . . .	2,648	0	0
Thomas & Edge . . . . .	2,628	0	0
WEBSTER & SON, Peckham Rye ( <i>accepted</i> ) . . . . .	2,561	0	0
Monk . . . . .	2,424	0	0

For alterations, repairs and painting at the St. Mart

Northern school. Mr. A. A. KEKWICK, architect, 18-19 Outer Temple, Strand.

Patman & Fotheringham . . . . .	£1,593	0	0
Love & Co. . . . .	1,525	0	0
Parsons . . . . .	1,457	0	0
Monk . . . . .	1,450	0	0
Jarvis & Sons . . . . .	1,428	0	0
Macey & Sons . . . . .	1,427	0	0
SABEY & SON ( <i>accepted</i> ) . . . . .	1,370	0	0

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Folding Gates.Ornamental  
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GOVERNMENT OFFICES, PARLIAMENT STREET FRONT.

FEDERAL SERIES.—SOUTHWARK: VIEW OF EXTERIOR.

LUTON.

Extension of the electricity station buildings. Mr. L. Fox, borough engineer.

	£2,647	0	0
Light & Co.	2,188	0	0
	2,071	0	0
& Son	1,898	0	0
m	1,858	0	0
GHAM, Luton (accepted)	1,857	0	0

ROMFORD.

Laying and fixing Norway granite kerb in various s. Mr. GEORGE LAPWOOD, highways surveyor.

rs.	£501	0	0
	399	0	0
	395	0	0
er	381	0	0
7	358	0	0
	337	5	0
, Border & Co.	346	0	0
n	345	0	0
Sons	343	0	0
	342	0	0
r, Widford, Chelmsford (accepted)	234	0	0

ROSS.

Erection of house near Ross. Messrs. GROOME & WINGTON, architects, Hereford.

	£2,340	0	0
	2,000	0	0
	1,983	0	0
Ltd.	1,954	0	0
s & GODFREY, Tewkesbury (accepted)	1,898	0	0

SUMMERCOURT.

For additions and alterations to the Wesleyan chapel and school. Mr. E. J. ENNOR, architect, Newquay.

Tonkin	£196	17	0
Trebilcock	184	11	4
TIPPETT, Newquay (accepted)	165	0	0
Williams Bros.	113	10	0
Tippett & Jose	85	0	0
Pengelly	71	10	0
Hawkey	68	0	0
Trevarton	68	0	0

SUTTON.

For the erection of police station. Mr. J. DIXON BUTLER, architect, New Scotland Yard, S.W. Quantities by Messrs. THURGOOD, SON & CHIDGEY, Charing Cross Chambers, Adelphi.

Martin, Wells & Co.	£9,700	0	0
Lane & Son	9,352	0	0
Potterton	9,315	10	0
Shopland	9,287	0	0
Holloway Bros.	9,211	0	0
Messom & Sons	9,195	0	0
Lathey Bros.	8,968	0	0
Walpole	8,749	0	0
Barker	8,689	0	0
Potter	8,650	0	0
Cropley Bros.	8,239	0	0
Grover & Son	8,236	0	0
F. & H. F. Higgs	7,990	0	0

SWANAGE.

For the erection of Wesley Centenary hall and school. Messrs. CHINCHEN & SON, architects, Wimborne.

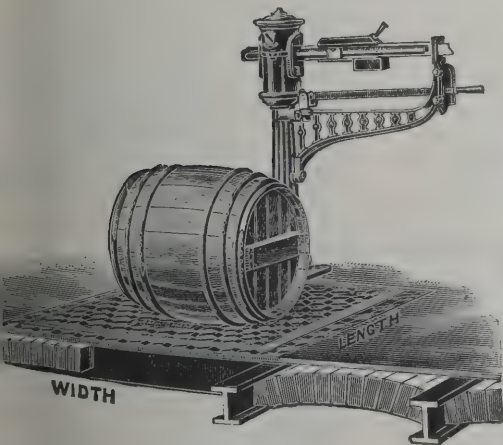
Hardy	£1,140	0	0
Pond	1,125	10	0
Jesty & Baker	1,079	0	0
CLARKE, Swanage (accepted)	1,054	10	2



# Weighbridges and Weighing Machinery

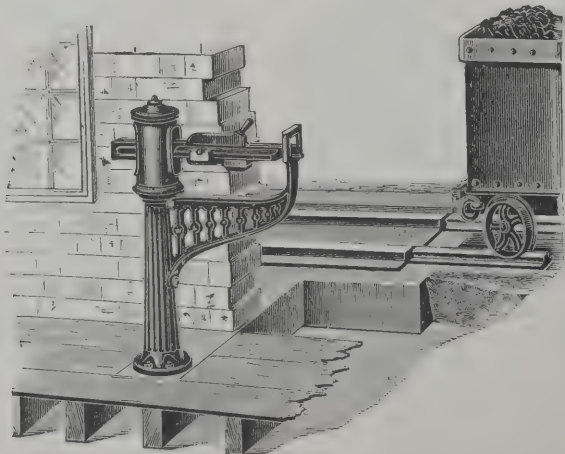
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IMPROVED TRAM WEIGHING MACHINE.  
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& T. AVERY, Ltd., Soho Foundry, BIRMINGHAM.



**TONYPANDY.**

For taking-down and rebuilding the Cross Keys hotel.  
Mr. J. T. JENKINS, architect, Porth, Rhondda.

Jones	£3,495	2	3
Davies & Sons	2,970	0	0
Richards	2,963	0	0
Jenkins & Son	2,685	0	0
Gough Bros.	2,650	0	0
Knox & Wells	2,560	0	0
E. R. EVANS & BROS., Cardiff (accepted)	2,470	0	0

**TUNSTALL (STAFFS).**

For supply of 10-inch and 12-inch cast-iron or steel spigot and socket pipes, with sundry special pipes. Messrs. CORBET WOODALL & SON, engineers, Palace Chambers, Westminster, S.W.

Stewart & Co.	£2,604	10	9
Oakes & Co.	2,386	0	0
Hopkins	2,323	3	6
Cochrane & Co.	2,211	10	4
STANTON IRONWORKS Co. (accepted)	2,204	11	8

**WADDINGTON.**

For laying pipes, &c., to complete sewerage scheme. Messrs. SIMPSON & DUCKWORTH, engineers, Blackburn.

Macdonald	£1,511	12	3
Bentley & Co.	1,464	13	9
Bury & Co.	1,411	13	9
Johnson & Sons	1,378	12	11
Edmundson & Wyatt	1,370	12	7
Jowett Bros.	1,220	1	6
Totty	1,182	11	0
Lewis & Sons	1,150	0	0
JENKINS & SON, Blackburn (accepted)	1,120	6	9

**WALSALL.**

For converting the free library into an art school.  
WOOTTON (accepted)

	£1,020	0	0
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**WILTON.**

For drainage and sanitary conveniences, &c., at Wh. hotel. Messrs. LEMON & BLIZARD, engineers, Sa.

Whatley	£17
Bolding & Sons	15
Hewett & Sons	14
Burton	10
Wort & Way	10
Douglas	10
Bundey	10
COOPER (accepted)	8

For drainage at workhouse. Messrs. LEMON & H. engineers.

Bolding & Sons	£51
Hewett & Sons	38
Tryhorn & Sons	36
Burton	32
Douglas	31
WORT & WAY, Salisbury (accepted)	31
Engineers' estimate	35

**WORTLEY BECK.**

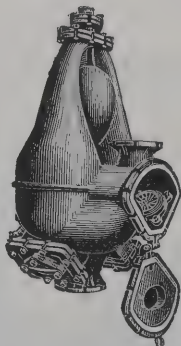
For straightening and culverting about 1,000 feet Wortley Beck. Mr. E. J. SILCOCK, engineer, Le.

Baker & Sons	£5,500
Mitchell & Son	3,448
Firth	3,250
Young & Co.	2,881
Arnold & Son	2,751
Bentley & Co.	2,717
Whitaker Bros.	2,540
Parker & Sharp	2,489
Kell Bros.	2,350
Braithwaite & Co.	2,282
Lambert & Son	2,268
Schofields, Sons & Co.	2,113
Dinnie	1,988

A CLOCK-TOWER erected near Norwood Junction by residents of South Norwood to commemorate the wedding of Mr. and Mrs. W. F. Stanley was unveiled the 28th ult.

**Pulsometer Eng<sup>o</sup> C<sup>o</sup> L<sup>o</sup>**

THE  
**Pulsometer**  
Steam Pump.



Will pump dirty and gritty water.  
Has no moving parts except the valves.  
Needs no skilled attention.  
Will work suspended by a chain.  
12 sizes in stock.  
On Sale or Hire.  
Write for List No. 107.

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Because they are easier to install than any other, and are more adapted to difficult position.

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Birmingham.—  
W. J. A. Kerr, 43 Church Street.  
Scotland.—  
W. Regan, 2 Doune Terrace, Glasgow.  
Dublin.—  
Booth Bros., Upper Stephen Street.  
Holland.—  
Hausmann Bros., Wynstraat  
haven 87. Rotterdam.

VOLUME LXXVII. OF THE ARCHITECT  
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## TRADE NOTES.

C. H. SHORLAND & BROTHER, of Manchester, have supplied their patent Manchester grates for the City Council schools.

In addition to their inaugural sale Messrs. Oetzmann, also disposing of the stock of Messrs. Ravilious & Co. of London, from 40 to 70 per cent. The company's grates can be seen on the stages of the Playhouse and the Theatres.

It is informed that the Bispham Hall Brick and Tile Works, of Orrell, near Wigan, have supplied Messrs. Gross & Corby, 11 and 12 Finsbury Street, E.C., their representatives for architectural terraces in London and the Eastern and Southern Counties.

JOHN G. AMES, who was for many years connected with Messrs. R. W. Blackwell & Co., engineers and contractors, City Road, E.C., as the manager of their Manchester branch, has, after visiting the United States, been appointed manager of the Barrett Manufacturing Company, 10, South Place, Finsbury Pavement, E.C.

As a result of the recent attempts at smuggling goods, a new arch-room has been erected at the Royal Naval Dockyard, Portsmouth, by H.M. Admiralty. It is constructed with Douglting stone dressings supplied from the quarries at Ham Hill and Douglting Stone. The stone is the same and matches that in the main buildings erected some five years ago.

## VARIETIES.

Blackpool Town Council have approved the minutes of the general works committee, which included a recommendation that the Local Government Board be asked to grant a loan of 14,900*l.* to carry out a sewage scheme.

Blackpool Town Council, after some eighteen months' discussion, have agreed on a site for a proposed library. It consists of 16,187 square yards on the Mill Estate, and the total cost, inclusive of the cost of roads, is expected to be about 11,000*l.*

A LARGE chiming clock with four illuminated dials is being fixed on the Victoria Mills, Draycott, Derbyshire, which will be of great use to the inhabitants. It is being made by John Smith & Sons, Midland Clock Works, Derby, to the designs of the late Lord Grimthorpe. The same firm made clocks for the neighbouring churches of Breaston and Sawley.

THE education committee for the borough of Newark have accepted the tender of Mr. William Smith, builder, Newark, at 7,110*l.*, for the erection of elementary schools for the east end of the borough. The cost of the schools, with the land and furnishing, is estimated at 9,000*l.* They will accommodate 600 children.

A LOCAL GOVERNMENT BOARD inquiry was held at Derby into the application by the Corporation for permission to borrow 51,850*l.* in connection with the extension of the electricity undertaking. The inquiry was conducted by Mr. H. R. Hooper. There was no opposition. The town clerk said that twenty-five years was asked as the term for the repayment of the loan.

FOR the convenience of travellers to Belgium by the Harwich route, the Great Eastern Railway Company have just placed on the Antwerp express train from Liverpool Street station dining and breakfast cars, in which table d'hôte dinner and other refreshments are served on the down journey and table d'hôte breakfast on the up journey.

DURING a discussion by the Westminster City Council on the proposal of the London County Council to widen the Strand at the corner of Agar Street and King William Street, Mr. Abady said the cost worked out at 1,283,000*l.* an acre. The Council decided not to contribute anything to the improvements unless the corner was rounded off. This was not shown on the County Council plan, and unless such a course is adopted the Westminster Council consider that very little relief will be afforded to the traffic at that spot.

AN inquiry was held at the Portsmouth town hall last week by Mr. F. H. Tulloch, inspector of the Local Government Board, into the proposal of the Town Council to borrow 17,688*l.* (the first estimate was 15,000*l.*) for works of electric lighting. The committee desired to increase the capacity of the generating plant at the station. Sometimes,

# THE "DRAWWELL" GRATE

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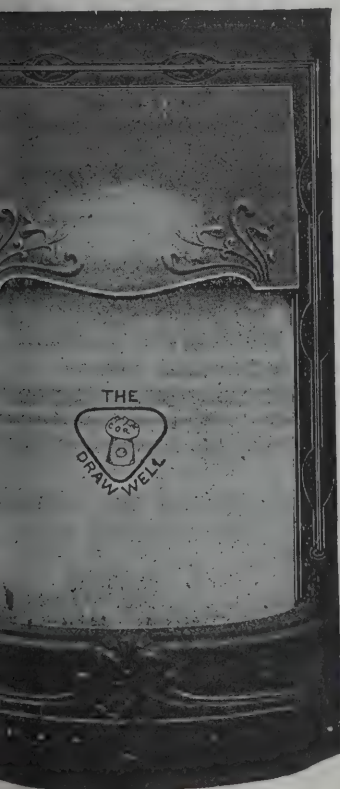
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when the tide was very low, they were not able to get sufficient circulating water and thus keep up a good load. Also during the winter four months it was necessary to run the whole of the machines during the hours of heavy load, the undertaking having then no "stand-by." A second inquiry was subsequently held into the proposal of the Corporation to borrow 10,596*l.* for asphaltting various streets.

At a meeting last week of the Glasgow Corporation's special sub-committee on the utilisation and laying out of the estate of Riddrie, Mr. A. B. M'Donald, the city engineer, submitted an additional ground plan of the estate, combining a scheme for the erection of cottages, as well as a continuous range of self-contained houses of not more than four or five apartments each. It is recommended that the plan be lithographed on a reduced scale suitable for being sent out to builders, and that thereafter builders be invited to offer to feu portions of the estate for the erection of self-contained dwellings or semi-detached cottages in general conformity with that plan, and also upon condition that the designs of the buildings to be erected shall be subject to the approval of the Corporation.

The general purposes committee of the Westminster City Council recommend a change in the methods of dealing with sick workmen in their employ. Under the present system a workman in case of sickness or accident is required to obtain weekly medical certificates before being paid sick or accident pay. In 1906 these certificates cost the Council 303*l.*, and during the year ended March last 220*l.* The cost of the certificates is much more than was anticipated when the system was introduced, and although the committee report that they are not aware that malingering has been practised to any extent, it is rendered easy, if not encouraged, by the present system. It is suggested that the Council adopt the principle of providing medical attendance and medicine for their workmen, and of appointing such medical practitioners as may be necessary for the purpose at an inclusive sum per man per annum.

At the meeting of the Worcester City Council on Tuesday the water and sewerage committee reported a complaint by the Local Government Board of delay in the completion of the sewage-disposal works, for which several dates had been given by the city engineer. In view of these varying

statements the Board directed that if the works were completed by February 29, 1908, which they were, would be ample time for completion of the work, there would be no alternative but to instruct their solicitor to initiate further proceedings. The chairman of the committee said to complete the work in the stipulated time would be necessary to employ two shifts of men eight hours per day, and add to the plant. The Council decided to adopt this course. It was further stated that the prospect of a settlement of the dispute between the engineers and contractors for the tunnel under the river in connection with the works, which it was proposed to submit to arbitration.

#### BELFAST GARDEN ESTATE.

In connection with the exhibition of houses on the Estate, Cliftonville, Belfast, Mr. Maurice B. Adams, assessor appointed to award the prizes, remarks: "There were ten types of houses built, and 700*l.* was offered in premiums. The houses divided into three classes to cost respectively 240*l.*, 275*l.* and 350*l.* each, and ordinary building materials according to the city list. A prize of 50*l.* was likewise offered for the architect of the first-prize dwellings in each class, in addition to a premium on the house for the builder. In class A, Mr. Samuel Ewing obtained the first prize, Mr. W. Martin more being the architect of the house erected on Mr. William Kerr's house on plot 1, designed by Mr. W. J. W. Roane, architect, was accorded the second prize, but owing to excess of cost was disqualified from being among the prize-winners. The second prize was accorded to Mr. James Kidd for the house on plot 11, designed by Mr. J. St. J. Phillips. The third prize in this class was given to Messrs. McKenzie & Risk for their house on plot 14. Mr. James Risk was responsible for the house. In the second class Mr. Samuel Ewing was awarded the first prize for house on plot 5, and Mr. George Mitchell, the architect, obtained the premium offered for the design. The second prize was given to Mr. James Kidd for his house on plot 10. The architect was Mr. J. St. J. Phillips. The third prize was won by Mr. James H. Barton for his

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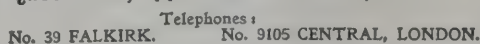
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the Institution of Mechanical Engineers—Mr. T. Ches, president of the Institution.

At the outset of their report, the committee admit that their aim is chiefly to furnish some general guidance as to the application of ventilating fans, as experience has shown that serious mistakes are frequently made in the design of such ventilation. Low-pressure fans, high-pressure fans, the volume of air required and the arrangements of inlets and outlets are fully discussed, the high-pressure fans being





shown to be adaptable to places where narrow or tortuous ducts cannot be avoided, while the low-pressure variety are only suitable where there is little resistance on either side. As regards the removal of dust, the committee state that the standard of purity aimed at should always be sufficient to prevent injury to health. They add:—"Dust from the disintegration of hard stone, steel grinding, &c., is extremely deleterious, and the same may be said of dust containing any poisonous constituent, such as lead. In such cases the dust should by special means, apart from general ventilation, be entirely prevented from mixing with the general atmosphere of a room." Various methods achieving this object are suggested, one being the local use of exhaust fans. In dusty operations mechanical arrangements, boxed in, are suggested as an auxiliary; and where such arrangements are not possible the use of efficient respirators is recommended.

The effect of ventilation on the temperature of a working room during cold weather needs careful regulation. For sedentary work and fine manipulations a temperature of not less than about 60 deg. is required. With lower temperatures the working powers of those present become impaired, and the effects of the low temperature are much increased by draughts. On the other hand, if the work implies active exertion, lower temperatures are permissible; and some kinds of work associated with dust, fumes, &c., can best be performed in sheds open to the air. In general, the more nearly open-air conditions can be attained to in any class of work the better, and, wherever possible, windows should be thrown widely open in summer weather.

In general ventilation by fans the air may be either blown in (so-called "plenum" system) or exhausted. The one or the other system may be most suitable, according to circumstances, and in some instances the combination of both systems is desirable and most effective, as in the French or so-called dry cleaning, where the fumes of benzole, &c., require to be locally exhausted and fresh air supplied. The exhaust system is much employed on account of its simplicity, especially in sparsely occupied rooms, the air being exhausted by one or more fans placed in windows, walls, or roof, and allowed to enter by suitably arranged openings distributed at other parts of the room. The main advantages of this system are that no ducts are needed, and

that the fan causes no draught in its neighbourhood; the cold incoming air causes little draught if given an upward direction so as to mix with the warm air in the room above the heads of the occupants. A fan or opening of any kind draws its air supply from a particular direction, without causing a draught in a particular direction. However, air is entering through a fan or other inlet driven in a definite stream straight forwards owing to the momentum which has been communicated to it.

With exhaust ventilation corresponding inlet openings are essential, apart from the chance opening of windows or doors. The inlet openings should have a total area equal to or greater than the fan opening, and should direct the air upwards so as to avoid draughts. A considerable amount of air may enter through the cracks, &c., of a room, this quantity is usually insufficient to compensate for the loss of air by the exhaust fans, owing to the neglect of inlet provision exhaust fans may often be seen wasting most of the power communicated to them and producing no satisfactory result. The inlets should be so placed that the whole room is properly supplied with fresh air, the incoming air not being allowed to pass straight to a fan without displacing a proportion of the foul air of the room. It is often an advantage to have the exhaust outlet at the floor level. With this arrangement dust and particulate matter, instead of being drawn from the mouths and persons of those present, is more effectually removed since all particulate matter is caused to fall. Loss of heat from the room is also diminished, as the air at the floor level is colder. On the other hand, the products of combustion of gas are best removed by an outlet opening higher up.

In the matter of respirators the committee point out the drawbacks, and say:—"Except where the work is definitely dangerous and cannot be dealt with by exhaust ventilation or by using wet processes, or in other ways, we are unable to recommend the use of respirators as an alternative to keeping the air clear of dust. For the exceptional cases in which it is necessary for men to work in air containing poisonous or otherwise dangerous dust, the mouth of the respirator may be kept covered by a sheet of fresh cotton-wool. This is declared to be a reliable and efficient respirator. Where work has to be performed amid poisonous gas fumes a smoke-helmet is recommended.

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**WORCESTERSHIRE ASYLUM.**

Asylum on the Barnsley Hall estate, near Broms-  
nprises a main building to accommodate 570  
and includes administrative departments which  
e to meet further extensions of the institution to  
r 1,200 patients. Wards for the sick and infirm, a  
ward and provision for the various classes of  
ients, are included in the present arrangements,  
is a large recreation hall which can be used as a  
l, the large kitchens and offices being adjacent to  
proposed to build in the future a detached hospital  
tients, and other additions will include blocks to  
ed to the main asylum or detached villas or  
omes. The contract for erecting, furnishing and  
the asylum amounted to 151,475*l*, and other  
or laying out the estate and the provision of heat-  
ing, water supply, sewerage and farm works  
p the total cost to 215,887*l*. The whole of the  
h the exception of the sewerage, has been carried  
the estimated cost.

opening the toast of "The Architect and Builders"  
osed by Mr. M. Tomkinson.

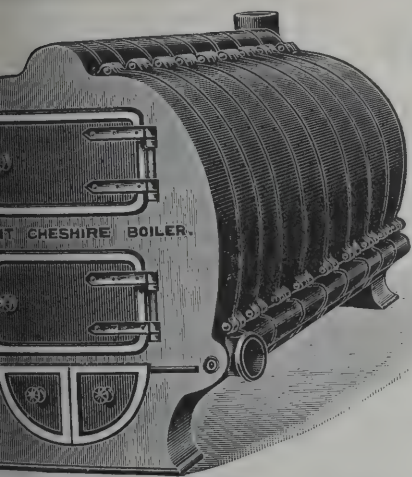
T. Hine, the architect, in reply, said there were  
ef considerations in designing a building like that.  
was that it should be planned in such a way that  
al men in charge should have the best opportunity  
g the patients, who must be also protected from  
hief they might inflict on themselves or others,  
he same time to give them a bright, comfortable  
y home. The second consideration was to have  
durable materials which would not involve a heavy  
arge for maintenance, and on that it was some-  
irable to expend a little more in the initial way as  
greater economy in the long run. The third con-  
i was to provide for the first two results at a  
cost without waste or extravagance. He was very  
e able to inform them that there would be no  
On the other hand, there would be a saving  
or three thousand pounds on the sum provided,  
of a number of extra works ordered by  
mittee which were not in the original con-  
e would not take credit to himself where it was

not due, for a great deal belonged to the committee, who,  
by putting off the building for two and a half years until  
the boom in building had subsided, had saved some 20,000*l*  
on his original estimate. The success in the erection of  
that asylum was in great measure due to the generous con-  
fidence and support given him by the committee. In the  
many difficulties that had arisen his advice had had the  
very best consideration, and if he might say so without  
being invidious, he thanked them, but particularly the  
chairman, Mr. Bowen, whose interest in every detail of the  
work had never failed.

Mr. Whitehouse, the builder, also replied, and assured  
the company that the work entrusted to him had been a  
labour of love, as well as one of anxiety. Expense had not  
been spared on his part to give every satisfaction, and it  
was indeed gratifying to know that the work had been  
successful, and that, having seen it, they appreciated it.  
He regretted that the name of the builder had been left off  
the foundation-stone and hoped that the omission would be  
rectified.

**TOOTING BATHS.**

THESE baths have been erected for the Wandsworth  
Borough Council on the site of the old vestry hall, Tooting  
Broadway, London. They have been built to the designs  
and under the superintendence of Mr. Henry Druery,  
M.S.A., architect, and Mr. E. R. Dolby, M.Inst.C.E. (Dolby  
& Williamson), consulting engineer. The accommodation  
provided is twenty spray baths on the ground floor for men  
and eight slipper baths on the first floor for women; the  
building is so designed as to admit of extensions being  
easily made. The building contractor was Mr. Chas. Gray  
and the engineering contractors Messrs. J. E. Boaz & Co.  
The following were sub-contractors:—Homan & Rodgers,  
fireproof floors; Malcolm McLeod & Co., granolithic paving  
and steps; British Challenge Glazing Co., glazing of roofs;  
Sedding & Co., lead lights and casements; Doulton & Co.,  
baths; J. Tylor & Sons, Ltd., sanitary fittings; J. F.  
Ebner, wood-block flooring; Strode & Co., railings and  
gates. The foundation-stone was laid on July 28, 1906, by

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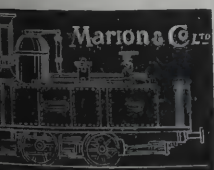
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the Rev. J. H. Anderson, M.A., rector of Tooting, and the building was opened to the public on Monday, June 24, by the mayor of Wandsworth (Councillor Wise, J.P.). The estimated cost of the building, inclusive of an office for the rate collector, was 6,250*l.*, and it is expected that this sum will not be exceeded.

### CONDEMNED HOUSES IN LIVERPOOL.

It appears from a report just issued by the housing committee of the Liverpool Corporation that, notwithstanding the enormous amount of work done in demolishing insanitary property in the city, there are still remaining 7,421 structurally insanitary houses to be dealt with. Reporting on the work of rehousing the people dispossessed by the demolition of insanitary property, the committee state that since 1900 the Corporation have themselves erected 1,551 tenements, and there are 123 more in course of erection, while 1,000 dwellings have been erected by private builders on land sold to them by the Corporation for the purpose. At the present time the committee are dealing with three other condemned areas upon which 180 houses can be erected, and in regard to five further unhealthy areas improvement schemes have been approved by the City Council. As to policy the committee feel that town improvement and housing should, where possible, go hand in hand, and by continuing the present policy of considering improvement schemes on as large a plan as possible the committee hope that ultimately a large area, in which there has been the highest death-rate, will be rebuilt, and that reconstruction will be carried out with due regard to any possible street or other improvement.

### SANITARY ENGINEERING.

A PAPER on "Engineering and Architecture in Promoting Public Health" was read at the Public Health Congress, Douglas, by Mr. William Goldstraw, ex-city building surveyor, Liverpool. He took a general survey of the works of engineering and architecture usually carried out by public bodies for the promotion of public health, and pointed out that in four classes of these works the skill of the engineer

was required, in four others the services of the only, whilst in four others again the architect engineer usually collaborate. The combination of qualifications in one person, the official surveyor, justified the custom of Corporations and other bodies entrusting the design and supervision of public works to their responsible officials. It was remarked that the laying out of new suburban roads was still left to the landowner and no serious change was probable until public health took a more definite form. Two subjects, however, ripe for action—excessive dust on country roads and excessive noise in town streets. On the first question the known as "tarmac" might give good results, but the question of street noises had not been earnestly tackled. The conditions were distressing and, in a measure, disgusting. The ventilation of sewers was a question awaiting a solution than had yet been found. In the disposal of sewage, whether in seaboard or inland districts, the treatment might be looked for in some one of the several bacterial tank systems on sewage farms. The burial of town refuse in large "destructors" was one of the greatest sanitary advances made in this generation. In towns water supply it was advised that the local authority should generally call in the best expert advice, and pointed out that the present system of impounding by masonry dams was only about fifty years old. The erection of palatial bath buildings was deprecated when such schemes militated against the provision of baths for the people. In the construction of hospitals the advanced skill of the modern architect was most required, and the question whether the official or non-official architect should be employed must depend on his competence and experience. For the greatest improvement in the disposal of the dead, sanitarians might look to the establishment of suitable crematoria. In the warming of schools the architect, whether official or otherwise, should secure the help of a specialist engineer not wedded to a costly system, and the ventilating arrangements should be on lines of simple construction, with a view to renewing the full supply of fresh air whenever the rooms were in use. The need for cheap houses was nearly as great in rural districts as in towns. In the country the want

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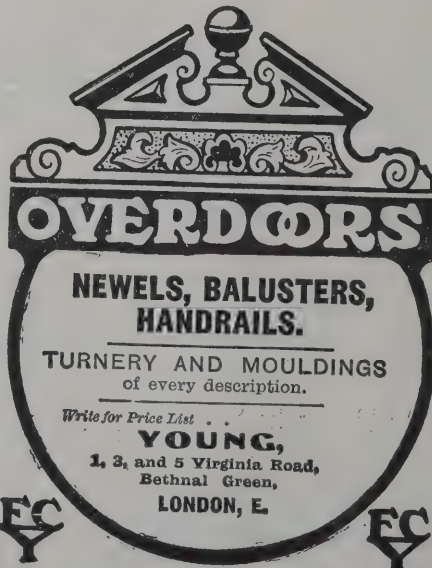
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### HOUSING REFORM.

Next week of August next the International Congress on Housing Reform will meet for the first time in Great Britain. Seven congresses have been previously held, viz. 1893; Antwerp, 1894; Bordeaux, 1895; Brussels, 1896; 1900; Düsseldorf, 1902; and Liège, 1905. The President of the Congress will be the Prime Minister, Sir Henry Campbell-Bannerman, and the Vice-President, the Archbishop of Canterbury, Lord Carrington, Earl Crewe, Mr. A. J. Balfour, Mr. Arthur Balfour, Mr. George Cadbury, Mr. W. H. Lever, M.P., Mr. Booth, Sir John Dickson-Poynder, M.P. The session of the Congress will be held in London, and anticipated that the president of the Local Government Board, the Right Hon. John Burns, will officially open the delegates.

First notice of the Congress now being despatched to the members of the Congress are thus described:—

Regarding the Congress the members of the International Housing Committee are confident that great good will result from the gathering together of statesmen and housing reformers from the principal countries in order to consider the best methods of dealing with the housing problem. The interchange between countries of successful remedial action will alone be of service, and it is hoped that the housing legislation of other countries will be greatly helped and stimulated as a result of the deliberations of the Congress.

Notice of invitation for the Congress is very wide. To send official representatives have been sent to Governments of France, Germany, Austria, Belgium, Italy, Sweden, Norway, Spain and other European countries, the United States, South America, Japan, &c., and Governments of British Colonies, the provincial County Councils of the above-named countries, associations formed for the purpose of promoting the welfare of the working classes, sanitation, &c., local

authorities throughout Great Britain and Ireland, workmen's associations, especially co-operative and other societies interested in the housing question. A number of ladies and gentlemen specially interested in the subject will also be invited to attend the Congress. The subjects to be considered by the Congress include housing inspection, slum improvement and slum destruction, house-building and management, housing finance and taxation, the land question, town planning and building by-laws, transit, rural housing, &c.

In one respect the Congress will probably be unique, for at the special wish of a large number of delegates from other countries a special housing tour will be arranged to visit housing schemes in London, block dwellings and cottages; Richmond, cottages; Sheffield, cottages; Liverpool, dwellings for the very poor; the village of Bournville, Birmingham; Port Sunlight, Birkenhead; the village of Earswick, York; Garden City, Letchworth; cottage exhibitions at Sheffield and Letchworth, &c. A special train will be chartered to accommodate the delegates desiring to take part in the visits to Sheffield, Liverpool, Port Sunlight and Bournville. The organisation of the Congress has been undertaken by the National Housing Reform Council, the secretary to the Council, Mr. Henry R. Aldridge, acting as secretary to the Congress, and a special committee has now been organised to give the visitors from other countries a fitting reception. This committee is composed of the representatives of the Mansion House Council on Dwellings of the Poor, Rural Housing Association, First Garden City, Garden City Association, National League for Physical Education and Improvement, Royal Institute of Public Health, Tenants' Co-partnership Housing Council, &c.

### COST OF TRANSIT.

EVIDENCE was given before the Royal Commission on Shipping Rings last week by Mr. R. MacLaren, of Glasgow, a director of the Glasgow Chamber of Commerce and Manufactures. He said that deferred rebates were in restraint of trade and thereby injurious to it and the interests of the country. He would mention with regard to South America four contracts in which his own firm

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were interested. One was an Antofagasta contract for 26,000 tons cast-iron pipes, for which they were prepared to submit tenders which would have worked out about 8s. per ton cheaper than the offers which were accepted, but as they found the buyers were bound to the conference by heavy rebates on other cargoes shipped during the previous twelve or eighteen months they only submitted an f.o.b. offer. The result was that their f.o.b. offer for one-third only was accepted. The offer of another Glasgow firm for one-third also was accepted, and the remaining third was lost to Glasgow. For a contract for Manaos of about 12,000 tons pipes the firm had a rate of freight about 12s. from Glasgow below what the lines quoted from Liverpool were. An extra 5s. per ton was demanded to take the pipes from Glasgow. The firm prepared a c.i.f. offer which he took to the buyers, who said they could not entertain it unless he undertook to ship by the lines. He knew this was useless, and the firm never submitted their offer. For a Bahia Blanca contract of 34,000 tons, for which their tender was accepted, the freight quoted by the lines was 30s. per ton. They got the goods carried under 20s. by steamers A1 at Lloyd's. Tenders were asked for a quantity of between 60,000 and 70,000 tons of pipes delivered at Rio, but the conditions of tender as to payment and reception at Rio were so onerous that it was necessary to act through merchants in Rio and London. They had a rate of freight about 13s. per ton cheaper than the lines quoted, but unfortunately the firm of merchants through which they were acting found it necessary to add several thousands of pounds to cover the rebates which they would lose by using our offer. The result was the order was lost, three-fourths of it going to a Belgian firm. It certainly all would have come to Glasgow if it had not been for the large sum the merchants added to cover loss of rebates on other work altogether during the previous year. In India for four or five years the lines had given a preference to the east coast over the west coast, the reason being a disagreement between one of the lines trading on the east coast and the other lines. It was a matter of no importance to the merchant whether the goods came from the east or west coast, Germany, England or Scotland, as he merely added his profit, and if he could get a larger profit by selling German goods he unhesitatingly took it. The

manufacturer was by the situation of his works send the goods from one point, *i.e.* the nearest ship to his works. Further, the manufacturer's capital was at least a large portion of it, was sunk at his works was tied there, whereas the most of the merchant was in a comparatively liquid form.

The matter first came under his notice in connection with a contract for Calcutta about August 1900. He quoted the London merchants f.o.b. Glasgow. The merchants told him that while his offer was right it could not base on it, as they had a cheaper freight from Middlesbrough. The gross rate was the same, but a 5 per cent. discount was given from Middlesbrough, a worse port than Glasgow. The Bombay Merchants required tenders for about 4,000 tons of pipes. He had arranged to do the business through London merchants. They were looking after the freight, &c., so he did not trouble with it. He was in London at the time and was more than surprised when the merchants told him that although his prices were right there was no possibility of going in on the tender, as freight from the east coast was 2s. 6d. per ton cheaper. He said that was nonsense and promised to give them a c.i.f. offer. He wired his brother in Glasgow, who at once went to the lines. They informed him that the best they could do was 18-inch pipes, 22-inch pipes, 27s. 6d.; 24-inch pipes, 27s. 6d.; 30-inch pipes, 35s. He then went to some outside brokers and offered an overhead rate of 25s., on which the firm made a profit. The merchants immediately asked if they would do it by the lines, and on their replying that they could not be bound to do so the merchants wrote:—"As we are not out of considerable sums which would be forfeited if we were to become interested, either directly or indirectly in shipment by a non-conference steamer, we cannot accept your offer." The offers were put in. Two days afterwards the lines wrote that they would reduce the rate of freight to 23s. 9d. net overhead, but the damage was done. The order was lodged, and the order was lost. Another example of the rebate system in connection with the Indian lines was that places like Dundee, which formerly would take up a cargo and send it direct, were now forced to send the goods to Glasgow, and then by the lines at much higher rates.

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# THE Architect and Contract Reporter.

FRIDAY, JULY 12, 1907.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. Business communications to the Managing Director,

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Managing Offices, 6-11 Imperial Buildings, Ludgate Circus, London, England.

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## NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

One of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

## TENDERS, ETC.

\* \* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

EDINBURGH.—The Garden City Association (Scottish branch) invite architects and others to submit schemes for laying-out as a model suburb the ground in the neighbourhood of Edinburgh over which they have acquired an option. Conditions of competition may be obtained from the Hon. Secretary, 23 Rutland Square, Edinburgh, on payment of a deposit of 10s., 5s. of which will be returned on receipt of a bona-fide set of plans.

IRELAND.—July 20.—The County of Cork Joint Hospital Board invite competitive plans for a sanatorium for consumptives with accommodation for seventy patients. A prize of 100l. will be paid for the plans which the Board may adopt, provided that said plans are sanctioned by the Local Government Board, and said plans shall become the absolute property of the Board. Intending competitors will receive a map of the site and other information on sending P.O. for 10s. to Mr. E. J. Murphy, secretary of the County of Cork Joint Hospital Board, Court House, Cork.

ROTHERHAM.—July 26.—Designs for new secondary school for girls. Premiums of 100l., 50l. and 25l. for three first designs. Assessor Mr. E. R. Robson. Further particulars from Mr. Spurley Hey, clerk to the Governors, Education Offices, Town Hall, Rotherham, Yorks.

WEYMOUTH.—July 30.—The Weymouth Town Council invite designs for a pavilion to be erected on the north side of the pier. One hundred guineas will be awarded for the selected design, such design to become the property of the Council. Mr. H. A. Huxtable, town clerk, Municipal Offices, Weymouth.

## CONTRACTS OPEN.

ACKWORTH.—July 13.—For whole or separate tenders in connection with erection of new school. County Surveyor's Office, Shire Hall, Durham.

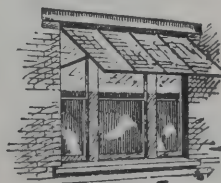
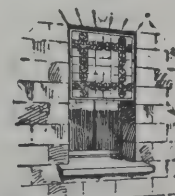
BARNSELY.—July 15.—For the following works to be carried out at Hoyle Mill C. school during the Midsummer holidays, viz. painting inside and outside of mixed department, painting outside of infants' department, repair of roof slates, overhauling gutters, pointing of ridges, &c., where necessary, pointing round offices and making boys' urinal satisfactory. Mr. T. Graham, divisional clerk, West Riding Education Office, Obelisk Chambers, Barnsley.

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BASSINGBOURN.—July 13.—For alterations at the mills, Basingbourn, Cambridgeshire. Messrs. Nash, Son & Rowley, estate agents, Royston.

BRAITHWAITE.—July 17.—For sliding partition, also for colouring and whitewashing, at the Braithwaite school. The Headmaster.

BRIERFIELD.—July 26.—For erection of a public elementary school at Brierfield, near Burnley, to accommodate 600 scholars. Deposit 2*l*. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

BRYMBO.—Aug. 9.—For additions and alterations to Sion Cottage. Mr. E. Jones, Sion Cottage, Brymbo.

BURNOPFIELD.—July 14.—For the erection of business premises and three houses (stone). Mr. J. W. Thompson, Bute House, The Fold, Burnopfield, Durham.

CARDIFF.—July 16.—For conversion of windows into doorways and French windows at the Cardiff and Ely work-houses. Mr. Arthur J. Harris, clerk, Union Offices, Queen's Chambers, Cardiff.

CARLISLE.—July 13.—For the erection of a mixed secondary school at Brampton (deposit 1*l*. 1*s*.) and girls' secondary school at Carlisle (deposit 2*l*. 2*s*.). Messrs. Grayson & Ould, architects, 31 St. James Street, Liverpool.

CARLISLE.—July 16.—For making improvements to prisoners' waiting-rooms, Crown Courts. Mr. Geo. Dale Oliver, county architect, Carlisle.

CASTLE EDEN.—July 19.—For erection of new court and alterations, &c., Castle Eden police station. Mr. W. Crozier, county surveyor, Shire Hall, Durham.

CHATBURN.—For erection of extension to weaving shed and seventeen dwelling-houses at Chatburn, near Clitheroe. Mr. W. H. Atkinson, architect, Shaw Street, Colne.

COLNE.—July 16.—For erection of elementary school for eighty children at Colne, Hunts. At the County Surveyor's Office, County Education Offices, Huntingdon.

CREWE.—July 20.—For secondary school for 350 pupils to be erected in Ruskin Road. Deposit 1*l*. Mr. H. Beswick, county architect, Newgate Street, Chester.

CUMBERWORTH.—July 18.—For any or all works required in erection of an infants' school, boundary walls and out-

offices in connection with the Cumberworth Church of England schools. Messrs. John Kirk & Sons, architects, John William Street, Huddersfield.

DALTON.—July 22.—For erection of a detached residence in Fleming House Lane. Mr. Douglas Hall, architect, Fartown, Huddersfield.

DARTMOUTH.—July 15.—For execution of works of repair, painting, &c., to Council school and caretaker's house. Mr. R. W. Prideaux, Hanover Square, Dartmouth.

DROXFORD.—July 15.—For repairs to Calcot bridge, Curdridge. Mr. A. V. Carter, surveyor, Droxford.

EARBY.—July 15.—For the various trades required for the erection of 21 houses at Earby. Mr. W. H. Atkinson, architect, Colne.

EAST HAM.—July 16.—For erection of stabling and ambulance house at isolation hospital, situate at Roman Road, East Ham. Deposit 5*l*. Mr. A. H. Campbell, borough engineer, Town Hall, East Ham.

EDINBURGH.—July 15.—For construction of underground urinal at Albert Street, Leith Walk. The Burgh Engineer, City Chambers, Edinburgh.

EGREMONT.—July 19.—For joiners' work, plumbers' work, glazing and painting required in alterations to Central Stores. Messrs. W. G. Scott & Co., architects and surveyors, 2 Park Lane, Workington.

EXETER.—July 19.—For the following work at Council schools, for the Devon County education & committee:—Bow—new offices, &c., for boys, drainage and ventilation; Colyton—alterations to the offices and drainage; Denbury—new cloak-room, alterations and repairs; Meddon, near Hartland—new drainage, &c.; Elmscott, near Hartland—new drainage, &c.; Oreston, near Plymstock—new drainage, alterations to the offices and other work; Sherford—new cloak-room, coal store, general repairs and other work; Shute—repairs, ventilation, painting, drainage, &c.; Shaldon, near Teignmouth—alterations and additions; Welcombe—new drainage, &c.; Werrington—alterations and repairs. Drawings, specifications and the conditions of contract may be seen at the respective schools. The Architect's Office, 1 Richmond Road, Exeter.

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ERITH.—July 12.—For works at the following public elementary schools for the Erith education committee:—(1) Belvedere boys' school, painting and repairs; (2) Picardy roads and caretaker's house, painting and repairs; (3) Brook Street schools, sundry repairs and painting; (4) central schools, painting and repairs; (5) St. Augustine's Road schools, painting and repairs; (6) All Saints schools, sundry repairs; (7) St. Fidelis schools, sundry repairs. Mr. W. Egerton, architect, Queen's Road, Erith.

EXMOUTH.—July 24.—For construction of refuse destructor sheds, &c., at Mudbank. The works will be let in four contracts, viz.:—(Contract No. 1) buildings, retaining walls and foundations of destructor; (2) installation and running-up a two-cell destructor, connections to and lining of chimney; (3) ironfounder and smith's work in sheds, &c.; (4) small steam-engine and electrical installation. Deposit 1*l.* 1*s.* for each contract. Mr. Samuel Hutton, engineer and surveyor to the Council, Council Offices, Exmouth.

GLOUCESTER.—July 25.—For alterations and additions at Alford Hill Council school. Bills of quantities may be obtained not later than July 6 from Messrs. Vale & Kingsdell, St. Aldate Street, Gloucester, on payment of 2*l.* 2*s.* R. S. Phillips, architect, Shire Hall, Gloucester.

GREAT AYTON.—July 15.—For the erection of an elementary school, including boundary walls, out-offices, &c. Mr. Walter H. Brierley, architect, 13 Lendal, York.

HALIFAX.—July 13.—For carpenter and joiner, slater, plasterer, plumber and glazier's work required in the erection of six houses, Booth Town Road. Messrs. Joseph Walsh & Graham Nicholas, architects and surveyors, Museum Chambers, Halifax.

HEREFORD.—July 13.—For reflooring the large assembly hall and the enlargement of a classroom at Hereford Training College. Mr. G. H. Jack, county surveyor.

HEREFORD.—July 18.—For additions to the Spread Eagle Hotel. Messrs. Groome & Bettington, architects and surveyors, Palace Chambers, Hereford.

HOLLINGWORTH.—July 24.—For erection of an elementary school on land adjoining Market Street, to accommodate

about 600 children. Deposit 2*l.* Mr. C. T. Adshead, architect, Leinster Chambers, St. Ann's Square, Manchester.

IPSWICH.—July 13.—For alterations of and additions to the municipal secondary school for girls in Bolton Lane. Deposit 1*l.* 1*s.* Mr. E. T. Johns, architect, Tower Chambers, Tower Street, Ipswich.

IPSWICH.—July 17.—For erection of stables at the Sanitary Authority's yard, Wolsey Street. Mr. E. Buckham, borough surveyor, Town Hall, Ipswich.

IPSWICH.—July 27.—For alterations and additions to the premises of the Municipal Secondary school for girls in Bolton Lane. Deposit 1*l.* 1*s.* Application by July 13 to Mr. E. T. Johns, Tower Chambers, Tower Street, Ipswich.

KEITH.—July 13.—For mason, carpenter, slater, plaster, plumber, painter and glazier's work of additions to the senior department of Keith Grammar school. Mr. D. J. Corrigan, architect, Cross Street, Keith.

KEIGHLEY.—July 12.—For the erection of a fireproof mill, with boiler-house, chimney, &c., Becks Road. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

LEEDS.—July 15.—For erection of ladies' conveniences at the Harehills recreation ground. Mr. W. T. Lancashire, city engineer, Municipal Buildings, Leeds.

LEEDS.—July 18.—For the construction of a cemetery chapel, boundary-wall and other works at the New Fewstone burial-ground at Meagill Lane. Mr. Charles G. Henzell, M.I.C.E., Municipal Buildings, Leeds.

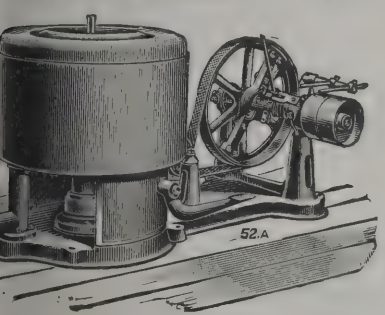
LISBURN.—July 22.—For the erection of the William Foote Memorial schools in Seymour Street. Rev. A. Egan, Methodist Manse, Lisburn.

LONDON.—July 18.—For execution of certain work at their scattered homes and at the workhouse at Mile End, also for the supply of engineers' and boiler-house materials, for the Guardians of Mile End Old Town. The Guardians' Offices, Bancroft Road, Mile End Road, E.

LONDON.—July 18.—For alterations and improvements at St. Bartholomew's school, Sydenham Park. Deposit 3*l.* 3*s.* Mr. A. H. Ryan-Tenison, architect, 21 Great Peter Street, Westminster, S.W.

LONDON.—July 18.—For extension of smoking-room and lavatory accommodation at the Great Western Royal Hotel,

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LONDON.—July 23.—For the erection of the superstructure of additional buildings at Colney Hatch asylum, New Southgate, N. Deposit 5*l*. The Clerk of the Asylums Committee, London County Council, 6 Waterloo Place, London, S.W.

MANCHESTER.—July 15.—For erection of an infants' school and for alterations and additions to the existing Ardwick Municipal school, Hyde Road. Deposit 2*l*. 2*s*. The Education Offices, Deansgate, Manchester.

MANCHESTER.—July 19.—For alterations of two sets of conveniences at Alexandra Park. Deposit 1*l*. 1*s*. The City Architect, Town Hall.

MARYPORT.—July 16.—For alterations at the premises of the Co-operative Society. Mr. C. Eaglesfield, architect, Maryport.

MILLOM.—July 24.—For erection of a porch to the principal door of the parish church. Mr. G. H. Scott, hon. secretary to the committee, 10 Victoria Street, Millo.

MOUNTAIN ASH.—July 20.—For repairing, renovating and other works at Ebenezer Primitive Methodist chapel at Mountain Ash. Rev. B. Beckerlegge, Myrtle Villa, Harcourt Road, Mountain Ash.

NEATISHEAD.—July 19.—For putting new roof on Neatishead Baptist chapel. Rev. H. J. Andrews, The Manse, Neatishead.

NEWBOTTLE.—July 15.—For the building of twenty-one houses at Newbottle (stations, Fence Houses and Penshaw). Mr. James Palliser's Office, Philadelphia, Fence Houses.

NEWCASTLE-ON-TYNE.—For the erection of Otterburn bridge in masonry. Mr. J. A. Bean, county surveyor, The Moot Hall, Newcastle-on-Tyne.

NEWTON BANK.—July 20.—For the erection of two cottages, and also separate tenders for the erection of a shop and cottage in Lewin Street, Middlewich, for the Winsford Industrial Co-operative Society. 21 High Street, Winsford.

ROWDE.—July 22.—For erection of a Non-provided elementary school at Rowde, Wilts. Mr. A. J. Randell, architect, Exchange Place, Devizes.

RUABON.—July 31.—For building proposed chapel school, &c. Mr. Edwin Hawkins, Church Street, Rhos Ruabon.

ST. LEONARDS-ON-SEA.—July 22.—For erection of a wing for children at the Buchanan hospital. Mr. Henry Ward architect, 8 Bank Buildings, Hastings.

SANKEY.—July 13.—For the erection of a police station at Sankey, near Warrington. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

SCOTLAND.—July 18.—For mason, carpenter and slate work of additions to offices at Nether Tillylair, Lumphanan. Mr. George Cocker, Balnashard, Finzean, Aboyne.

SCOTLAND.—July 27.—For erection of a public convenience in Guildhall Street, Dunfermline. The Burgh Engineer, Kirkgate, Dunfermline.

SEVEN KINGS.—July 23.—For construction of an underground convenience in Cameron Road, Seven Kings. Deposit 2*l*. 2*s*. Mr. Herbert Shaw, engineer and surveyor to the Council, Town Hall, Ilford, Essex.

SMETHWICK.—July 12.—For the erection of a fire station in Rolfe Street. Deposit 3*l*. 3*s*. Mr. C. J. Fox Allin, borough surveyor, Council House, Smethwick.

STAFFORD.—July 18.—For erection of isolation hospital buildings. Deposit 1*l*. 1*s*. Mr. W. Blackshaw, borough engineer, Borough Hall, Stafford.

STOCKTON-ON-TEES.—July 15.—For new hall adjoining St. George's Church. Mr. E. A. Whipham, architect, 59 High Street, Stockton.

TOWER HILL.—July 13.—For erection of a residence and workman's cottage, &c. Mr. Ernest Wise, architect, Launceston.

TRURO.—July 16.—For additions and alterations at the Truro College. Mr. Sampson Hill, architect, Green Lane, Redruth.

UPPER BANGOR.—July 23.—For erection of a pair of semi-detached houses. Messrs. Richard Davies & Son, architects, Bangor.

WALES.—For rebuilding the extension to the parish church at Llanishen, Glam. Deposit 2*l*. 2*s*. Apply at once to Mr. H. Douglas Blessley, architect and surveyor, 22 Trinity Street, Cardiff.

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Mention this Journal.



WALES.—July 13.—For the rebuilding of shop premises Caerphilly. Deposit 1*l*. 1*s*. Mr. John H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WALES.—July 15.—For the erection of a house at Gelli. Deposit 1*l*. 1*s*. Mr. W. D. Morgan, architect, Post Office Chambers, Pentre, Rhondda Valley.

WALES.—July 15.—For erection of a villa at Llanidloes, Aberdare. Deposit 1*l*. 1*s*. Mr. Llewellyn Jones, architect, Aberdare.

WALES.—July 16.—For erection of thirty dwelling-houses, together with boundary walls and other walls, at Llanbryn, Brynmenin, near Tondy, Glamorgan. Mr. J. J. Williams, architect and surveyor, Blackmill, near Llanidloes.

WALES.—July 18.—For erection of Tynewydd hotel, Llanidloes. Deposit 2*l*. 2*s*. Mr. James T. Jenkins, architect and surveyor, Porth, Rhondda.

WALES.—July 18.—For repairs and alterations to the existing Council schools:—Barn Street, Haverfordwest; Llanidloes; Templeton, for the Pembrokeshire education authority. Mr. D. E. Thomas, architect, 17 Victoria Place, Haverfordwest.

WALES.—July 18.—For building a vestry with conveniences and boundary walls at Trelewis. Mr. T. Edmund Jones, architect and surveyor, Gernant, Merthyr Tydfil.

WALES.—July 20.—For erection of church at Coedpenen, Pontypridd. Deposit 2*l*. 2*s*. Messrs. O. A. Evans, Williams & Evans, architects, Post Office Chambers, Pontypridd.

WALES.—July 20.—For the erection of vestry and classrooms, together with minister's house, at Ynyshir, Rhondda. Deposit 1*l*. 1*s*. Mr. J. J. Williams, architect, Tynewydd Crescent, Porth.

WALES.—July 22.—For carrying-out extensions, alterations and repairs at the undermentioned Council schools, the Monmouthshire education committee, viz.:—Earlsod, near Chepstow—erection of new classroom and other alterations; Mynyddbach, near Chepstow—asphalting playgrounds and repairs; St. Dials, Cwmbran—improvements lighting and ventilation; Nantyglo—provision of folding partitions, firegrates and block flooring; Mitchel Troy, Monmouth—erection of new classroom and alterations.

Mr. C. Dauncey, secretary, County Council Offices, Newport, Mon.

WALES.—July 23.—For building boundary walls, &c., at the truant school, Quaker's Yard. Mr. C. M. Davies, 112 High Street, Merthyr.

WARRINGTON.—July 16.—For the erection of buildings for boiler plant extension. Deposit 1*l*. 1*s*. Mr. F. V. L. Mathias, borough electrical and tramways engineer, Howley, Warrington.

WEDNESBURY.—July 17.—For erection of a building for a generating station and for certain extensions and alterations to existing buildings at the electricity sub-station, Camp Street. Deposit 2*l*. 2*s*. Mr. W. Fennell, Corporation engineer, Camp Street, Wednesbury.

WEST BURTON.—July 17.—For alterations at West Burton school. Mr. Ramsden, schoolmaster, West Burton.

THE Manchester City Council early in the spring adopted new building by-laws intended to improve the quality of houses and enlarge the air space around new dwellings. These by-laws were sent to the Local Government Board for consideration and ratification, and have now been returned. Several alterations have been suggested, and the improvements committee will meet at an early date to consider them.

IN connection with the forthcoming visit of the National Association of Master House Painters and Decorators of England and Wales to Liverpool in September, it has been arranged to hold an exhibition of decorative and applied art at St. George's Hall. This will be the second occasion on which the National Association has visited Liverpool and had a Liverpool man for its president. This year the presidential chair is filled by Mr. G. H. Morton. Space at St. George's Hall has been placed at the disposal of the Association's school of art and of the technical school for a display of the works of the students, and it is expected that a very interesting exhibition will result in each case. A feature of the Liverpool exhibition will be a series of decorated exhibits by local decorators.

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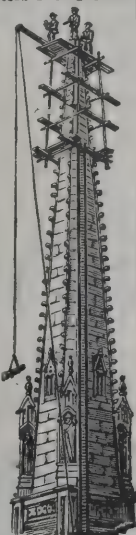
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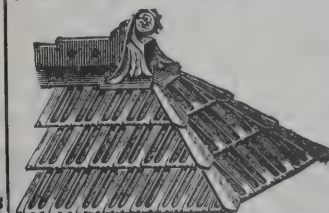
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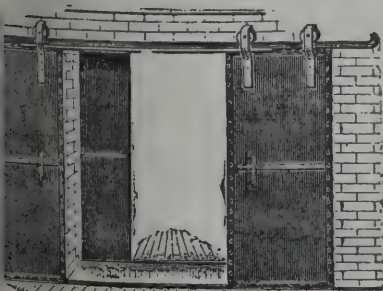
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Thomas & Sons . . . . .	5,495	0	0	5,721 0 0
Hughes & Stirling . . . . .	5,365	19	8	5,852 7 7
Gayland . . . . .	5,360	0	0	5,560 0 0
Wilks & Son . . . . .	5,210	0	0	5,420 0 0
Smith . . . . .	5,091	0	0	5,280 0 0
Colborne . . . . .	4,898	17	4	5,099 19 4

**BEDLINOG.**

For erection of twenty-four or more dwelling-houses, for the Workmen's Building Club. Messrs. JONES & HOWARD, architects, Nelson, Glam.

	Per House.	
Walcott & James . . . . .	£215	0 0
Davies . . . . .	211	0 0
Jones Bros. . . . .	195	0 0
Thomas . . . . .	190	0 0
Jones, Humphreys & Owen . . . . .	187	10 0
G. & D. Jones . . . . .	175	0 0
Davies & Co. . . . .	168	0 0
EVANS, Troedrhwiwrch, New Tredegar (accepted) . . . . .	165	0 0

**CAERGWRLE.**

For erecting tea and concert pavilion at Rhyddyn Hall Spa. Mr. C. D. RUTTER, architect, Wrexham.

MOORE, Wrexham (accepted) . . . . . £820 0 0

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For works on the irrigation area of the sewerage scheme.

OSMAN, Southampton (accepted) . . . . . £603 0 0

**BRIGHTON.**

For erecting two external iron fire-escape staircases, &c., Warren Farm schools. Mr. T. GARRETT, architect, Brighton.

King & Sons . . . . .	£550	0
Loughborough Ironworks Co. . . . .	462	11
St. Pancras Ironwork Co. . . . .	450	0
Packham & Son . . . . .	442	0
Safety Tread Syndicate . . . . .	410	0
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Alloa Iron Co. . . . .	385	0
Lindsay & Co. . . . .	384	10
Hayward Bros. & Eckstein . . . . .	384	10
Cadogan Ironworks . . . . .	376	0
Lockerbie & Wilkinson . . . . .	370	13
Wright . . . . .	370	0
Hockley & Co. . . . .	370	0
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Reed & Sons . . . . .	348	0
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Raybould & Co. . . . .	312	0
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Barnes & Sons . . . . .	288	0
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Cochrane & Co. . . . .	837	10
JORDANS, LTD. Newport, Mon (accepted) . . . . .	829	0

**CROOK.**

For rebuilding portion of factory at Crook. Mr. H. T. GRADON, architect, Durham.

WALTON, Crook (accepted) . . . . . £1,035 8 10

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enlargement of the Gilesgate Council infants' school. Mr. H. T. GRADON, architect, Durham.			
anners.	£268	14	0
EEVERS & CLARKE, Durham (accepted)	182	18	3
the construction of a sewer.			
hompson	£5,286	8	1
eredith	5,264	12	8
IRTH & Co., York (accepted)	4,992	8	3

EALING.

the construction of roads and sewers on first portion of Ealing Tenants' New Garden City estate. Messrs. BARRY PARKER & RAYMOND UNWIN, architects.			
acklin	£3,365	0	0
ree & Son	3,120	0	0
eave & Son	2,987	0	0
atson	2,882	0	0
ORECROFT, Acton (accepted)	2,839	0	0

EXETER.

alterations to Bucherell Lodge. Mr. ARCHIBALD LUCAS, architect, Exeter.			
erbert	£940	0	0
tile & Son	938	0	0
realy	915	0	0
oles	848	0	0
tephens & Son	833	0	0
Woodman & Son	832	0	0
ludge	828	0	0
unclark & Stephens	816	0	0
LAM & PASSMORE, Bristol (accepted)	790	0	0

EXBURY.

For restoration of parish church. Mr. J. OLDRID SCOTT, architect.			
MUSSELWHITE & SAPP, Basingstoke (accepted).			
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For erecting elementary school and cookery centre at Briton Ferry. Mr. JAMES NASH, county architect, Neath (western division).			

	Brick Facings.	Stone Facings.
Morgan	£6,484 5 0	£6,718 14 9
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Bennett Bros.	5,694 0 0	5,949 0 0
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Creighton	5,691 18 0	5,799 0 11
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Bevan	4,499 10 0	4,679 10 0

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For warming and ventilation of girls' high school. Mr. EDMUND J. CULLIS, engineer, Gloucester.			
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Smith & Co.		1,392	17 9
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Lea & Warren		1,285	0 0
Hope & Sons		1,275	0 0
Parker		1,230	0 0
McDonald & Hunt		1,205	0 0
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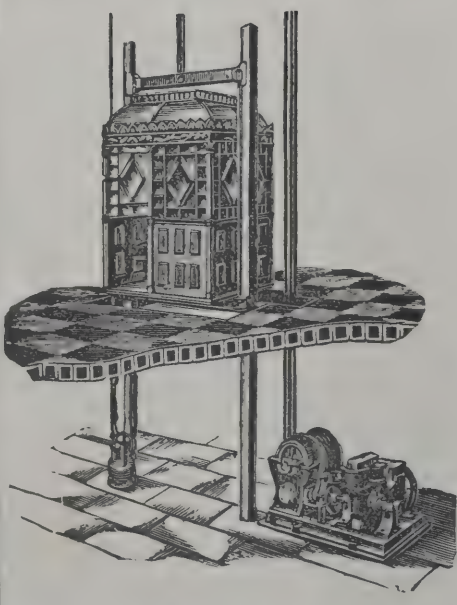
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Brand . . . . .	687	5	6
Kemp . . . . .	645	11	6
Day . . . . .	573	12	0
MERCER, Guildford (accepted) . . . . .	520	0	0

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For private street works, sewerage, &c., for the Hendon Urban District Council. Mr. S. SLATER GRIMLEY, engineer.

*Accepted tenders.*

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Rogers & Co., North Kensington . . . . .	2,287	0	0
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## HENLEY-ON-THAMES.

For Congregational church and tower, Henley-on-Thames. Mr. HAMPDEN W. PRATT, architect, Leighton House, 168 Fleet Street, E.C. Quantities by Mr. MARK DEACON, 32 Craven Street, Charing Cross, W.C.

Smith & Sons . . . . .	£5,258	0	0
Bissley . . . . .	4,920	0	0
Mussellwhite & Sapp . . . . .	4,900	0	0
Cox & Sons . . . . .	4,779	0	0
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Seward . . . . .	4,499	0	0
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Gibson . . . . .	4,370	0	0
Walden & Cox . . . . .	4,148	0	0

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Harris . . . . .	136	14	0
LEE & Sons, Higher Bebington (accepted) . . . . .	135	10	0

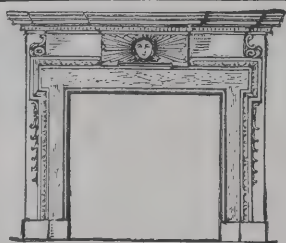
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Nightingale . . . . .	£20,440	0	0
Guttridge . . . . .	19,804	0	0
Davey . . . . .	19,372	2	0
Martin, Wells & Co. . . . .	19,060	0	0
Flint . . . . .	19,005	8	0
Kingerlee & Sons . . . . .	18,992	0	0
Johnson & Co. . . . .	18,971	0	0
Galbraith Bros. . . . .	18,887	12	0
Patrick . . . . .	18,862	0	0
Unsigned . . . . .	18,643	0	0
Lole & Co. . . . .	18,595	3	0
Wallis & Sons . . . . .	18,566	0	0
Wall . . . . .	18,500	0	0
Unsigned . . . . .	18,481	18	0
Moss & Sons . . . . .	18,392	15	0
J. & C. Bowyer . . . . .	18,185	0	0
Blake . . . . .	17,831	15	0
Holliday & Greenwood . . . . .	17,777	0	0
Clayton, Shepherd's Bush (recommended) . . . . .	17,129	0	0
F. & E. Davey . . . . .	17,124	1	0

For fitting-up shop, 7 Chadworth Buildings, on the Garden Estate, St. Luke's.

Sage & Co. . . . .	£98	0	0
Haskins . . . . .	94	0	0
Clancy & Slater . . . . .	90	10	0
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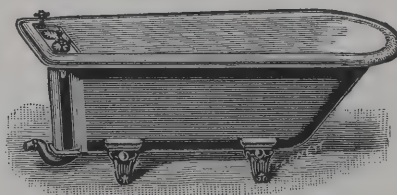
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Leslie & Co.	£8,338	0 0
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Vall	7,649	0 0
Smith & Sons	7,557	0 0
V. & C. Brown	7,410	0 0
Holliday & Greenwood	7,395	0 0
Thorne	7,383	0 0
Higgs	7,367	0 0
Male	6,345	10 0
Parsons	6,163	0 0
Fletcher, Maybury Street, Tooting (recommended)		
Architect's estimate	5,800	0 0
heating apparatus, &c., at Lawn Lane, Kennington.		
Ginnell & Co.	£1,075	0 0
Jeffreys & Co.	979	0 0
Forting Bros.	872	0 0
Davis	860	0 0
Davis, Bennett & Co.	820	0 0
Dawson & Co.	796	0 0
Cannon & Sons	772	15 0
Haden & Sons	766	17 0
. & F. May.	760	0 0
Nenham & Waters	757	0 0
Gray	756	0 0
Stevens & Sons	690	0 0
Lea & Warren, 7 Victoria Street (recommended)		
	660	0 0
the supplying and laying in the Green Lanes main road of about 12,000 square yards of Victoria paving and about 190 square yards of brick crossings. Mr. C. G. LAWSON, surveyor.		
Adams	£3,862	0 0
Mann	3,537	0 0
Free & Sons	3,517	0 0
Griffiths	3,478	0 0
VICTORIA STONE Co. (accepted)	3,430	0 0

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For providing and fixing two boilers and low-pressure hot-water apparatus, British Street school, Poplar.		
G. & E. Bradley	£753	0 0
Russell & Co.	700	0 0
Brightside Foundry and Engineering Co.	691	6 0
Knight & Sons	669	0 0
Christie	657	0 0
Defries & Sons	654	0 0
Cannon & Sons	652	16 0
Yetton & Co.	621	0 0
Palowkar & Sons	598	0 0
Lancashire Heating Co., Manchester (recommended).		
	589	0 0
For providing and fixing two boilers and low-pressure hot-water apparatus, Mitcham Lane school, Wandsworth.		
Stubbs, Son & Hall	£850	13 0
Turner & Co.	849	0 0
Comyn Ching & Co.	839	0 0
Beeson & Sons	825	0 0
Lea & Warren	800	0 0
Strode & Co.	758	0 0
Brightside Foundry and Engineering Co.	739	0 0
Harlow & Son	727	0 0
Macintosh & Sons, Cambridge (recommended)		
	598	10 0
LUDLOW.		
For the construction of storage reservoir, laying cast-iron mains and other works.		
Turner	£2,001	10 5
Hotchkiss	1,988	2 9
Kirk & Randall	1,898	5 9
Firth	1,883	8 6
Vale & Sons	1,660	0 0
Davis	1,656	7 3
Law	1,569	0 0
SPEAK, Church Stretton (accepted)		
	1,445	14 7
Holloway	1,442	0 2
York & Co.	1,411	17 0
Westwood	1,395	3 0

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REGISTERED  
TRADE MARK

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CORSHAM DOWN,  
CORNGRIT,  
FARLEIGH DOWN,  
BRADFORD,



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**MANCHESTER**  
TRAFFORD PARK.



**MALLING.**

For tar-paving of Bramley Road, Snodland.

Wood & Sons.	£111	14	0
Chittenden & Simmonds	105	0	0
PRICE, Strood ( <i>accepted</i> )	95	0	0

For the making-up of Queen's Avenue, Snodland.

Wood & Sons.	£273	12	0
Price	260	0	0
CHITTENDEN & SIMMONDS ( <i>accepted</i> )	234	0	0

**MILFORD HAVEN.**

For the erection of a dwelling-house in Great North Road.

Mr. A. S. CHUGG, architect, Milford Haven.

W. & G. Cole	£699	0	0
Lloyd & Co.	666	0	0
PHELPS & OWEN, Milford Haven ( <i>accepted</i> )	600	0	0

**MOSS.**

For alterations at the Sun inn. Mr. C. D. RUTTER, architect, Wrexham.

Wycherley & Co.	£375	0	0
Samuel	350	0	0
Jones	337	0	0
Williams	316	0	0
MOORE, Wrexham ( <i>accepted</i> )	290	0	0

**MOUNTAIN ASH.**

For the erection of a cookery school, &amp;c. Mr. W. H.

WILLIAMS, architect, Mountain Ash.

Jones Bros.	£1,014	12	1
Smith	935	0	0
Davies	898	8	7
E. D. W. Evans	897	12	5
Davies & Co.	884	0	0
Williams	852	16	2
John	833	11	4
Evans & Bros.	827	3	4
W. D. Evans	814	8	10
Knox & Wells	805	0	0
JAMES, Cardiff ( <i>accepted</i> )	783	13	0

**NEWBRIDGE.**

For carrying-out sewerage and irrigation works at Newbridge, co. Kildare. Mr. F. BERGIN, engineer, Dublin.

H. & J. Martin	£10,745	0	0
Langley	9,247	0	0
Heggart & Gault	7,682	4	0
Clarke	7,659	0	0
Martin & Co.	7,563	0	0
Collen Bros.	7,425	11	0
Sheridan	7,256	0	0
McKee & McNally	7,252	10	0
Baird's Ltd.	7,138	11	0
Granger Bros.	6,813	18	0
BECK, Newbridge ( <i>accepted</i> )	6,784	0	0

**NEWCASTLE-UNDER-LYME.**

For painting and repairs at the Ryecroft schools, for education committee.

PLEVIN ( <i>accepted</i> )	£190	10	0
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**PORTSMOUTH.**

For construction of steel bridge across railway near Copnor.

Rogers & Wood.	£10,566	0	0
Coles	9,200	0	0
Trimm	8,339	0	0
Cochrane & Sons	7,750	0	0
Thorne & Sons	7,179	0	0
Bevis	7,100	0	0
Osenton	6,700	0	0
Bell & Sons	6,587	0	0
Keay	6,501	0	0
Kirk & Randall	6,485	0	0
Neal	6,360	0	0
Rollingsons	6,260	0	0
Sweetland	6,230	0	0
Edwards & Co.	6,210	12	0
Light & Son	6,187	0	0
Cook & Son	6,069	0	0
Somervail & Co.	6,034	0	0
Dick, Kerr & Co.	5,907	16	0
Cleveland Bridge and Engineering Co.	5,904	0	0
Perry & Co., Bow ( <i>recommended</i> )	5,797	0	0

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## PORTSMOUTH.

fittings in connection with the central library in the medical institute.

ON, LTD., Nottingham (*accepted*) . . . £2,472 15 0

tion of electric-light station in Old Portsmouth.

outh, Portsmouth (*recommended*) . . . £3,564 0 0

provision of the requisite plant at the new station.

ms & Robins, Rugby (*recommended*) . . . £553 8 0

## STREATHAM.

making-up and paving new streets.

Braxted Park (1), Streatham.

LER (*accepted*) . . . £997 0 0

Braxted Park (2), Streatham.

& Sons (*accepted*) . . . 732 18 6

Baldry Gardens (2), Streatham.

& Sons (*accepted*) . . . 439 16 7

## SWINDON.

construction of brick and cast-iron pipe sewer, with manholes, &c. Mr. H. J. HAMP, borough surveyor.

ling & Co. . . . £3,141 10 0

on, jun. . . . 3,030 0 0

man . . . . 2,639 16 5

. . . . 2,520 12 0

. Garden & Co. . . . 2,462 0 2

rne . . . . 2,445 19 6

LEY & JOHNSON, Slough (*accepted*) . . . 2,312 7 0

## THRAPSTON.

verage works at Woodford. Mr. T. LLOYD, sur-

or.

N, Thrapston (*accepted*) . . . £324 10 0

## TOTTENHAM.

For diverting and culverting the river Moselle on the White Hart Lane estate, for the Urban District Council.

Knifton . . . . £8,072 18 0

Adams . . . . 7,663 10 0

Grounds & Newton . . . . 7,364 10 11

Frost . . . . 7,264 16 6

Pedrette & Co. . . . 6,988 3 5

T. W. Pedrette, Stoke Newington (*recom-*

*mended*) . . . . 6,977 16 9

## WALES.

For erection of thirty houses, for the Bryn Awel Building Club, Ynyshir.

RICHARDS, Pentre (*accepted*) . . . £6,675 0 0

## WEMYSS.

For the erection of a school at Buckhaven, for the Wemyss School Board. Mr. C. G. CAMPBELL, architect, Wemyss.

*Accepted tenders.*

Dewar & Walker, joiner . . . . £2,715 9 6

Wright & Reekie, mason . . . . 2,150 2 8

W. & J. Easton, plasterer . . . . 815 4 6

Nicoll & Son, plumber . . . . 749 17 0

Peter, smith . . . . 406 4 6

Currie, slater . . . . 284 15 11

M'Farlane, painter . . . . 267 17 3

Carron & Co., glazier . . . . 88 13 4

## WOLVERHAMPTON.

For erection of nurses' home at general hospital. Mr. A. W. Worrall, architect, Wolverhampton. Quantities by

Mr. Hy. Vale, Wolverhampton.

Jones . . . . £6,689

Beard . . . . 6,697

Lovatt . . . . 6,489

Hicken & Sons . . . . 6,235

Tildesley . . . . 6,300

Hans . . . . 6,140

Willcock & Co. . . . 5,955

Mason . . . . 6,076

Gough & Son . . . . 5,930

CAVE & SON, Wolverhampton (*accepted*) 5,858

A.—Allowance for old material.

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AGENTS WANTED.



## TRADE NOTES.

THE new Public Library, Chester Road, Highgate, has been ventilated on the "Boyle" natural system under the direction of Mr. W. Nesbit Blair, M.I.C.E., borough engineer.

WE have much pleasure in announcing that the proprietor of the Bexhill patent casement window has appointed Messrs. Campbell, Smith & Co., of 25 Newman Street, Oxford Street, London, sole licensees and manufacturers.

THE British Flooring Company have secured the extensive wood-block contract for the new White Building, Market Street, Sheffield. Messrs. Gibbs & Flockton are the architects, and Messrs. J. Vasey & Sons, builders. They have also secured the contract for parquet floors at Messrs. W. Saville & Co.'s new premises, Enfield.

MESSRS. JOYCE & Co., Whitchurch, Salop, have been favoured with the order for a large striking clock for the Sunderland Corporation tramways offices. They are also making a similar clock, with four dials, 5 feet diameter, for Llanidloes public building, which is being erected at the expense of Mr. David Davies, M.P., and a large quarter clock for Broughton-in-Furness Church.

MESSRS. THOMAS FALDO & Co., LTD., the well-known manufacturers of asphaltes, inform us that they have opened offices situated at Effingham House, Arundel Street, Strand, W.C., where all communications should in future be addressed. Messrs. Faldo's business was established as far back as 1851, and with its steady growth this change has become advisable.

MESSRS. MARPLE & GILLOTT, iron and steel merchants and constructional engineers, of Coronation Buildings, Attercliffe Road, Sheffield, write us that they have turned their business into a private limited liability company, and in future it will be carried on under the title of Marple & Gillott, Ltd.

WE have been requested to announce by Messrs. Taylor & Co., the manufacturers of patent cloak-room fittings, of Carlton House, 28 High Street, Birmingham, that this branch of their business has been transferred to a limited liability company, which will in future be known as Taylor's Cloak-Room Fittings and Engineering Co., Ltd., with offices at 10A Burlington Chambers, Lower Temple Street, Birmingham.

## VARIETIES.

THE plans committee of Aberdeen Town Council sanctioned the plans of a new telephone exchange for the city, the value of which is estimated at 12,000l. The premises are to be erected in Bonaccord Street.

SIR WILLIAM MATHER has presented to the Council of Manchester a large number of books, Parliamentary reports and reports on technical education, forming the library of the National Association for the Promotion of Technical and Secondary Education.

THE tramway committee of Edinburgh Town Council recommend the following tenders by Messrs. Dick, Kerr & Co., Ltd., for cabling Broughton Street and Gilmore Place Roadwork for the lines, 34,785l.; for special work at points and crossings, 2,596l.

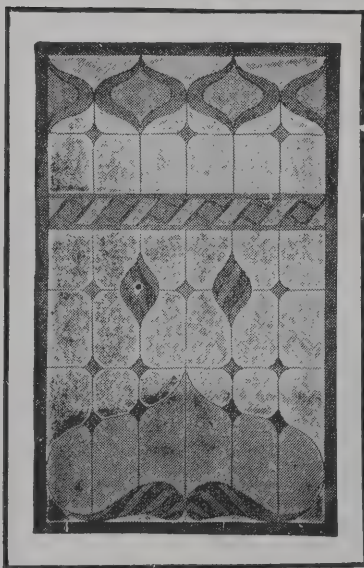
THE Croydon Borough Council have unanimously decided to confer the honorary freedom of the borough on Mr. William Ford Stanley, of South Norwood, in recognition of his public services and munificent gifts to the borough. He has erected at South Norwood two halls, an art school and technical trade schools.

MR. WILLIAM SAPCOTE, Camden Street, Birmingham, formerly president of the Midland centre of the National Federation of Master Builders and of the Birmingham Master Builders' Association, who died on March 1, 1916, left property which has been sworn at 19,107l. gross, 16,732l. net.

MR. JOHN MORGAN, one of the best known builders in the North of Scotland, has just died in Aberdeen at the age of sixty-three. Among the many public buildings with which his name will always be associated is the magnificent extension of Marischal College, opened by the King in September, and of which he was the contractor.

THE Caledonian Railway Company have entered on an extensive improvement scheme at Eglinton Street, Glasgow. This, when completed, will give a double track line from Glasgow Central to Rutherglen Junction. A distance of 600 yards is involved in the extension, which involves an outlay of about 80,000l. The operation will extend over a period of about two years. The contractors for the whole work are Messrs. Robert Morrison & Sons.

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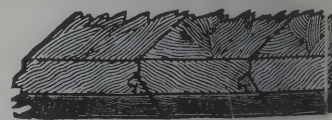
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12" x 4"	plain	30s. 0d.

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147 STRAND, LONDON, W.C. (FIRST FLOOR)



Chester education committee have decided to build a school in the Boughton district to accommodate 650 scholars, and to purchase a site for a school to supersede the City Wesleyan infants' school and the St. Barnabas's school, which have been condemned.

A meeting of the works committee of the Southampton Board the tender of the Tilbury Dredging Co. for deepening the channel in Southampton Water was recommended for acceptance, the price being just £1000. The work consists of making the channel from the Docks to west of the Thorn Knoll a uniform depth of 12 ft.

A report on the audit of the accounts of the Islington Council the district auditor of the metropolitan Council says that the charge made for electric current used to the street lamps, apart from the cost of the lamps, or maintaining the lamps, &c., is at the rate of 1s. 6d. per unit, or about twice as high as the average charged in other metropolitan boroughs.

"Calendar of Wills Proved in the Vice-Chancellor's Court at Cambridge (1501-1765)" is now at press and will be published shortly by H. Roberts, 2 Free School Lane, Cambridge. The Calendar contains records of the wills of R. Prior, Ferne Cowde Castell, and others. The work is issued in octavo, and a limited number in quarto, for which early application is desired.

H. R. HOOPER, M.Inst.C.E., Local Government Inspector, attended at the Norwich Guildhall for the purpose of holding an inquiry into the application of the Norwich Town Council for powers to borrow £25,000 for the purpose of their electricity undertaking. Mr. F. N. Hooper, electrical engineer, explained the work consisted of the purchase of new plant, meters and mains, and the work rendered necessary by the increased demand for electric current in the city.

HARRISON HODGSON, of Workington and of 15, Cavendish Street, London, civil engineer and contractor, largely connected with railway and engineering enterprises in South Africa and South America, died on May 11, aged fifty years, third son of the late Harrison Hodgson, contractor, of Workington, left estate

of the gross value of £76,853. 4s. 3d., of which the net personalty has been sworn at £75,189. 15s. 7d.

THE Borough Polytechnic annual sports and garden party took place on Saturday, the 6th inst., at the Institute Ground, Redpost Hill, S.E., where a large number of students, officials and friends assembled to witness or take part in the lengthy programme of varied events, which were carried out in good style and form, and at the termination a number of prizes were presented to the winners. Mr. C. T. Mills, principal of the educational department, was present on the occasion, and the secretary, Mr. W. M. Richardson, took a prominent part in the proceedings, which awakened lively interest throughout.

At a meeting of the Blackburn Rural District Council on July 6 a member raised the question whether the Council should insure all the men working for them when many were already insured by those who employed them on contract work. The clerk advised that it would be better to have a double insurance than to run risks. The whole of this workmen's compensation question, he said, was in a fog. Insurance companies did not know where they were, nor did anybody else. The Council decided to insure for twelve months.

DENBEATH and Buckhaven schools are virtually started, and the Board hesitates whether to appoint one or two clerks of works for the operations. An ex-provost holds strongly that one good man could superintend them both, seeing they are so near to each other. On the other side it is argued that if they must have one man for East Wemyss, where the school would cost £8,000, they must have two for the schools which would cost £20,000 between them. It was agreed at a meeting recently to advertise for one man, but to recommend the Board to elect two.

THE Lewes Town Council have adopted a scheme for the construction of an intercepting sewer to discharge the whole sewage of the town lower down the river and at ebb tide only. The estimated cost of the scheme was:—High-level intercepting sewers, £3,908. 10s.; low-level intercepting sewers, £3,186.; sewage disposal works, £5,860. 10s.—total, £12,955. This estimate did not include purchase of land, easements and wayleaves, or engineering or legal charges, which might be roughly estimated at, say, £3,200.

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188 PICCADILLY, W.



MR. J. THOMSON, burgh engineer, Dundee, has prepared a design for new municipal buildings to be erected on the site of the town house buildings, the adjoining properties being purchased to increase the site. The cost of the building will be 80,000*l.*, or with the property 140,000*l.* Shops are proposed on the lower storey. The consideration of the subject was deferred by the councillors.

SIR WALTER FOSTER, M.P., has received the following communication from the Prime Minister in reply to an inquiry:—"His Majesty's Government are fully alive to the importance of this question, and my right hon. friend may be assured that it is their intention to introduce legislation dealing with the better housing of the working classes at the earliest practicable moment. I may add that no effort on their part will be wanting to frame a measure which should be adequate to the necessities of the case."

MR. HALDANE has just presented to Parliament a statement of the progress reported in providing for the technical instruction of soldiers to fit them for civil life in accordance with the War Office letter of October 31 last. It is suggested that barrack repairs might more often be carried out by men other than the Royal Engineers, whether under Royal Engineer supervision or by giving petty contracts to the regiment, and finally there is a suggestion that men should be encouraged by their officers to do odd jobs, such as repairing windows, putting up shelves and making minor conveniences for barracks.

MR. H. SHELFORD BIDWELL, C.E., inspector of the Local Government Board, held an inquiry recently at Lichfield in reference to an application by the Corporation to borrow 3,826*l.* for purposes of sewerage and sewage disposal. The sum was required for the following purposes:—(1) Sewerage extensions in the city, in addition to those for which a loan of 7,000*l.* had already been sanctioned—1,759*l.*; (2) additional filter beds and alterations and additions to sewage disposal plant—1,400*l.*; (3) erection of two workmen's cottages at the sewage farm—350*l.*; (4) purchase of land in Beacon Street for dealing with storm water—250*l.*; (5) legal charges for mortgages, &c.—67*l.*

A DEPUTATION from the Associated Chambers of Commerce waited upon the Home Secretary on Tuesday to urge

the advantage which would accrue to the public powers of coroners were extended to enable them to inquests in regard to fires. The Home Secretary sympathised with the objects of the deputation. At a future time he thought a Bill would be introduced with the whole question of coroners' powers. In that case his Department would whole-heartedly support the Bill. A short time ago the Home Office sent a deputation to the great municipalities, but the replies of Liverpool, Manchester and Bradford were unfavourable, and he suggested that these corporations should be converted in accordance with the principle of the Bill as soon as possible.

## CORRESPONDENCE.

### Income Tax Reduction League.

SIR,—We, the undersigned members of the committee of the above-named League, request you to publish this letter. The Income Tax Reduction League has been formed because we feel that the time has arrived when this tax should no longer be maintained at a war rate. Income tax is essentially an emergency tax, and we consider the prolonged maintenance of the tax at a war rate unsafe from a national point of view, unwise from a revenue point of view, injurious to our trade and industry, and unjust to a large body of the citizens of this country. The League is a non-party body. Its objects are to represent the forces of income-tax payers of all parties and of all sexes in one strong association, whose efforts to effect a substantial reduction of the rate. 2. To impress upon our countrymen the necessity of a substantial reduction of the rate. 3. The restriction of income tax to profits actually received by shareholders by individual traders, and to exempt depreciation from the operation of the tax.

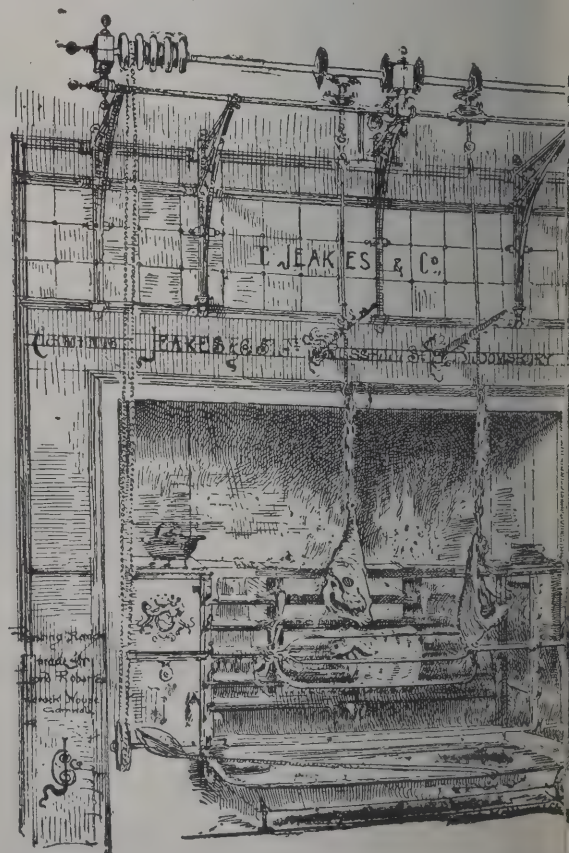
Offices are being taken, and an organising secretary and staff are being engaged for the purpose of giving p

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KITCHEN FITTERS  
TO THE GREAT HOTELS OF LONDON  
WASHING APPARATUS  
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KITCHEN FITTERS  
TO THE CLUBS OF LONDON  
COOKING APPARATUS  
BY GAS & STEAM  
Cooking Apparatus  
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COOKING, LAUNDRY, HEATING, VENTILATION



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A. Bonar Law.  
Gilbert Parker.  
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Felix Schuster.  
A. F. Wallace.  
Henry Trueman Wood.

terrible fire in a Glasgow lodging-house a committee of the Corporation investigated all the circumstances. Among their recommendations one was that the walls should be made of a non-inflammable material, and in the event of those being made of wood, that they should be coated with an approved fire-resisting paint. Under the direction of the city firemaster a series of exhaustive fire tests were undertaken, with the result that the "Duresco" paint has been approved of and is now being used for the painting of all wood and other surfaces in lodging-houses in Glasgow. The agents for Scotland and the West are Messrs. James Duthie & Co., Glasgow. The paint has undoubtedly fire-resisting qualities, but its chief advantage is its appearance as a paint, which is the principal consideration. This is shown by the fact that the coloured discs of sixty-four decorative stock samples are issued of a size which enables anyone to select the colour and to select the colours which are most suitable for the particular case. The Silicate Paint Company are anxious about their customers and the public. It is therefore

desirable to have it stated whether the paint is to be used for new plaster or for other classes of work. Three coats of "Duresco" will produce work of the highest class, and more is never required. The company also manufacture petrifying liquid for preserving walls of all kinds from damp. The long period during which "Duresco" has been in use establishes its durability and covering power and easy working.

AMONG the earliest efforts to introduce economy in the use of coal and to increase the heating power in grates, besides making them subserve in ventilation, were those invented by Messrs. Shorland, of Manchester. They still continue to assert themselves, although the competition has vastly increased. In many schools where economy was a primary consideration—for there was no Government grant in those days—the Marchester grate was considered by masters and pupils as a friend. It still is made in forms which are adapted for schools, hospitals, &c. But Messrs. Shorland have also recognised the necessity for appearance, and they now produce grates which would not be out of place in a mansion where every article in the room has an artistic character. Several of their varieties are illustrated and explained in their new catalogue, and it will be seen that art has supplemented science to an extent that is satisfactory. Illustrations are also given of their patent exhaust roof ventilators. Among the buildings in which the Manchester stoves are used is the Royal Victoria Infirmary, Newcastle-on-Tyne, which was opened a year ago by the King.

The following regulations have been made by the Home Secretary as to examinations of a workman by a medical practitioner provided and paid by the employer under the provisions of the First Schedule to the Workmen's Compensation Act, 1906 :—

1. Where a workman has given notice of an accident or is in receipt of weekly payments under the Act, he shall not be required to submit himself, against his will, for examination by a medical practitioner provided by the employer except at reasonable hours.

Works, MANCHESTER. Salford Ironworks, MANCHESTER.  
Queen Anne's Chambers, Westminster, LONDON.



2. A workman in receipt of weekly payments shall not be required, after a period of one month has elapsed from the date on which the first payment of compensation was made, or if the first payment is made in obedience to the award of a committee or arbitrator, from the date of the award, to submit himself, against his will, for examination by a medical practitioner provided by the employer except at the following intervals:—Once a week during the second, and once a month during the third, fourth, fifth and sixth months, after the date of the first payment or the award, as the case may be, and thereafter once in every two months.

Provided that where after the second month an application has been made to the county (in Scotland, the sheriff) court or to a committee for a review of the weekly payment, the workman may be required, pending and for the purposes of the settlement of the application, to submit himself to one additional examination.

### PAINTERS' BRUSHES.

A MEETING of master brushmakers was held on June 25 to consider proposals for a simultaneous advance in the price of brushes generally. Thirty-two firms from London and the country, representing all branches of the trade, were present, and a similar number who were unable to attend wrote expressing their approval of the objects of the meeting. Four firms wrote that they agreed with the proposals, but awaited the results of the meeting before coming to a decision. The general feeling of the meeting was favourable to an immediate advance in the price of all brushes made of bristles and bristles mixed with horse hair, as the steady increase in the cost of every material used in the manufacture of brushes during the last eighteen months has compelled manufacturers to revise their prices. The following resolution was unanimously adopted and signed by the chairman of the meeting, Mr. Ernest N. Kent:—"That an advance of 5 per cent. in the prices of painters' brushes be made, to take effect on July 15, on all bristle and all hair painters' brushes. Orders to be accepted only for delivery within one month from that date."

### WINCHESTER CATHEDRAL.

THE timber foundations, which have caused the removal of the Early English addition to the east end of Winchester Cathedral, yielded several fine beech trees. Some were sound after their long burial and soot, earth and water. Those that are adapted will be converted into ornamental and useful articles for the benefit of the repair of the structure they failed to support. Dean and Chapter have given a fine block to the Natural History Museum, which has had fixed to it a copper plate with the following inscription:—

"This section of a beech tree, given to the museum by the Very Rev. Dr. Furneaux, Dean of the Cathedral, was, with other timber, taken 1906 from the foundations of the retro-choir, built by Godfrey of Bishopton 1189-1204, whilst being made safe by Francis C.E., T. G. Jackson, R.A., J. B. Colson, F.R.I.B.A., Thompson (Peterborough), Edwin Long (clerk of the Cathedral), Charles Ferrar (foreman). It has been under water 700 years, and its age must be at least 800 years. De Lucy's tomb is in the midst of his work, and round it in earth, tombs, chantries and shrine-like coffers of bones of illustrious prelates, statesmen and warriors of the thirty-five kings of the lineage of Cerdic, who made Winchester their capital, there are twenty kings and of the royal Saxon line, two Danish kings, three princes and one queen. For over 1,300 years praise have ascended to heaven from the cathedral and its predecessors. May the historic structure be preserved to God's glory 'till the day dawn.'—CHALONER SHENTON, W. H. JACOB, Hon. Curator; W. CHALKLEY, Curator."

### REDPATH, BROWN & CO., EDINBURGH.

ON Monday the members of the Royal Institute of Architects and others visited the works of Redpath & Co., Ltd., Albion Road, Edinburgh, a firm which is under the direction of Councillor John Cowan, has made in the last few years a specialty of steelwork for building and bridge construction purposes. The party, numbering between fifty and seventy gentlemen, assembled at eleven o'clock.

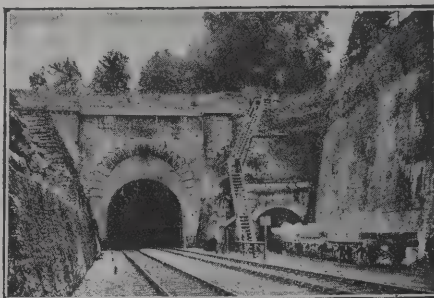


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Mr. Cowan made an interesting speech. Brown & Co., with its works at Edinburgh, Manchester and London, was now, he said, one of the largest of its kind in the country. Twelve years ago nearly all structural work used in building construction came from Belgium. "Belgian beams," and little else, were employed in structural work in this country. He became associated with this firm he felt that this was a mistake, and he asked why this class of work should be produced in Great Britain. His firm thought they would give a try at it. They began in a small way; they were as they gained experience, and now he was able to say that for every 100 tons that came from Belgium of manufactured steel into Leith in the past five years not one ton to-day. They had kept them out of the country they meant to do so if they could in the future. He would like to see the Government could do that in the case of Belgium with manufactured steel, why should not the British rolling mills be able to keep up Germany out in the production of steel? He thought it could be done with the application of a little more capital to their work on the part of their British producers. He wanted their steel producers to wake up a bit.

Among other guests present were the Master of the Merchant Company (Mr. Grant), Treasurer Harrison, Mr. J. L. Ewing and Mr. Daniel M'Fie.

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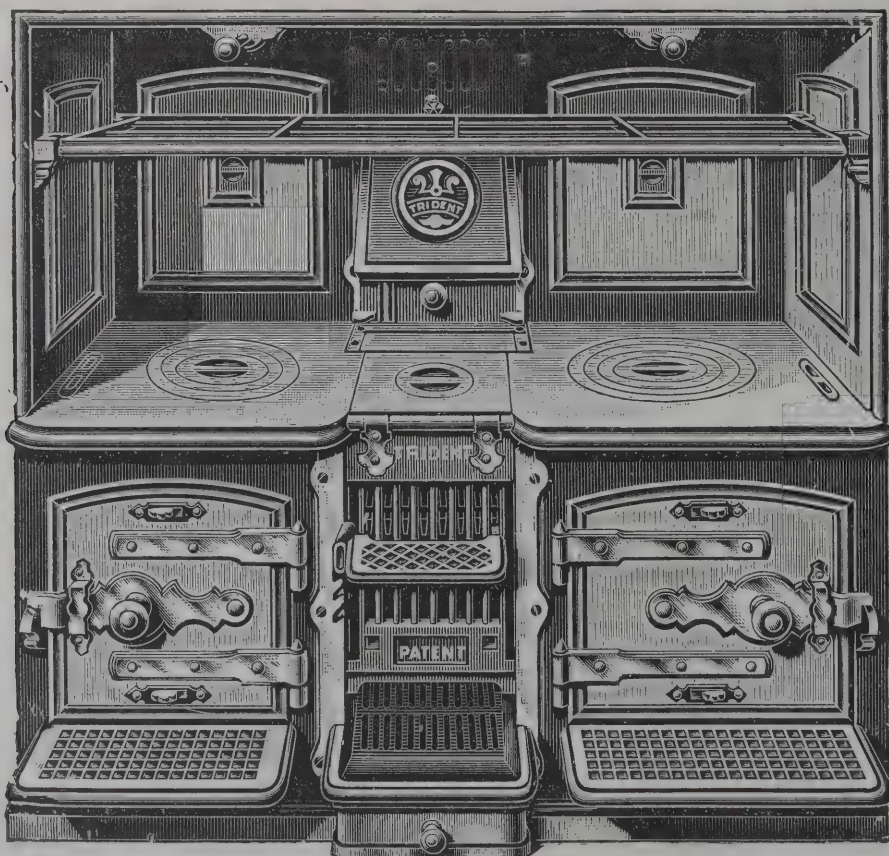
**York Mansion, York Street, Westminster, S.W.**



**BRICKWORK AND BOILER EXPLOSION.**

THE judgment of the Commissioners representing the Board of Trade, Messrs. A. A. Hudson and J. H. Hallett, in regard to the boiler explosion which took place at the works of Messrs. Hinks, Wells & Co., steel pen manufacturers, Buckingham Street, Birmingham, on November 10 last, was delivered at the Council House on Saturday morning by Mr. Hudson. According to the *Birmingham Daily Post*, he said the inquiry had extended over four days. The boiler which exploded was of the Kesterton type, now almost extinct, and was supplied by a Birmingham firm in 1876. It was set with two others, one a Kesterton and the other a Cornish, in a pit 9 feet deep. Of the earlier history of the boiler they knew nothing, but a few years ago it was insured with the Vulcan Boiler and General Insurance Company, of Manchester, and a working pressure of 50 lbs. was allowed, and later the pressure was increased to 60 lbs. The normal working pressure, however, was 45 lbs., and apparently on one occasion only, under special circumstances, had that pressure been increased. The method of the seating of the boiler had an important bearing upon the explosion, especially that part which came into contact with the outer wall of the shed. The boiler was examined from 1901 by Edward Robinson, an inspector in the service of the insurance company, both under working pressure and thoroughly. At the thorough examinations they had it in the evidence that, with one or two exceptions, the boiler was thoroughly cleaned and scaled by the owners, and reports and certificates for the purposes of complying with the provisions of the Factory and Workshops Act were given. In 1904, in consequence of a report from Robinson that there was considerable leakage, a patch was put upon the left lower drum of the boiler, and Robinson had stated that when he made his last thorough examination, on August 31, 1906, eleven or twelve weeks prior to the explosion, he did not notice that the patch was leaking. On the day of the explosion a pressure of 30 lbs. only was on the boiler. The explosion itself was not violent, merely blowing off about 6 feet of the brickwork covering the boiler, and a portion of the roof of the boiler shed. Two boys who were standing on the top were slightly scalded, but otherwise no one was

injured. Upon examination of the boiler after explosion, it appeared that the third ring of the left drum had been ripped longitudinally, and that the thickness of the tear had worn down to the thickness of paper. The patch on the top of that drum had been considerably, and although it was possible that extensive corrosion thus caused was not noticed on the occasion of the last examination, that together with the metal coming into contact with damp bricks had caused the explosion. They had been told that the hammer-test, the drilling-test and the hydraulic-test had been unsatisfactory, and the reason for that was that the defective parts of the boiler were hard against the bricks. The Commissioners were agreed that if the bricks had been removed the defects would have been noticed, and they thought the plate which exploded might have been away with the bricks. The inspector, Robinson, a qualified man, and had given his evidence satisfactorily. He had pointed out the defects of the boiler from time as far as he was able to judge them, and, taking into consideration the nature of his reports in conjunction with the nature of his instructions in regard to the nature of brickwork, they were pleased to acquit him of all blame. The owners, too, had willingly afforded facilities for the examination of the boiler, and they were blameless, but, in regard to the insurance company, they were different. Out of consideration for their clients, the insurance company—through their engineer, Mr. Crosland, that it was in a common sense impossible to expect clients to go to the expense of removing the brickwork unless there was some suspicious or warrant such a requirement. It was from his own statements, which agreed with those of the Board of Trade inspectors, that no test which he suggested would have disclosed the defects which were in this boiler while the brickwork remained in position. Yet, as chief engineer, he had not required its removal because he had customers' views to consider. The Commissioners, upon the evidence, said there was no doubt that portions of the brickwork should have been removed, and the fact that they were not removed rendered the use of the boiler in an unsafe condition. Mr. Crosland was a competent person under the Factory Act, and

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ought to have exercised his judgment as an apart from the policy of the company. They did do it, but so far as the lower portions of the re concerned they could only describe them as and it was only a coincidence that the explosion e on the left side and not on the right. They that it had withstood any pressure at all.

ux, the solicitor to the Board of Trade, in reply to missioner, said the cost of the inquiry would e between 200*l.* and 300*l.*

rosland, in mitigation, mentioned that he had is whole life to the study of boilers, and he only fair to himself and to his company to point was due mainly to him that the Government had he examination of boilers. He had been more an anyone to lengthen the life of boilers, and suggestions had been acted upon the percentage ons had decreased from something like one in ie in 100,000. He had spent thousands of pounds ag his inspectors with testing apparatus, and he gone to the length of publishing a work in order greater safety. With due respect he submitted nsure upon himself might be withdrawn, and at hat he might not be fined. He also suggested ght have been warned as to what examination sary before the faults of the policy he adopted, i were adopted by other insurance companies, visited upon him.

udson said the Commissioners were perfectly hat they could lay down no specific rule in the removal of boilers. They were convinced ought to be such examinations. The very fact, case, that they had on the inside pitting  $\frac{1}{8}$  inch corrosion on the outside  $\frac{1}{8}$  inch deep on a plate the ckness of which was but 5-16 inch, ought to have necessity for the removal of brickwork to ascertain thickness of the plate. It was the safety of the 7 had to consider, and if the policy of removing ork had been adopted that accident would have ented.

land made another appeal to the Commissioners ound that at the most he had made an error of

Mr. Hudson said they could not accept it as an error of judgment, because he himself had made it an argument, and they ordered him to pay 50*l.* and the insurance company 100*l.* towards the cost of the inquiry.

#### L.C.C. WORKS COMMITTEE.

NOTICE has been given by Mr. Salmon that he proposes to move in the London County Council:—"That, in the opinion of the Council, no work should be executed without the intervention of a contractor unless it can be shown that a saving would be effected upon the price at which a contractor would carry out the work; that in order to enable the Council to determine, in any case, whether the work can be executed more economically without the intervention of a contractor, it is necessary for the works committee's estimate of the cost to be prepared, delivered and dealt with in the same manner as, and concurrently with, offers or tenders received from outside persons and firms; and that the general purposes committee do report what amendments are necessary in the standing orders, and in the orders of reference to committees, for the purpose of giving effect to this resolution."

#### QUALITY MARKS ON TIMBER.

THE stencil or hammer-marks placed by shippers on the ends of deals, battens and boards exported to foreign countries indicate the various qualities into which the goods are sorted. This year the Swedish shippers have assimilated the marks for the English market with those hitherto in use for the Continent only. In the new edition of the *Timber Trades Journal* "List of Shipping Marks" full particulars of the new Swedish designations are given, and the book has otherwise been brought up to date. The list of agents for various stocks and the recent changes in the shipping marks are duly recorded. This useful volume, of which many editions have been published in the course of the last half century, has become an indispensable book of reference to timber merchants and all large buyers of wood. The maps and charts add materially to the usefulness of the book. It is published at 7*s.* 6*d.* by William Rider & Son, Ltd., London, E.C.

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### A DOUBLE-DECK BRIDGE.

THE largest bridge now in course of erection in the United Kingdom is the double-deck structure being carried across the river Wear at Sunderland. This bridge, which has a total length of close upon two miles, accommodates upon its lower deck a roadway for public traffic, with footpaths outside of the main girders, while on the upper platform the structure is being made for a double line for the North-Eastern Railway. The bridge, which has been designed by Mr. Charles A. Harrison, the chief engineer of the North-Eastern Railway, is at a high level, the headway for the river traffic under it being 85 feet, which was rendered necessary because of the shipbuilding industry carried on above as well as below the site. Long spans in the approach viaduct were adopted, as the riverside sites are specially valuable. On the north side there are two spans of 200 feet, in addition to a long viaduct of masonry arches, and on the south side one span of 200 feet, the girders across the river having a clear span of 330 feet.

The first interesting innovation in connection with the construction of the work, says the *Glasgow Herald*, was associated with the lowering of the foundation piers; but in view of the great experience and originality of Sir Wm. Arrol & Co., Ltd., who are responsible for the building of this as of many other large bridge structures, one is no longer surprised at novelties. One of the piers was built on the shore with a simple cofferdam of sheet piling to exclude the tidal water, but for the other pier it was necessary to proceed in the now generally accepted method of sinking under compressed air, and with the assistance of superimposed weights, of a large rectangular caisson, which in this instance had a length of 63 feet and a breadth of 35 feet. This was sunk for the very considerable depth of 44 feet. Usually after such a caisson has been founded on its ultimate bed, a cofferdam of timber is erected around the caisson to enable the masonrywork of the upper part of the pier to be built in place, but early in the work it was decided to build the masonrywork on the top of the caisson while it was being sunk, and the spectators had the remarkable spectacle presented to them

of masonry being built layer upon layer without any considerable advance being made in the height, because a layer was put on the excavators in the working chamber the bed of the river were clearing out the material, thus the whole structure was steadily sunk into the river until a sound foundation was reached. Ultimately the mass thus lowered into position weighed 10,000 tons, the total height from the foundation to the stones on which the girders will rest being over 100 feet. This work completed, the erection of the girders which have been constructed at Glasgow was proceeded with the steel structure for the land spans was erected in the way on a staging, but a novel scheme has been devised as a consequence of the ingenuity and practical experience of Sir William Arrol and Mr. A. S. Biggart for effecting quickly putting the immense river spans into position.

The river girders are to be built from both land simultaneously as overhanging members until they meet in the centre. This was somewhat the procedure at the Forth Bridge, but there the structure was designed primarily to be of the cantilever type. At the Sunderland bridge scheme had to be devised in order to support the overhanging member during erection, and this will consist of a temporary tower built over the top of the pier, having its upper end ties securing it back to the land girders by corresponding ties stretching forward and downward to various points of the river girder, so that there is thus constituted a temporary cantilever in the style of the iron structure across the Firth of Forth. Staging will be used to the permanent girders for the work of erecting, riveting, and painting, and the details, as explained during the many of inspection, were the subject of compliment to the well-known Glasgow firm of bridge-builders.

An idea of the magnitude of the undertaking is conveyed by the statement that in the structure 9,000 tons of steelwork have been used, while 40,000 tons of Norwegian granite have been utilised for the exclusive of 60,000 tons of red sandstone, mostly from Dumfries, and nearly 400,000 bricks. In the banks up to the approach viaduct there are 300,000 cubic yards of material. The masonry has been carried out by Messrs. Mitchell Brothers, of Glasgow, as sub-contractors to William Arrol & Co., Ltd.

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## EDITORIAL NOTICES.

ew of the many difficulties which are certain to arise in  
connection with the law, practice rules and procedure under  
the Workmen's Compensation Act, we have added to our  
staff A VERY EMINENT BARRISTER, who has  
made the subject a special study, and will be glad to answer  
in the columns of this paper any questions relating to the  
complicated matters arising from the provisions of this  
difficult Act. Our LEGAL ADVISER will further  
answer any legal question that may be of interest to  
our readers. All letters must be addressed "LEGAL  
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ings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications  
as brief as possible. The space we can devote to Corre-  
spondence will not usually permit our inserting lengthy  
communications.

The Editor will be glad to receive from Architects in London  
and the Provinces results of Competitions and Tenders  
and other particulars of Works in progress in which they  
may be interested.

No communication can be inserted unless authenticated by the  
name and address of the writer—not in every case for  
publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must  
necessarily be held responsible for their contents.

## TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-  
appearance of Contracts Open, Tenders, &c., it is par-  
ticularly requested that information of this description be  
forwarded to the Office, Imperial Buildings, Ludgate  
Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

IRELAND.—July 20.—The County of Cork Joint Hospital  
Board invite competitive plans for a sanatorium for con-  
sumptives with accommodation for seventy patients. A  
prize of 100l. will be paid for the plans which the Board  
may adopt, provided that said plans are sanctioned by the  
Local Government Board, and said plans shall become the  
absolute property of the Board. Intending competitors  
will receive a map of the site and other information on  
sending P.O. for 10s. to Mr. E. J. Murphy, secretary of the  
County of Cork Joint Hospital Board, Court House, Cork.

ROTHERHAM.—July 26.—Designs for new secondary  
school for girls. Premiums of 100l., 50l. and 25l. for three  
first designs. Assessor Mr. E. R. Robson. Further particu-  
lars from Mr. Spurley Hey, clerk to the Governors, Educa-  
tion Offices, Town Hall, Rotherham, Yorks.

SCOTLAND.—The Town Council of Stirling invite com-  
petitive designs for proposed municipal buildings. Instruc-  
tions to competitors and plan of site may be obtained on  
application, accompanied by a deposit of 10s. 6d., which  
will be refunded on receipt of plans. Premiums of 50l.,  
30l. and 20l. respectively are offered for the best designs,  
which will be adjudicated by an architect assessor. Mr.  
David B. Morris, town clerk, Stirling.

WEYMOUTH.—July 30.—The Weymouth Town Council  
invite designs for a pavilion to be erected on the north side  
of the pier. One hundred guineas will be awarded for the  
selected design, such design to become the property of the  
Council. Mr. H. A. Huxtable, town clerk, Municipal Offices,  
Weymouth.

## CONTRACTS OPEN.

ANNFIELD PLAIN.—July 23.—For (1) new Council school  
for about 300 girls at Annfield Plain and (2) enlargement of  
Annfield Plain infants' school, for the Durham County  
Council. The County Education Committee's Architect,  
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ASHFORD.—Aug. 29.—For construction of a public convenience under the Assembly Rooms, High Street. Mr. William Terrill, surveyor, Ashford, Kent.

BARNSELY.—July 22.—For the whole or any portion of the works required in erection of five houses, outbuildings and boundary walls in Gawber Road and two cottages in Prince Arthur Street. Messrs. Crawshaw & Wilkinson, architects and surveyors, 13 Regent Street, Barnsley.

BASSENTHWAITE.—July 27.—For building club-room. Mr. Joseph Bowinan, Bassenthwaite Halls.

BRADWALL.—July 29.—For erection of schoolroom, alterations, &c., at the Bradwall reformatory, near Sandbach. Deposit 10s. 6d. Messrs. Alfred Price & Son, architects, Sandbach.

BRIERFIELD.—July 26.—For erection of a public elementary school at Brierfield, near Burnley, to accommodate 600 scholars. Deposit 2l. Mr. H. Littler, county architect, 16 Ribblesdale Place, Preston.

BROMSGROVE.—Aug. 1.—(1) For erection of a proposed dairy, &c., and (2) for carrying-out certain alterations and additions to the farm buildings at the Barnsley Hall asylum. Mr. Alfred B. Rowe, architect, Worcester Chambers, Worcester.

BRYMBO.—Aug. 9.—For additions and alterations to Sion Cottage. Mr. E. Jones, Sion Cottage, Brymbo.

CARLISLE.—July 22.—For the whole of the works or any of the trades required in erection of an infants' school in Norman Street. Messrs. Oliver & Dodgshun, architects, Lowther Street, Carlisle.

COCKERMOUTH.—July 29.—For the extension of fever hospital, near Wyndham Row, Broughton Moor. Mr. J. B. Wilson, 11 Main Street, Cockermouth.

CREWE.—July 20.—For secondary school for 350 pupils to be erected in Ruskin Road. Deposit 1l. Mr. H. Beswick, county architect, Newgate Street, Chester.

DALTON.—July 22.—For erection of a detached residence in Fleming House Lane. Mr. Douglas Hall, architect, Fartown, Huddersfield.

DARTFORD.—July 24.—For covering roofs with corrugated iron and carrying-out repairs and repainting work at Long Reach small-pox hospital, Dartford, Kent. Deposit 1l. Mr.

W. T. Hatch, engineer-in chief, Metropolitan Asylums London, E.C.

DRAX (YORKS).—Aug. 1.—For erection of school ings. Mr. H. B. Thorn, architect, Goole.

DUBLIN.—July 25.—For erection of one block of dwellings, with store, office, ladder shed, ashpi boundary walls, at Haven Island, Skerries, co. Dublin block of three dwellings, with store, office, ladder shed boundary walls, at Askeaton, co. Limerick; and one of two dwellings, with store, office and alteration to at Rock Island, Skibbereen, co. Cork. Deposit 2l. 2 each. The Commissioners of Irish Lights, the English Office, D'Olier Street, Dublin.

EAST STONEHOUSE.—July 24.—For erection of a sanitary annexe at the town hall. Deposit 1l. Mr. Trounce, surveyor, Town Hall, East Stonehouse.

EXMOUTH.—July 24.—For construction of refuse destructor sheds, &c., at Mudbank. The works will be in four contracts, viz.:—(Contract No. 1) buildings, retaining walls and foundations of destructor; (2) installation fitting-up a two-cell destructor, connections to and 1 existing chimney; (3) ironfounder and smith's work roofs, &c.; (4) small steam-engine and electrical installation. Deposit 1l. 1s. for each contract. Mr. Samuel Hu engineer and surveyor to the Council, Council Office, Exmouth.

GAINSBOROUGH.—Aug. 7.—For pulling-down and erecting market buildings. Deposit 3l. 3s. Mr. Decimus Robbs, clerk, Council Offices, Gainsborough.

GLOUCESTER.—July 25.—For alterations and additions to Chalford Hill Council school. Bills of quantities made obtained not later than July 6 from Messrs. Vale & Kifford, St. Aldate Street, Gloucester, on payment of 2l. Mr. R. S. Phillips, architect, Shire Hall, Gloucester.

HOLLINGWORTH.—July 24.—For erection of an elementary Council school on land adjoining Market Street, to accommodate about 600 children. Deposit 2l. Mr. C. T. Adsh architect, Leinster Chambers, St. Ann's Square, Manchester.

HUDDERSFIELD.—July 25.—For erection of two dwellings, Frederick Street, Crosland Moor. Mr. Joe Ains architect and surveyor, Chapel Street, Slaithwaite.

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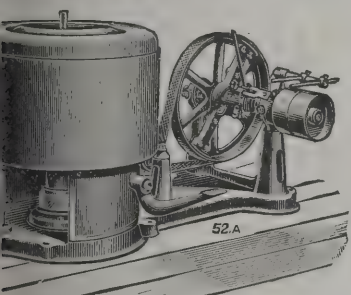
ST. LEONARDS-ON-SEA.—July 22.—For erection of a wing for children at the Buchanan hospital. Mr. Henry Ward, architect, 8 Bank Buildings, Hastings.

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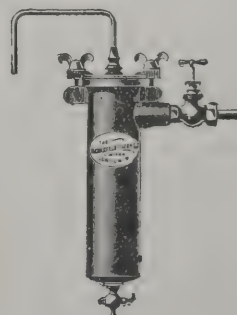
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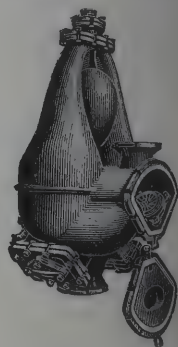
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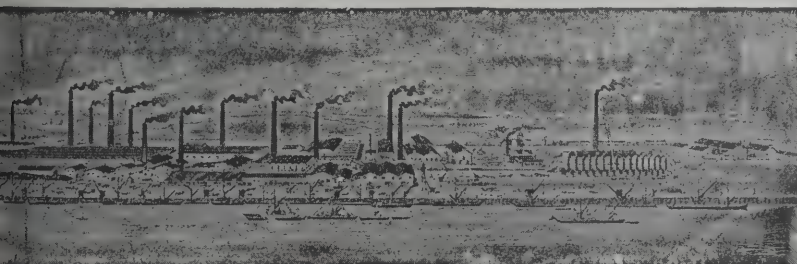
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k & Son	1,677	0	0
ut	1,623	0	0
wrence & Son	1,622	0	0
ttock Bros.	1,617	0	0
arpin	1,586	0	0
BSON & Co. (accepted)	1,574	0	0
effield Bros.	1,547	0	0

## LONDON—continued.

For superstructure of extension block IV., Admiralty. Sir			
ASTON WEBB, R.A., architect, 19 Queen Anne's Gate,			
S.W.			
Tozer & Son	£133,584	0	0
Davis Bros.	115,498	17	4
Stephens & Son	112,400	0	0
Martin, Wells & Co.	111,000	0	0
Thorne	109,600	0	0
Johnson & Co.	108,377	0	0
Godson & Sons	108,250	0	0
Foster & Dicksee	106,934	0	0
Coles	105,914	0	0
Hyde & Co.	105,480	0	0
Wall	104,600	0	0
Wilkins & Sons	104,588	0	0
Lovatt	102,003	0	0
Pattinson & Sons	101,463	0	0
Rowbotham	101,300	0	0
Waring-White Building Co.	100,600	0	0
Minter	100,370	0	0
Sabey & Son	99,880	0	0
Smith & Sons	99,800	0	0
Lorden & Son	99,548	0	0
Lawrence & Son	99,000	0	0
Higgs & Hill	98,940	0	0
Holliday & Greenwood	98,712	0	0
Patman & Fotheringham	98,634	0	0
Nightingale	97,940	0	0
Spencer, Santo & Co.	97,871	0	0
Allen & Sons	96,750	0	0
Perry & Co.	96,470	0	0
Holloway Bros.	96,000	0	0
Shepherd & Co.	93,885	0	0
Leslie & Co.	93,569	0	0
MOWLEM & Co. (accepted)	92,990	0	0
Chessum & Sons	88,599	0	0
Blake	88,500	0	0
Roberts	85,698	0	0

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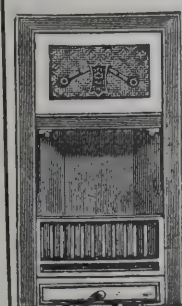
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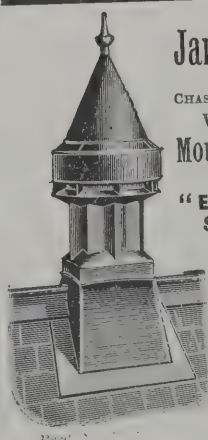
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## LONDON—continued.

For extension of "D" block at workhouse, Wandsworth.

Mr. CECIL A. SHARP, architect, 11 Old Queen Street, S.W.

Fitch & Cox	£2,559	0	0
Vigor & Co.	2,543	0	0
Holloway	2,470	0	0
Dearing & Sons	2,465	0	0
Garrett & Son	2,384	0	0
Coles	2,332	0	0
Thomas & Edge	2,336	0	0
Lawrence & Son	2,324	0	0
Barker & Co.	2,311	0	0
Myall & Upson	2,303	9	6
Martin, Wells & Co.	2,299	0	0
Pasterfield & English	2,299	0	0
Longley & Co.	2,294	0	0
Chessum & Sons	2,275	0	0
Drake	2,269	0	0
Patman & Fotheringham	2,263	0	0
Minter	2,250	0	0
Johnson & Co.	2,249	0	0
Kearley	2,239	0	0
Cropley Bros.	2,235	0	0
Higgs	2,228	0	0
Webster & Son	2,196	0	0
Spencer, Santo & Co.	2,185	0	0
Foster	2,161	0	0
Jarman, Daws & Co.	2,155	0	0
Moss & Co.	2,128	0	0
Leather	2,122	0	0
Tucker	2,116	0	0
Sands & Burley	2,090	0	0
Cook & Sons	2,090	0	0
Eaton	2,069	0	0
Wall	2,022	0	0
HYDE & Co., Norwood Junction (accepted)	1,986	0	0

For detached residence, Holly Park, Finchley. Mr. WALTER BENNETT, architect, Broadway, Finchley, N.

Bastard	£1,450	0	0
McEwan & Son	1,450	0	0
NE-VARD & SHADBOLT (accepted)	1,286	0	0

## LONDON—continued.

For painting or cleaning certain L.C.C. schools.

Tenders recommended for acceptance.

Inns—Laxon Street school, Bermondsey	£638
Chappell—Park Walk school, Chelsea	575
Garrett & Son—Lavender Hill school, Battersea	549
Chappell—Broomsleigh Street school, Hampstead	525
Horswill—The Highway school, St. George-in-the-East	525
Stevens & Sons—Buckingham Street school, Islington	488
Leng—Clyde Street school, Deptford	465
Brown & Sons—Capland Street senior school, Marylebone	458
Groves—Kilmorie Road school, Lewisham	390
Garrett & Son—Wix's Lane school, Clapham	369
Brown & Sons—Brackenbury Road school, Hammersmith	328
Moss & Sons, Ltd.—Old Montague Street school, Whitechapel	286
Holloway—Fair Street school, Rotherhithe	285
Grover & Son—Redvers Street school, Hoxton	283
Haydon & Sons—Gravel Lane school, City of London	269
Moss & Sons, Ltd.—Thomas Street school, Limehouse	263
Marchant & Hirst—Kingsgate Road school, Hampstead	250
Garrett & Son—Linden Lodge school, Clapham	234
Marchant & Hirst—Hugh Myddelton junior school, Finsbury	229
Mills—Plumstead Road school, Woolwich	223

For erection of married quarters at Regency Street Metropolitan Police Force. Mr. J. DIXON, surveyor. Quantities by Messrs. THURGOOD, SON &amp; CHIDGEY.

Ansell	£13,600
Lathey Bros.	13,549

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"Standard" Porcelain Enamel Ware is moderate in cost, beautiful in its finish and extremely durable. Absolute freedom from cracks or crevices assures the maximum sanitary protection. A bathroom fitted with "Standard" Ware greatly increases property value.

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## LONDON—continued.

For enlargement of Avery Hill training college.			
Wall	£5,953	1	4
Holloway Brothers	5,372	0	0
Garrett & Son	5,336	0	0
Downs	5,327	0	0
Kirk & Randall	5,066	0	0
Godson & Sons	5,020	0	0
Neal	4,870	0	0
Holliday & Greenwood, Ltd., Brixton (re-			
commended)	4,777	0	0
Architect's (Education) estimate	5,025	0	0

One motor  
escape-van.

Another if  
required.

	escape-van.	Required.
Wolseley Tool and Motor Car Co., Ltd. . . . .	£1,300 0 0	£1,300 0 0
Bayleys, Ltd. . . . .	1,241 0 0	1,241 0 0
Dennis Bros., Ltd. . . . .	1,201 10 0	1,201 10 0
Scarborough . . . . .	1,182 2 6	1,182 2 6
Thornycroft & Co., Ltd. . . . .	1,152 7 10	1,152 7 10
Merryweather & Sons, Ltd. ( <i>two recommended</i> ) . . . . .	998 0 0	998 0 0
Shand, Mason & Co. ( <i>one recommended</i> ) . . . . .	940 0 0	940 0 0
Lloyd & Plaister . . . . .	910 0 0	900 0 0
Commercial Cars, Ltd. . . . .	884 10 0	884 10 0
Argylls, Ltd. . . . .	860 0 0	860 0 0

Richards & Co.	£8,278	0	0
McLaughlin & Harvey	8,157	8	11
Williams & Son	8,126	0	0
L. H. & R. Roberts	7,926	0	0
Lawrance & Sons	7,880	0	0
Godson & Sons	7,817	0	0
Treasure & Son	7,800	0	0
Kearley	7,723	0	0
McCormick & Sons	7,670	0	0
Patman & Fotheringham, Islington ( <i>recommended</i> )	7,633	0	0

[illegible]

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TRAFFORD PARK



**LONDON—continued.**

For manufacture, delivery and erection of two of the four sets of 5,000-kilowatt three-phase steam turbo-generators required for the second portion of the Greenwich electricity generating station.

General Electric Co. . . . .	£48,628	0	0
Howden & Co. . . . .	48,000	0	0
British Thomson-Houston Co. . . . .	47,480	0	0
Electric Construction Co. . . . .	44,790	0	0
Parsons & Co. . . . .	44,276	0	0
Parsons & Co. (alternative) . . . . .	39,866	0	0
British Westinghouse Co. . . . .	42,443	0	0
British Westinghouse Co. (alternative) . . . . .	36,000	0	0
Willans & Robinson, Ltd., Rugby (recommended) . . . . .	42,200	0	0

**LITTLE HORTON.**

For erection of branch stores and houses, for the Great Horton Industrial Society. Messrs. JOHN DRAKE & Son, architects, Queensbury.

*Accepted tenders.*

Butterworth & Brook, Clayton Heights, mason . . . . .	£2,485	0	0
J. Wilkinson, Great Horton, joiner . . . . .	994	16	0
Bolton, Bradford, plumber . . . . .	685	10	0
J. C. & A. Sunderland, Great Horton, plasterer . . . . .	204	0	0
G. Wilkinson, Bradford, slater . . . . .	155	18	6
Brook, Wibsey, painter . . . . .	62	0	0

**MILNSBRIDGE.**

For erection of premises for Working Men's Club and Institute. Mr. J. AINLEY, architect, Slaithwaite.

*Accepted tenders.*

Mallinson & Quarmby, mason . . . . .	£597	0	0
Lawton, carpenter and joiner . . . . .	389	0	0
Graham, plumber, glazier and ventilating . . . . .	115	0	0
H. & W. Riley, plasterer . . . . .	70	0	0
Millans, Ltd., heating . . . . .	62	0	0
Cooke, concreter . . . . .	59	1	11
Sutcliffe & Sons, slater . . . . .	51	0	0
Hamilton, painter . . . . .	29	1	6

**MANCHESTER.**

For erection of chancel, chapel, vestries, organ cha &c., and four bays of the nave of the church of St. Agnes, North Reddish. Messrs. C. K. & MAYOR, architects, Manchester.

Ramsbottom . . . . .	£5,856
Megarthy & Co. . . . .	5,820
Hill & Heyes . . . . .	5,748
Burgess & Galt . . . . .	5,617
Carlyle . . . . .	5,287
Young, Tinker & Young . . . . .	5,228
Wilson & Toft . . . . .	5,200
Gerrard & Son . . . . .	5,122
Thorpe . . . . .	5,097
MACFARLANE & SON, Chorlton-on-Medlock (accepted) . . . . .	5,000

**OVERWATER.**

For reservoir works. Mr. C. B. NEWTON, engineer, Ca

Laing & Son . . . . .	£2,885
Routledge . . . . .	2,745
Beaty . . . . .	2,659
DAWSON, Whitehaven (accepted) . . . . .	2,436

**RADFORD.**

For erection of stables at depôt. Mr. ARTHUR B engineer.

Hodson, Rolley & Co. . . . .	£890
Bow . . . . .	846
Crane . . . . .	844
Earley . . . . .	840
Messom . . . . .	840
Short . . . . .	827
Cuthbert . . . . .	814
Wainer . . . . .	811
Gibbons . . . . .	810
Barlow & Co. . . . .	810
Baron . . . . .	804
Thomas . . . . .	797
Vickers & Son . . . . .	790
Evans . . . . .	787
PARNELL, Sneinton Dale (accepted) . . . . .	775

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**Ornamental  
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ROCHESTER.

erection of seamen's institute. Messrs. DRAKE & LOUCHER, architects, Rochester.

winning	£2,965	0	0
ford	2,898	0	0
llis	2,818	0	0
ey	2,769	0	0
ris	2,729	0	0
er	2,703	0	0
lips	2,590	0	0
es	2,550	0	0
st	2,469	0	0
ner	2,446	0	0

SHEPTON MALLET.

terations and additions at factory, Kilver Street. Messrs. WAINWRIGHTS & HEARD, surveyors, Shepton Mallet.

ord	£2,347	0	0
n	1,835	0	0
mead & Sons	1,770	0	0
d	1,705	15	0
field & Fletcher	1,618	18	11
H & MARCHANT, Shepton Mallet (accepted)	1,615	0	0

SOUTHAMPTON.

edging Southampton Water to a depth of 32 feet.			
son	£130,619	0	0
& Son	71,329	0	0
s	65,700	0	0
URY DREDGING Co., London (accepted)	24,650	0	0

SCOTLAND.

For making the tramways and finishing the roadway along Gilmore Place, Broughton Street and East Claremont Street routes, apart from the material of the rails and pulleys and from the pits and special work.

Dick, Kerr & Co., Ltd.	£34,785	0	0
Manders	33,464	0	0
Dobson	33,213	0	0
WADDELL & SON, Edinburgh (accepted)	29,760	0	0

UPMINSTER.

For construction of outfall sewers. Mr. E. G. BODEN, surveyor.

Wilson, Border & Co.	£435	4	0
Murrell	434	10	0
White	425	9	11
Loan	404	0	0
Bailey	390	1	6
Glenny	382	13	9
Westgate	361	6	9
J. Jackson	361	4	0
D. T. Jackson	360	3	0
THOMPSON (accepted)	343	10	9
Porter	341	5	0

WALES.

For construction of Beresford Road bridge approaches and retaining walls at Cardiff. Mr. HARPUR, engineer.

TURNER & SONS (finally accepted)	£4,870	0	0
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WOODFORD.

For sewage works, for the Thrapston Rural District Council Mr. T. LLOYD, surveyor.

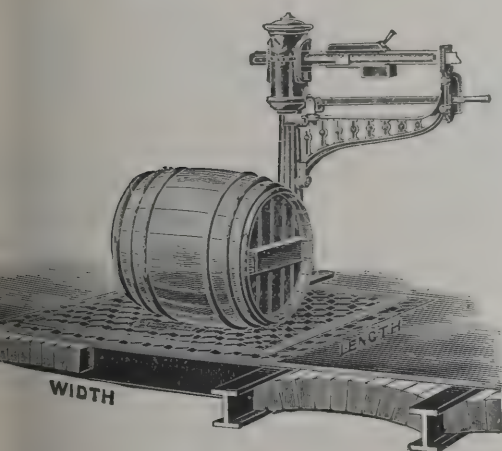
Wilmot	£499	0	0
Holme & Son	461	10	0
Drever	450	0	0
Lawrence	364	15	10
Traynar	347	0	0
BOLTON, Thrapston (accepted)	324	10	0



# Weighbridges and Weighing Machinery

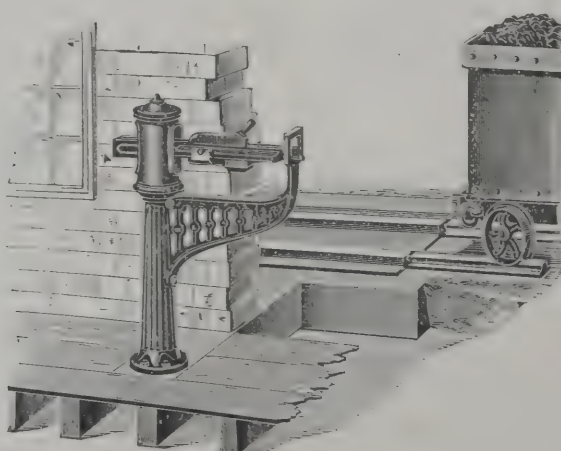
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IMPROVED TRAM WEIGHING MACHINE. (NO LOOSE WEIGHTS.)



No. 141.

& T. AVERY, Ltd., Soho Foundry, BIRMINGHAM.



## WOKING.

For erection of London and South-Western Railway  
Servants' Orphanage. Mr. W. E. TREVENA, architect,  
South Farnborough, Hants.

Ingram & Sons	£24,306	0	0
Musselwhite & Sapp	23,450	0	0
Treherne	23,046	4	6
Harris & Son	23,000	0	0
Holloway Bros.	21,760	0	0
Grace & Sons	21,534	0	0
Jenkins & Sons	21,357	0	0
Watson	21,275	0	0
Perry & Co.	20,430	0	0
Goddard & Sons	20,359	0	0
Minter	20,107	0	0
Martin, Wells & Co.	19,615	0	0
Knight	19,600	0	0
HUGHES, Wokingham (accepted)	19,129	0	0
Laphorne & Co.	18,425	0	0

## YNYSHIR.

For erecting thirty houses, for Building Club. Mr. E. REES,  
architect, Pontypridd.

Jenkins & Son	£7,800	0	0
Evans Bros.	7,420	0	0
Rees & Co.	7,290	0	0
Jones Bros.	6,900	0	0
D. Richards	6,750	0	0
A. RICHARDS, Pentre (accepted)	6,675	0	0
Brooke	6,300	0	0

(Received too late for classification.)

## BARKING.

For erection of a bank and shop premises for the London  
and Provincial Bank, Ltd. Mr. V. VAGNOLINI, archi-  
tect and surveyor, 33 Stirling Road, Clapham Rise, S.W.

Monk	£3,649	0	0
Hammond & Miles	3,477	0	0
Rice & Son	3,385	0	0
Wall, Ltd.	3,337	0	0
Irwin	3,330	0	0
PARSONS, Waterloo Road; S.E. (accepted)	3,285	0	0

## COSHAM.

For extension of the sewage farm.

Grounds & Newton	£6,070
Jackson	5,295
Hewitt & Sons	4,750
Douglas	4,670
Streeter & Co.	4,353
Quick	4,340
Worp & Way	4,251
Neal, Ltd.	4,030
Bell & Son	3,958
Osenton	3,837
Croad	3,792
E. & A. Springs.	3,790
Light & Son	3,685
CROCKERELL & SONS, Southsea (accepted)	3,669
Dyett	3,593

## TRADE NOTES.

MESSRS. FARNHAM, LTD., have obtained the contract  
the Honourable Society of Lincoln's Inn to clean the  
of the interior stonework of the entrance to the So  
dining hall.

THE Morrison Council schools, Liverpool, are  
warmed and ventilated by means of Shorland's patent  
chester grates.

MESSRS. W. POTTS & SONS have received instructi  
make and fix a new clock and bell in the new town  
Ilkley. Messrs. Potts made the parish church clock,  
sixty years ago for the late Lord Grimthorpe; als  
Congregational church clock and bell and Ilkley ra  
station clock, and are now making the South Shiel  
Ossett new town hall clocks and bells.

MR. ROBERT H. MEASURES, who resigned the char  
ship of Measures Brothers, Ltd., after the last g  
meeting, has now resigned the office of managing di  
though still retaining a seat on the board. Mr. Rich  
Measures has been elected chairman, and he an  
Herbert J. T. Measures have been appointed joint m  
directors.



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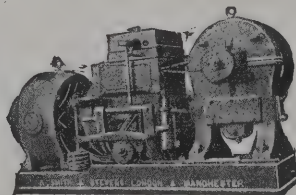
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### ELECTRIC NOTES.

WRIGHT, JOHNSTON & M'KENZIE have written Johnstone Town Council on behalf of the Strathclyde Electricity Company, Ltd., that they intend making application for an order to generate, supply, sell and distribute electricity for public and private purposes within the burgh of Johnstone.

LONG-STANDING dispute between the Lambeth Borough Council and the South London Electric Supply Corporation has been settled, the Corporation undertaking to give the Council £1,000 worth of electric light free per year.

The Blairgowrie Town Council have received a letter from Messrs. Foote & Milne, electrical engineers, London, stating that they intend to apply to the Board of Trade, before December 21, for a provisional order to supply electricity within the burgh.

The Grimsby Corporation electric-lighting committee have advertised for tenders for an electric cable, with the result that a foreign firm quoted a price about 200% less than any British competitor. The prices became public, and the lowest British firm wrote suggesting that they would accept their price should opportunity be given them, and went on to say that every order placed abroad was "a nail in the coffin of the British electrical manufacturing industry." At a meeting of the committee at which this letter was read, an alderman described the letter as improper, and said that the dangerous precedent which would be created by an amendment of the tender be allowed. Upon a

vote being taken six voted for the foreign firm and six in favour of the amended tender. The chairman, saying "I'm an Englishman," gave a casting vote in favour of the latter. It was ultimately decided to advertise again for tenders, limiting competition to British firms supplying British-made cables.

### VARIETIES.

THE Gaiety Restaurant and Hotel in the Strand will shortly, it is said, be offered for sale. The area of the site is nearly a quarter of an acre.

THE Belle Steamers announce that in order to meet the convenience of passengers, more particularly on Sundays, the starting time of the Nore steamer from Fresh Wharf, London Bridge, has been altered from 2 to 2.15.

MR. WILLIAM G. R. BOUSFIELD, who has been for the last seventeen years associated with Mr. William Dunk as Dunk & Bousfield, architects and surveyors, of Billiter Square Buildings, is a son of Mr. E. H. Bousfield, of Messrs. Fox & Bousfield, 99 Gresham Street.

THE Kilmarnock Town Council last week considered a scheme for the sewage disposal at an estimated cost of £35,000, the plans having been prepared by Messrs. Shaw & Morton, C.E., Glasgow. The Council approved of the scheme, but resolved to proceed with it only in sections.

THE clock for the new clock tower, St. George's Circus, has been made by Messrs. Gillett & Johnston, the well-known tower clockmakers of Croydon, the makers of the clocks at St. Saviour's Cathedral, the Law Courts, St. James's Palace, &c. It is of the most modern construction and embodies every improvement essential to accurate time-keeping. The escapement is of the "gravity" type, whilst the pendulum is "compensated" against all variations of temperature. The wheels are all of machine-cut gun-metal and the pinions of steel cut from solid bars. The dials are four in number and each measure 3 feet 3 inches in diameter.

THE Littlehampton Urban Council have, after thirteen years' discussion, come to an agreement upon the adoption of a drainage system for the neighbouring village of Wick. The successful scheme was prepared by Mr. W. L.

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Barrett, and, together with contingent works, will necessitate an outlay of about 16,000*l*.

The first cargo of marble, amounting to 130 tons, from the Iona quarries, reopened after the lapse of centuries, has now been shipped to Belgium. Operations began in March, and work is now proceeding so as to fulfil orders, which are coming in fast. The quarries are on the west of the island.

The Kilwinning Town Council have adopted a recommendation for the erection of a town hall in conjunction with offices for the parish council and the water board. Mr. Hugh Thomson, Saltcoats, the architect, estimates the cost, including furnishings, at 1,851*l*. The site is at Byres Road.

At Whitley, a holiday resort near North Shields, it is proposed to build a pier 600 feet long, with an entrance hall and a concert hall midway along to accommodate about 500 people. It is also proposed to have landing stages at the end of the pier. The local authorities, it is understood, have been approached on the matter, and no opposition is expected from them.

The Commercial Department of the Board of Trade state that tenders are required to complete the quays of the northern lighter dock and other works at Antwerp, and for the construction of two swing-bridges over the Mahmoudieh Canal invited by the municipal authorities of Alexandria. Tenders addressed to the Administrator, the Municipality, Alexandria, Egypt, will be received up to September 18 next.

A new music-hall is to be erected in Sheffield, from the designs of Mr. Bertie Crewe, London, by Messrs. J. Parkinson & Sons, contractors, of Blackpool and Newcastle. Seating accommodation is being provided for 3,500 persons, and when full the place will hold over 4,000 people. It will be a two-tier house, circle and gallery, with accommodation for pittites on the ground floor. The main entrance will be in Cambridge Street.

A DISPUTE arose last year between property owners of Rawtenstall and the Corporation with regard to 5 per cent. charges made by the Corporation for the supervision of private street improvements. The property owners

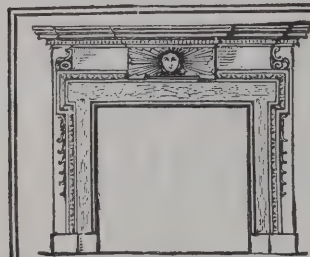
appealed to the Local Government Board against the charge, and the Board have now given their award affirming the claims of the owners. The amount claimed by the Corporation was 925*l*, and the award given is 888*l*.

Six cases of nuisance from dense black smoke were reported to the Westminster City Council on the 11th, and statutory notices were ordered to be served. The nuisances complained of were:—The New Ritz Hotel, the Gaiety Restaurant, Hotel Cecil, Savoy Hotel, Oriental Hotel, Hanover Square, and the Charing Cross Hospital.

The Edinburgh Town Council have agreed to the following motion:—"That the Town Council being of opinion that municipal trading, unless in undertakings which are monopolies and involve interference with streets, is in principle and detrimental to the interests of the public, instruct its representatives on the Glasgow City Council to discourage the tendency of the Glasgow Corporation to compete with private traders in making streets and doing work at or under cost price."

The Poole Town Council has received the award by Mr. A. J. Ram, K.C., umpire in the arbitration between the Corporation and the Poole Waterworks Company. The purchase of the latter's undertaking at Poole, Dorset, the company put forward a claim of 152,000*l*, and the arbitration assessed the value at 88,000*l*. The umpire's award was 133,937*l*, to which has to be added a sum of 50,000*l*, which the Corporation is spending upon the works, and also the costs of the arbitration, bringing the amount up to about 200,000*l*.

At the quarterly meeting of the Derbyshire County Council reference was made to a special report by Mr. Horton, the county surveyor, on the main roads within the Council's jurisdiction, about which complaints have been made for many years. In this report the use of gravel was recommended, involving an expenditure of 100,000*l*. The surveyor also suggests that this should be regarded as capital expenditure, the outlay of 60,000*l*. being a matter of annual expenditure, while the remaining expenditure might be spread over a few years. The discussion of this report was postponed until the October meeting to allow of its consideration by the highways committee.



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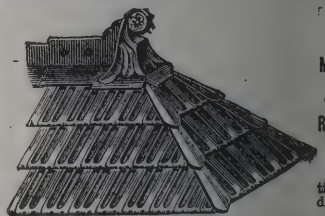
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WING to the scarcity of workmen's houses in Accrington, Messrs. Howard & Bullough, Ltd., who employ considerably over 3,000 hands, have on foot a scheme for building in the interests of their employees, a number of workmen's dwellings. The firm own land in the Spring district of the town, which would be available for building purposes, and although the scheme is not yet completed, it is understood that they contemplate the erection of something like 200 cottages, upon which their workmen will have first call.

It is announced that Bacup will contribute five-eighths of the cost of the secondary school and technical institute to be erected at Waterfoot at a cost of 26,000*l.*, and will install six-elevenths. There will be accommodation for 100 students, and the subjects to be taught will include spinning and weaving, boot and shoe manufacture, engineering, plumbing and decorating. The higher education committee recommend the County Council to approve the scheme, and that in order to enable the Corporation of Bacup to borrow the 26,000*l.* the County Council should undertake to guarantee any deficiency in the amount lent by Bacup and Rawtenstall's penny rate to meet the charge for interest on and repayment of the debt.

In connection with the report on factories and workshops during 1906, arrangements were made during the year for extended use of determinations of carbonic acid in the air as a test of respiratory impurity, not only in works for which a standard of ventilation is prescribed, but in factories and workshops generally. In all 2,845 air samples were taken and examined in 1906. The requirement of a comfortable temperature is closely allied with that of ventilation, and has required much attention, especially in rooms in which sedentary work is carried on. Special attention has been directed, more particularly in the summer months, to cases where articles of food are manufactured. Baking shows a great improvement, and other works are generally satisfactory, except in the case of small premises, some of which are structurally unsuitable for the processes carried on. The dirty condition of floors, however, is a matter of general comment by the inspectors. There has been a steady advance in exhaust ventilation for removal of dust and fumes, but progress is often retarded by the

neglect of occupiers to consult experts when installing the exhaust, or to keep it in good order when fitted.

THE Edinburgh Dean of Guild Court recently passed plans for extensions at the General Post Office, Edinburgh. These extensions form a continuation of the existing post office premises. The building to be erected will be to the east of the present one, behind the inland revenue offices in Waterloo Place, and will have a frontage of 150 feet to the railway, and of about 100 feet to Low Calton. The height of the building will also be about 100 feet. The additional space thus provided for post office work will be utilised for the telegraph engineering department and stores, for postal stores, for the parcels post department and for increased accommodation for letter sorting, for postmen and for telegraph and telephone purposes. At some future time, probably in a year or two, an additional extension in the shape of another storey to the present building will be proceeded with. The total cost of the work is estimated at 62,000*l.*

THE Exhibition at Earl's Court this year is known as the Balkan States Exhibition. Possibly no more delightful spot can be found in London on a fine evening than the grounds of the Earl's Court Exhibition Co. The exhibits are varied, as is usual in a show of this kind, but still there is much to interest the visitor; but the chief attraction is undoubtedly the music, from the fact that one of the crack military bands can always be heard. With pleasant gardens to sit in and listen to sweet strains of music, and with the knowledge that the catering is in the best possible style; that a dinner can be obtained that will hold its own in comparison with many of the best West-end hotels, or that a more modest meal may be enjoyed with comfort, it is not to be wondered at that this place of amusement is so particularly popular. The Exhibition this year may not surpass, but it certainly holds its own with any previous one for interest, and this will no doubt be proved by the crowds who will wend their way there during the next three months. To lovers of art the loan collection of pictures from the Balkan States will have particular interest. The English mind is apt to imagine that the Balkan States are peopled by a less civilised people than ourselves, but a visit to Earl's Court and a glance at Balkan art and workmanship will largely remove this idea.

## OUTSIDE FIRE ESCAPE STAIRCASE



Illustration shows Fire Escape Staircase recently erected at the Goyt Mill, Stockport.

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**THE KLEINE FIREPROOF FLOOR.**

A FLOOR which is not of reinforced concrete and yet claims to be as strong and fireproof is something of a novelty nowadays. A reinforced brick floor, that is, courses of bricks with iron or steel tension bands placed in exact position, and in a way that insures their full strength, are the main features of the Kleine construction. Despatch in construction and lowness of cost are other minor points claimed. To lessen the dead load hollow bricks in place of solid bricks are more commonly used. By using hollow bricks the weight of the floor (over short spans up to 9 feet) is not more than 25 lbs. per foot super, resulting in considerable saving of steelwork. The fire resistance of the Kleine floors has been proved not only by the most rigorous tests, but even in actual fires. The special tests, however, recently at Edmonton demonstrated the reliability of the floor and its behaviour under fire conditions. The details of weight, construction and breakage, we may say, were most satisfactory, and in a future issue they will be given point by point as reported by the superintending architect to the Company.

**STEEL-CONCRETE CHIMNEYS.**

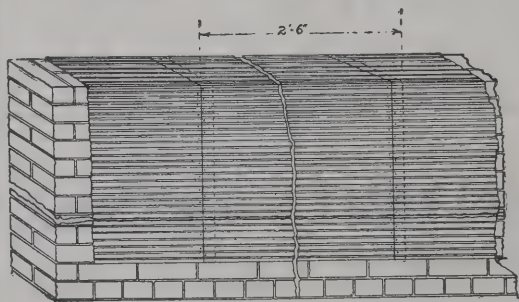
As the principal American firms of specialists in construction are fascinated by English possibilities, it was inevitable that sooner or later the Weber Company should appear among us. Their head offices are in Chicago, but they have also offices in all important American cities. They boldly accepted an extraordinary test, for the first commission they have undertaken is for a chimney at the Northfleet works of the Associated Portland Cement Manufacturers, Ltd. There if anywhere the qualities of works in concrete should be known. The chimney will be 247 feet in height and the diameter of the flue is 8 feet 6 inches. That is not an extraordinary height for a Weber chimney, for last year one was erected at Butta, in the United States, which is 352 feet high with a flue diameter of 18 feet. Vertical T-steel bars are employed of sizes which are proportionate to the height of the chimney. The concrete is laid with care and when completed the chimney is practically monolithic. The lower part consists of two shells which are carried to a height corresponding with the use of the

chimney. There is an air space of 4 inches between two, and then the inner shell is carried up to the desired height. In some cases a single shell chimney will serve. Messrs. Lyle's works at the Victoria Docks ten chimneys which already exist are to be demolished and a single Weber chimney 261 feet high, with a flue of the diameter of 20 feet, substituted for them.

**THE "CITY PRESS."**

ON Saturday, the 13th inst., the *City Press* was able to celebrate the jubilee of its foundation in 1857. To that purpose an eight-page illustrated Supplement of principal features of which are a review of the history of the Corporation of London and a trade retrospect for the past fifty years, was published. A sketch of the developments of the Guilds of London in that period, a chat with ex-Alderman Sir Andrew Lusk, Bart., now in his ninety-sixth year, are among the contents of the interesting number. Since its foundation the *City Press* has made for itself a unique position as the leading local newspaper of the commercial centre of the Empire. It has true to its title, and all lovers of the City must wish the *City Press* had started two centuries ago. The Editor received a large number of birthday greetings from men of note, representing all shades of opinion. The illustrations show in a striking way many of the changes that have taken place in half a century. A feature worth noting is that the *City Press* remains in the hands of Messrs. Collingridge (the fathers of the present paper, having established it fifty years ago); and also that it has published only a few yards from its original address.

At the next meeting of the Paddington Borough Council a resolution will be moved calling the attention of the Government Board to the proposed expenditure of 30,000 by the Paddington Board of Guardians in the erection of a training home for nurses, and desiring the central authority to withhold their sanction to the expenditure on the grounds of its extravagance.

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**For Index of Advertisers, see page x.**



**BUILDERS' BENEVOLENT INSTITUTION.**

sixtieth annual general meeting of the Builders' Benevolent Institution was held in the board-room, 132 Bedford Street, Strand, W.C., at 5 P.M., on Wednesday, July 10. Mr. T. F. Rider (past president), presided. The minutes of the last annual general meeting were confirmed and signed.

The following annual report was read and adopted:—In consequence of the continued serious depression in the trades of the building trade, the funds of this Institution have been materially affected during the past year, and an urgent appeal is hereby made to subscribers and donors to compensate, by their generous assistance, for the resulting loss from the bad times. The strictest economy has been observed in the administration of the funds, and the greatest care is taken in investigating all claims for help. Elections of pensioners took place in November 1906 and 1907, when five men and four women were placed on the committee being fortunate enough to be able to bring forward successful candidates. Widows of deceased male pensioners come automatically on the funds and their claims are in order according to the rules. There were thirty-three male and thirty-three female pensioners, receiving respectively 42% and 30% per annum in pension payments. Eleven pensioners (six male and five female) died during the past year, and burial allowances of £10 were made in cases where such grants were necessary. The committee desire to place on record its appreciation of the valuable services rendered to the Institution by the past president (Mr. J. W. Chessum) and his friends; by the trustees (Mr. F. J. Dove, Sir Arthur Charles Lucas, Bart., Mr. T. F. Rider, Mr. J. Howard Colls, Mr. T. Stirling and Mr. John T. Bolding); by the honorary auditors (Mr. J. T. Chessum and Mr. R. J. Ward, F.C.A.); and by the dinner guests.

The committee have the pleasure to announce that Mr. Frederick Higgs (Messrs. F. & H. F. Higgs) has accepted the position of secretary for the coming year.

The annual dinner will be held in the Whitehall Rooms, Metropolitan Club, Charing Cross, on Thursday, November 28, when the committee hope to see present a large number of supporters of the Institution.

The audited accounts for the year ending July 6, 1907, were presented and adopted.

The honorary auditors (Mr. R. J. Ward, F.C.A., and Mr. John T. Bolding) drew attention to the diminution of income and to the sale of 500l. of stock to meet expenses, the amount expended on pensioners exceeding the total income by 200l.

The following elections were made:—*President*—Mr. Frederick Higgs (Messrs. F. & H. F. Higgs). *Treasurer*—Mr. J. Howard Colls (re-elected). *Honorary Auditors*—Mr. R. J. Ward, F.C.A., and Mr. John T. Bolding (both re-elected). *Members of Committee*—Re-elected—Sir Arthur C. Lucas, Bart., Mr. John T. Bolding, Mr. C. Bussell, Mr. F. J. Dove, Mr. Basil P. Ellis, Mr. Hy. Northcroft and Mr. A. Ritchie, J.P. Elected—Mr. J. W. Chessum (past president) and Mr. James F. Parker.

Votes of thanks were passed to the past president (Mr. J. W. Chessum); the treasurer (Mr. J. Howard Colls); the trustees (Mr. F. J. Dove, Sir Arthur C. Lucas, Bart., Mr. T. F. Rider, Mr. J. Howard Colls, Mr. T. Stirling and Mr. John T. Bolding); the hon. auditors (Mr. R. J. Ward, F.C.A., and Mr. John T. Bolding); the committee, dinner stewards and vice-presidents.

**SMOKE COMBUSTION.**

At the dinner of the members of the Society of Chemical Industry, at Birmingham, Sir Oliver Lodge, in proposing the toast of "The Society," dealt in technical terms with the subject of combustion and smoke. He described recent experiments in the direction of heating boilers without emission of smoke, and said he was very hopeful of a method recently devised which proceeded on the right theoretical lines. The method was to be tried at the power station at Bournbrook, and at the same time the ordinary process was to be employed in another boiler with the same fuel and stoking. The main feature of the invention lay in taking the flame along an inner tube of fireclay, where the combustion could be completed, because the walls were red-hot, and those walls radiated heat to the boiler. The flame did not come in contact with the boiler. It was not extinguished, and the smoke was reduced to next to nothing.

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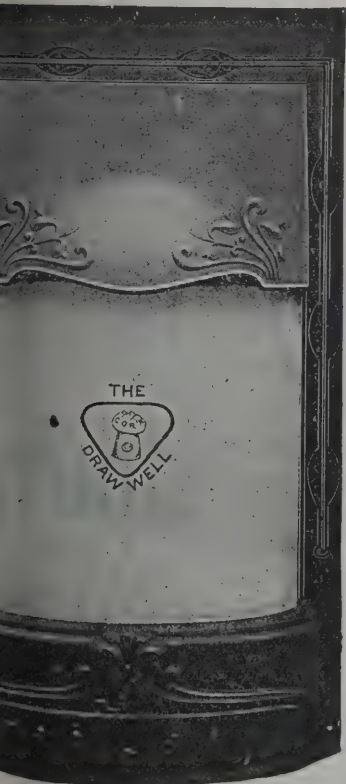
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He emphasised that, because he regarded the smokelessness of the air as a most vital matter in the condition of the life of the people, especially in the towns. As long as smoke was found to be necessary for the economical heating of water or metals and other substances, smoke was likely to continue, but if it were found that better results could be obtained by conditions which favoured complete combustion and at the same time suppressed the smoke, then the atmosphere would begin to get clear. He had been preaching the theory of this for twenty years, and now he began to have hopes of seeing it put into practice.

### HOW "DUMPING" IS AIDED IN GERMANY.

THE order issued by the Federal Council on April 5, 1906, clearly defines and formulates the provisions governing the "improvement traffic" and in some respects places it on an entirely new basis. The legal character of this order (which has not in itself the force of law, but which represents merely the prescribed limits of an administrative decree) has still preserved unaltered the fundamental principle of the improvement traffic; the regulations do not divest the improvement tariff of its legally established character as a concession, a favour granted by the authorities; neither can these regulations disregard the principle on which the German customs system is based, a principle which leaves the decision respecting the improvement traffic in the hands of the German customs administration. The order of the Federal Council only extends the co-operation of this body (that is, as far as it is capable of extension in accordance with the Imperial Constitution) in the granting of an improvement traffic and concedes some long-desired facilities in the control.

The present legislation as to the regulations of the improvement traffic may be summed up briefly as follows:—

The highest fiscal board (the Ministry of Finance) of the Federal State concerned decides generally as to the admission or suspension of an improvement traffic and also grants the privileges of participation in the improvement traffic to each separate manufacturer. This authority may delegate its power to subordinate boards also for the so-

called "repairing traffic," *i.e.* the restoration or removal of damaged goods. The free import of goods for the purposes of manufacture, of completion, or of repair, with a view to their re-exportation (the so-called active improvement traffic), is permitted, if this promises material advantage to the industries concerned, and if it entails no important consequences to other home industries; further, it is permitted even when some small disadvantages to these are outweighed by benefits so much greater as to conduce on the whole to the furtherance of German prosperity. The free reimportation of goods exported from the country for improvement (the so-called passive improvement traffic) shall, according to a prescription relating to it in the German tariff law, only be permitted in exceptional cases and only when the improvement in question at the time be made in Germany either at all, or sufficiently, or in an inferior manner; further, it applies to experiments made for the purpose of a new manufacturing method or of new patterns. The improvement traffic be granted on the ground that its execution in the country would incur great extra expense; it must be limited to those goods that are to be re-exported after reimportation. The separate Federal States have no right of independent decision in individual or technical cases of improvement traffic. If the question, however, should be the establishment of a permanent improvement traffic not yet permitted within the German customs territory, the consent of the Federal Council is necessary before a permit can be granted.

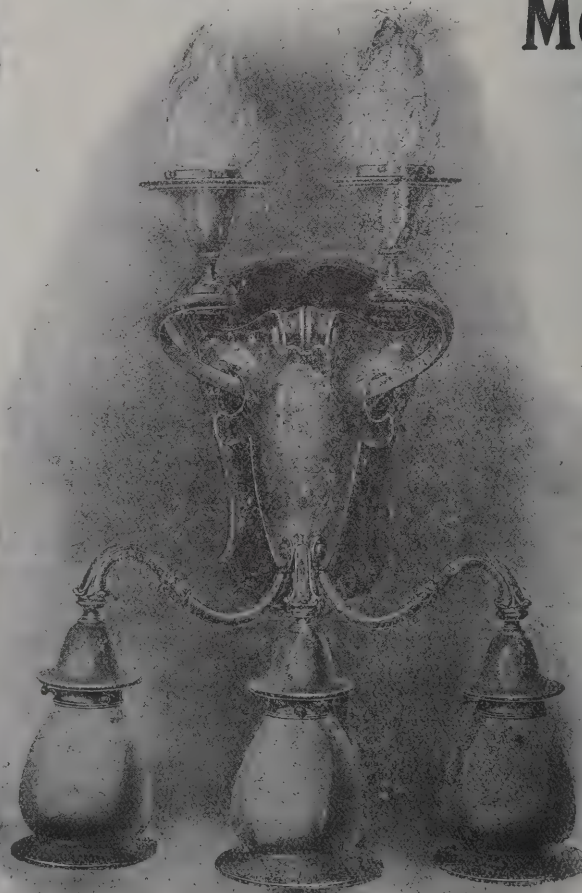
If, for urgent reasons, an immediate decision is necessary, the fiscal board of a Federal State may act without the consent of the Federal Council, but it is bound to submit the decree immediately to this body and to withdraw it if it is vetoed. The Federal Council is further authorised to inquire as to whether the economic benefit derived from any already admitted improvement traffic warrants further admission thereof, and it may exercise this power of examination whether it has or has not granted the improvement traffic, and whether permanent or temporary improvement traffic has made the examination necessary. The Federal Council is further empowered to inquire into the benefit of improvement traffic admitted before the issue of an Order in Council.

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the specially difficult question of identification, the treatment of which frequently gave rise to loud complaints, has been solved in a manner satisfactory to the merchants, and includes the removal of the burdensome control regulations. Only in the improvement traffic the regulations still strictly demand the recognition of the improved goods, while in the improvement traffic the recognition is demanded only as the manner of the improvement allows it. The with regard to depositing security, time allowance and amount of imposts are all formulated in the interests of the human export industry.

The indispensable preliminary condition for duty-free re-export traffic is the re-export of goods imported for re-export. If the export does not take place at all, or for a period allowed, duty must be paid for the goods imported for improvement; no respite in the payment of such duty is granted. Loss of material, due to waste or similar during the process of improvement in the country, material is proved to be valueless and exempt from duty according to the tariff law, is not subject to duty; other material is subject to duty. On the other hand, if goods have received dutiable additions in other countries duty must be paid for these additions upon reimportation. Over-charge caused by the working of textiles and paper by dyeing, printing, colouring and the like, is admitted free if official control seals are still on the goods.

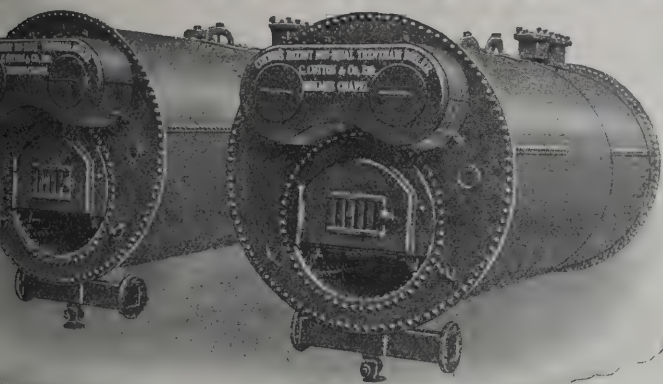
### DOCK CONSTRUCTION IN ANTWERP.

Report on the shipping and navigation of the port of Antwerp, Sir Cecil Hertslet, Consul-General for Belgium, states the scheme which the Government of Belgium has adopted for the extension on a gigantic scale of the berthing accommodation of the port of Antwerp has been viewed with great interest by those concerned with projects for the improvement of other shipping ports. The Government has with regard to Antwerp are, indeed, worthy of notice which they have attracted, as when carried into effect the extensions will make of it certainly one of the largest, if not the largest, in the world. To some per-

sons the proposed enlargement on such a colossal scale of the docks and river quays already existing at this port may seem in a certain degree to be an exhibition of over-confidence in the future of Antwerp as a port for attracting the imports into Europe, and the manufactured and other goods which Germany and Belgium, and, indeed, the whole of Northern and Central Europe export; but it is evident that the shipping of Antwerp—which port is almost ideally situated for the purpose which it is intended to carry out from a geographical point of view—undoubtedly will continue to increase as it has done for so many years past, provided that there is sufficient accommodation for the large vessels with which it is now overcrowded.

At the time of writing, and for many months past, there has been a ceaseless and urgent demand for quay and dock space, which the municipal authorities allot in a very competent manner to the best of their ability; but even with the best management it has been found impossible during the last twelve months to satisfactorily deal with the overwhelming amount of shipping entering the port in such a manner as to enable vessels visiting Antwerp to load and discharge their cargoes with a minimum loss of time. The new intercalary docks have been flooded for some months, and should be open for the use of large craft in the course of the summer of this year. They will do much to temporarily relieve the present pressure of traffic and demand for quay space; indeed, the new docks will be by far the largest of any at Antwerp, their area being about 69 acres; but, as I have frequently said before, this alleviation will only be temporary. Again, it is not and never has been the intention of the Government to immediately proceed with the entire works of the extension scheme. The docks will be constructed one by one, as the demand for space increases, but it is estimated that, at the present rate of increase in the tonnage of the port, it will be necessary to commence as soon as possible the construction of part of the canal dock, and at least two of the corresponding subsidiary docks. In the original scheme of the Belgian Government for the extension of the port, the intention was to divert the river Scheldt from its present course, and to make a new bed, known as the "Grande Coupure," along the right bank of which were to be constructed 9,399 yards of river quays (*i.e.* a little more than  $5\frac{1}{4}$  miles). Previous

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to the completion of these works a deep-water canal was to be excavated running parallel to the "Grand Coupure," leading from which canal nine large subsidiary docks were to be constructed, on its north side. The latter part of the scheme has been definitely accepted, while the decision as to the construction of the former remains in abeyance, pending the conclusions to be arrived at by a commission of experts, who are to examine the desirability and practicability of its construction.

Generally speaking, it is scarcely realised to what a large extent Antwerp owes its greatness as a port to British shipping. To all intents, so far as the actual tonnage of vessels is concerned, Antwerp is a British port; certainly the United Kingdom has a greater interest in it than any other country.

### INTERNATIONAL HOUSING CONGRESS.

THE International Housing Congress, which will open in London on Monday, August 5, promises to be a great success, and should exercise a most valuable influence on the housing reform movement in the United Kingdom.

The Premier has consented to act as président d'honneur, and the vice-présidents d'honneur include Lord Carrington, K.G.; Earl Crewe, the Right Hon. A. J. Balfour, M.P.; the Right Hon. John Burns, M.P.; the Archbishop of Canterbury, the Archbishop of Westminster (Dr. Bourne), the Chairman of the Free Church Council (Dr. Rendel Harris), the Chief Rabbi (Dr. Adler), the Right Hon. Walter Long, M.P.; the Right Hon. Henry Chaplin, M.P.; Sir John Dickson-Poynder, Bart., M.P.; Mr. Geo. Cadbury, Mr. W. H. Lever, M.P.; Miss Octavia Hill, the Chairman of the London County Council (Mr. H. Percy Harris), the Mayor of Westminster (Councillor G. W. Tallents), the Right Hon. Chas. Booth, the Marquis of Salisbury (president, Letchworth Model Cottage Exhibition), the Lord Mayor of Sheffield (Alderman R. Styring), Councillor Alfred Cattell, J.P. (chairman of the Sheffield Model Cottage Exhibition).

The President of the Local Government Board will welcome the delegates on the opening day.

The interest shown by the leading Churchmen is very great, and, at the invitation of the Dean, the Bishop of

Birmingham will preach a Congress sermon in Westminster Abbey on Sunday evening, August 4.

The delegates from other countries include:—Mr. Siegfried, whose name is associated with the Housing Law of 1903 (le loi Siegfried); Senator S. (Paris); Dr. Stubben, the leading authority on planning in Germany; Dr. Mewes (Düsseldorf); Pr. Albrecht (Berlin); Professor Fuchs (Freiburg); Pr. Mahaim (Liège); M. Lepreux (chairman of the International Housing Committee); Count Sabini and M. Vincent (Italy); Dr. Maresche, Professor Rauchberg and Ch. Von Furth (Austria).

Many important towns will be represented by burgomasters, and the Governments of Hungary and Belgium have already appointed representatives. The following English municipalities have already appointed delegates, e.g. Manchester, Salford, Newcastle-upon-Tyne, Exeter, Bristol, Sheffield, Birmingham, &c.

The gathering of British housing reformers will be an interesting one. Mr. Geo. Cadbury, Mr. W. H. M.P., Alderman Thompson (Richmond), Councillor Nettlefold (Birmingham), Mr. T. C. Horsfall (Manchester), Miss Constance Cochrane and many others will take part in the Congress proceedings.

The adherents to the Congress will enjoy the privilege of making a special housing tour under the most favourable conditions. They will receive a civic welcome at Southampton and Liverpool, and will be entertained at Port Sunlight, Bournville and Garden City.

Mr. H. RICHARDSON, Dundee electrical engineer, has completed the plans for a generating station at the South Gate. The buildings, which will be of brick on a steel skeleton, have been designed without any pretension to architectural effect, and with a view of limiting the expenditure as far as possible.

THE Lochgelly Town Council have decided to erect new municipal buildings on the present site. The accommodation is considered quite inadequate. The estimated cost is 2,000l. This signifies an assessment of 1l. per 17.



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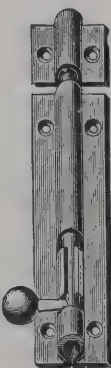
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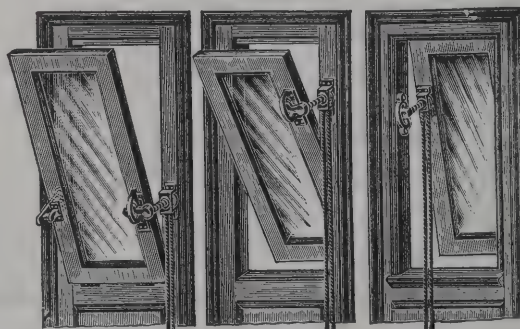
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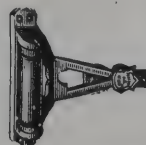
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THE  
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FRIDAY, JULY 26, 1907.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.  
The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.  
No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.  
The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITION OPEN.

WEYMOUTH.—July 30.—The Weymouth Town Council invite designs for a pavilion to be erected on the north side of the pier. One hundred guineas will be awarded for the selected design, such design to become the property of the Council. Mr. H. A. Huxtable, town clerk, Municipal Offices, Weymouth.

CONTRACTS OPEN.

ASHFORD.—Aug. 29.—For construction of a public convenience under the Assembly Rooms, High Street. Mr. William Terrill, surveyor, Ashford, Kent.  
BASSENTHWAITE.—July 27.—For building club-room. Mr. Joseph Bowman, Bassenthwaite Halls.  
BILLERICAY.—Aug. 5.—For additions and alterations at the workhouse. Deposit 1*l.* 1*s.* Mr. Walter J. Wood, architect, 26 Alexandra Street, Southend-on-Sea, and 1 Finsbury Circus, London, E.C.  
BRADWALL.—July 29.—For erection of schoolroom, alterations, &c., at the Bradwall reformatory, near Sandbach. Deposit 10*s.* 6*d.* Messrs. Alfred Price & Son, architects, Sandbach.  
BROMSGROVE.—Aug. 1.—(1) For erection of a proposed dairy, &c., and (2) for carrying-out certain alterations and additions to the farm buildings at the Barnsley Hall asylum. Mr. Alfred B. Rowe, architect, Worcester Chambers, Worcester.  
BRYMBO.—Aug. 9.—For additions and alterations to Sion Cottage. Mr. E. Jones, Sion Cottage, Brymbo.  
CAVERSHAM.—July 27.—For erection of stables, cart shed, mason's shed, smith's shop, &c., at the Council depot in Harley Road. Deposit 2*l.* 2*s.* Mr. Alfred J. Smith, surveyor, 11 Bridge Street, Caversham, Oxon.  
COCKERMOUTH.—July 29.—For the extension of fever hospital, near Wyndham Row, Broughton Moor. Mr. J. B. Wilson, 11 Main Street, Cockermouth.

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**CULGAITH.**—July 31.—For erection of a schoolmaster's house at Culgaith, Carlisle. Mr. Joseph Graham, architect, Bank Street, Carlisle.

**DARLINGTON.**—July 29.—For erection of business premises at the corner of Bridge Row and Crown Street, for the Corporation. Deposit 2*l.* 2*s.* Mr. George Winter, borough surveyor and waterworks engineer, Town Hall.

**DARTON AND WOMBWELL.**—July 29.—The West Riding education committee invite whole or separate tenders in connection with the following works, viz.:—Darton, Mapplewell Provided school—alterations (builders and joiners, plumbers, painters); Wombwell, King's Road Provided school—playgrounds (asphalters). Deposit 1*l.* for each tender. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

**DRAX (YORKS).**—Aug. 1.—For erection of school buildings. Mr. H. B. Thorn, architect, Goole.

**ELLENBOROUGH.**—July 29.—For erection of reading and recreation-rooms. Mr. J. Clark, 82 Main Street, Ellenborough, Cumberland.

**FERRYHILL.**—July 30.—For repairs and renovation of the town hall property. Mr. Robert Willey, clerk, Providence House, Ferryhill, Durham.

**GLASGOW.**—July 31.—For the following works, viz.:—(1) Masonwork, (2) wrightwork, (3) slaterwork, (4) plasterwork and (5) plumberwork, required in erection of a house for the park foreman in Richmond Park, and also for conversion of a building into a waiting-room and shelter for children, &c. Office of Public Works, 64 Cochrane Street, Glasgow.

**GAINSBOROUGH.**—Aug. 7.—For pulling-down and erecting market buildings. Deposit 3*l.* 3*s.* Mr. Decimus M. Robbs, clerk, Council Offices, Gainsborough.

**HOLLINGWORTH.**—Aug. 10.—For erection of an elementary Council school on land adjoining Market Street, to accommodate about 600 children. Deposit 2*l.* Mr. C. T. Adshead, architect, Leinster Chambers, St. Ann's Square, Manchester.

**HUDDERSFIELD.**—Aug. 9.—For erection of a Municipal Secondary school for girls on the site of Greenhead Hall. Deposit 2*l.* 2*s.* Mr. K. F. Campbell, borough engineer, 1 Peel Street.

**HUNTINGDON.**—Aug. 3.—For works of alteration and addition to the Grammar school. Mr. Herbert Leet, county surveyor, High Street, Huntingdon.

**IPSWICH.**—July 27.—For alterations and additions to the premises of the Municipal Secondary school for girls in Bolton Lane. Deposit 1*l.* 1*s.* Application by July 13. Mr. E. T. Johns, Tower Chambers, Tower Street, Ipswich.

**IRELAND.**—July 30.—For building an extension to ga house at electricity works, Limerick, the work consisting of masonry, with iron roof, concreting, excavations, &c. Deposit 10*s.* Mr. James Gallinagh, borough electric engineer, Frederick Street, Limerick.

**IVYBRIDGE.**—Aug. 28.—For alterations and additions to the Ivybridge Council school, Devon. Deposit 1*l.* 1*s.* Architect, 1 Richmond Road, Exeter.

**KENDAL.**—July 29.—For erection of the Carnegie library. Deposit 2*l.* 2*s.* for masons and joiners, 1*l.* 1*s.* for other trades. The Borough Surveyor's Office.

**LONDON.**—July 29.—For construction of an eight-story underground public convenience at Muswell Hill. Mr. E. J. Lovegrove, borough engineer and surveyor, Hornsey Town Council, Municipal Offices, Highgate.

**LONDON.**—Aug. 2.—For National Gallery extension (foundations). Deposit 1*l.* 1*s.* Mr. J. B. Westcott, H.M. Office of Works, &c., Storey's Gate, S.W.

**LONDON.**—Aug. 6.—For construction of station building verandahs, &c., at Hammersmith. Engineer to Hammersmith and City Railway Joint Committee, Paddington Station, London.

**MAIDENHEAD.**—July 30.—For repairs to roofs, addition to men's latrines and other works at the workhouse. Mr. E. J. Shrewsbury, architect, Queen Street Chamber, Maidenhead.

**MANCHESTER.**—Sept. 4.—For erection of an infant school and for alterations and additions to existing Southa Street Municipal school, Cheetham. Deposit 2*l.* 2*s.* Education Offices, Deansgate, Manchester.

**MORPETH.**—July 31.—For addition of one small room to clerk and steward's house at county asylum. Council Surveyor's Offices, Moot Hall, Newcastle-on-Tyne.

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**NORTHAMPTON.**—July 27.—For erection of a galvanised corrugated iron hay shed and repairs to existing sheds at sewage-disposal farm, Ecton. Deposit 1*l.* 1*s.* Mr. Alfred Fidler, M.I.C.E., borough engineer, Guildhall, Northampton.

**NOTTINGHAM.**—Aug. 1.—For erection of baths, Vernon Road, Basford. Deposit 2*l.* 2*s.* Mr. Frank B. Lewis, city architect, Guildhall, Nottingham.

**RUABON.**—July 31.—For building proposed chapel, school, &c. Mr. Edwin Hawkins, Church Street, Rhos, Ruabon.

**ST. JUST.**—July 30.—For building Sunday school for the trustees of Wesleyan church, Trewellard, St. Just, Cornwall. Mr. Thomas Eddy, Church Road, Pendeen.

**SALISBURY.**—Aug. 2.—For repairs, painting, &c., to various property in Salisbury belonging to the trustees of Salisbury Municipal Charities. Mr. M. Harding, surveyor, 58 High Street, Salisbury.

**SCOTLAND.**—July 27.—For erection of a public convenience in Guildhall Street, Dunfermline. The Burgh Engineer, Kirkgate, Dunfermline.

**SCOTLAND.**—July 31.—For mason, carpenter, slater, plasterer, painter and plumber's work of new houses to be erected in King Edward Street, Fraserburgh. Messrs. Reid & McRobbie, architects, Saltoun Chambers, Fraserburgh.

**SCOTLAND.**—Aug. 5.—For mason, carpenter, slater, plasterer, painter and glazier's work of two houses to be erected in Mid Street, Fraserburgh. Messrs. Reid & McRobbie, architects, Saltoun Chambers, Fraserburgh.

**SHEFFIELD.**—Aug. 6.—For erection of a head post-office. Deposit 1*l.* 1*s.* The Commissioners of H.M. Works and Public Buildings, the Office of Works, S.W.

**WALES.**—July 27.—For erection of additional offices, &c., Pentonville, Newport, Monmouthshire. Deposit 1*l.* 1*s.* William Tanner, county surveyor.

**WALES.**—July 27.—For erection of residence at Caerlly. Deposit 1*l.* 1*s.* Mr. D. M. Davies, architect, 24 Car-road, Caerphilly.

**WALES.**—July 29.—For erection of a shop and house adjoining Queen Victoria hotel, Rhymney. Mr. J. Llewellyn Ith, M.S.A., architect, Aberdare.

**WALES.**—July 31.—For the following works, viz.:—Contract No. 1, sixteen houses; Contract No. 2, one shop, two houses and two cottages; Contract No. 3, new bungalow residence for Mr. F. Waddell—all at Tumble, Llanelly. Mr. W. Griffiths, F.S.I., architect, Llanelly.

**WALES.**—Aug. 3.—For erection of nine cottages at Ystrad Mynach, for the Cylla Cottage Co. No. 2. Mr. William Dowdeswell, architect, Treharris.

**WALES.**—Aug. 3.—For alterations, &c., at the Welsh Congregational chapel, Llandegla. Mr. Nicholas, Merlin Street, Johnstown.

**WALES.**—Aug. 6.—For erection of a public sanitary convenience at John Street, Porthcawl. Mr. R. W. Jones, surveyor, Council Offices, Porthcawl.

**WHITEHAVEN.**—Aug. 1.—For erection and completion of two semi-detached villa residences at Herbert Hill. Mr. J. S. Moffatt, architect, 53 Church Street, Whitehaven.

**WINCHESTER.**—July 27.—For erection of classroom and cloak-room, and for sundry small works of painting and repairs, &c., to Porchester Council school. Deposit 10*s.* 6*d.* Mr. J. W. Taylor, county surveyor, The Castle, Winchester.

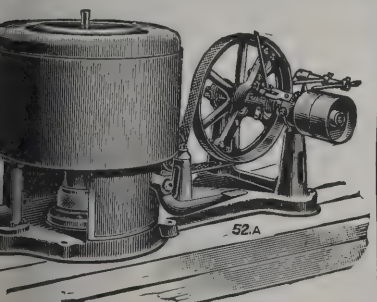
**WINCHESTER.**—July 30.—For erection of a residence for the headmaster of Peter Symonds's school. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

**WREXHAM.**—Aug. 12.—For erection of a public elementary school for 1,000 scholars, in Holt Road. Deposit 2*l.* 2*s.* Mr. Lawson Taylor, clerk to the Education Committee, Guildhall, Wrexham.

**YORK.**—July 30.—For erection of a boundary wall on the workhouse grounds adjoining Huntington Road. Mr. J. Moffitt, workhouse master, Huntington Road, York.

THE Local Government Board auditor has ruled that various sums expended by the Bournemouth Corporation in municipal advertising are illegal, and several members of the Town Council have been required to show cause why they should not be surcharged. The items specified represent payments for the official guide, stationery and postages, silver prints, panoramic views for use in railway carriages, &c.

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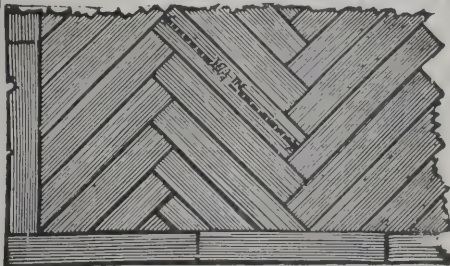


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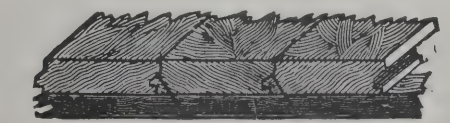
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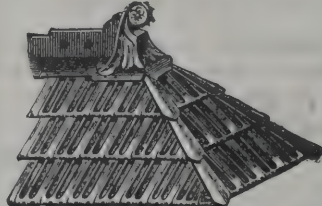
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For erection of Council school at Laundry Road. Mr. N. G. Lewis, architect, Abertillery.

Williams	£6,589	14	4
Davies & Sons	6,000	0	0
Lewis	5,960	0	0
Skidmore & McWhirter	5,858	10	0
Gay	5,689	0	0
Tudor	5,587	0	0
Smith	5,499	0	0
Jenkins	5,449	0	0
Colborne	5,397	2	7
Wilks	5,360	0	0
Davies	5,088	0	0
VAUGHAN, Tredegar (accepted)	4,985	0	0

**CHELMSFORD.**

For erection of post office.

Burtwell	£7,148	0	0
Pardington & Son	7,000	0	0
Rayner	6,875	0	0
Fitch & Cox	6,699	0	0
Smith & Son	6,625	0	0
Bailey	6,475	0	0
Bennett	6,475	0	0
Wall	6,330	0	0
Dobson & Son	6,297	0	0
Potter & Son	6,250	0	0
Gowers	6,250	0	0
Mason & Son	6,250	0	0
Chessum & Sons	6,242	0	0
Davey	6,237	0	0
Minter	6,168	0	0
Johnson	6,143	0	0
Hammond & Son	5,995	0	0
Parker & Son	5,718	0	0
Moss	5,700	0	0
Willmott	5,597	0	0
BLAKE (accepted)	5,500	0	0

**CROYDON.**

For private street works. Mr. R. M. CHART, surveyor.

Fairdene Road.	
E. & E. ILES, Mitcham (accepted)	£957 0
Reddown Road.	
E. & E. ILES (accepted)	£988 0
Woodcote Valley Road.	
E. & E. ILES (accepted)	£1,581 0

**DONINGTON.**

For additional classrooms, &c., at Grammar school.

JAS. ROWELL, architect, Church Lane, Boston.	
Watson & Co.	£1,750 0
Thompson & Sons	1,520 0
Rands & Son	1,495 0
Langley & Son	1,383 11
Jessop	1,344 0
Sherwin & Son	1,342 0
Mowbray	1,340 0
Greenfield	1,340 0
Banks & Son	1,339 0
Barnsdale	1,318 0
Lucas	1,280 0
Parker & Son	1,269 10
CADE, Boston (accepted)	1,195 10

**FROME.**

For sewage-disposal scheme (Contract No. 1). Mr. F. V. JONES, engineer, Frome.

Chick, Carden & Co.	£4,758 9
Neal	4,252 0
Coles	4,095 8
Lovell	3,892 18
Wort & Way	3,804 8
Hodder & Sons	3,736 0
Bell & Sons	3,579 0
Osenton	3,476 5
IRELAND, Chippenham (accepted)	3,106 15
Riley	3,088 8
Bird & Pippard	3,016 18
Macdonald	2,977 9
Ash	2,928 12
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or painting and repairs at the Picardy schools. Mr. W. EGERTON, architect, Erith.			
Gunning & Sons	£301	1	6
McLean	278	1	0
Friday & Ling	260	13	8
KAZAK, Belvedere (accepted)	227	10	0

FINCHLEY.

or about 9,500 yards super of street works. Mr. C. J. JENKIN, engineer.			
Killingback & Co.	£4,514	0	0
Champness	3,912	0	0
Langley & Johnson	3,790	0	0
Rogers & Co.	3,757	0	0
Bloomfield	3,728	0	0
Bell & Son	3,564	0	0
Free & Sons	3,454	0	0
Iles	3,450	0	0
Adams	3,310	0	0
Truman	3,299	0	0
GIBBONS, Leytonstone (accepted)	3,228	0	0

HAMMERSMITH.

or supplying and making a removable floor for swimming-bath.			
Sheffield Bros.	£1,088	0	0
Harrison & Spooner	1,032	8	2
Dearing & Son	969	0	0
Roome & Co.	914	0	0
Courtney & Fairbairn (recommended)	699	0	0

HEREFORD.

or reflooring assembly hall and enlargement of classroom at training college. Mr. G. H. JACK, county surveyor.			
Bevan & Hodges	£104	10	0
Friend	93	0	0
Rowberry	84	2	0
Vaughan	79	6	7
Bott	67	0	0
WILKES, Hereford (accepted)	62	0	0

HERTFORD.

For additional buildings at the Hill End asylum. Messrs. G. T. HINE & Co., architects, Westminster. Quantities by Mr. L. A. FRANCIS.			
Flint	£28,400	0	0
McCormick & Son	28,394	0	0
Appleby & Sons.	27,587	0	0
Williams	27,546	0	0
Hyde & Co.	27,467	0	0
Markham & Markham	27,389	0	0
Bushell	27,143	0	0
Elkins & Co.	27,134	0	0
Longley & Co.	27,096	0	0
Hinkins & Sons.	27,035	15	8
Spencer Santo & Co.	26,799	0	0
Miskin & Sons	26,645	0	0
Stephens, Bastow & Co.	26,598	0	0
Lovatt	26,574	0	0
Lawrance & Sons	26,549	0	0
King & Sons	26,502	0	0
Bowen & Sons	26,389	0	0
Perry & Co.	26,377	0	0
Salisbury & Sons	26,217	15	7
Willmott & Sons	26,100	0	0
Howard	25,996	0	0
Denham	25,940	0	0
Foster & Dicksee	25,555	0	0
Wall	25,536	0	0
Pattinson & Sons	25,361	2	3
Henson & Son	24,775	9	3
Thorne	24,754	0	0
Clark & Sons	24,700	0	0
Honour & Son	24,554	17	5
Johnson & Co.	24,516	11	8
Webster & Cannon	24,249	0	0
Thomas & Edge	24,000	0	0
Fairhead & Son	23,998	0	0
Davies	23,963	0	0
Willcock & Co.	23,931	19	11
Blake	23,910	0	0

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Lawrence & Son	£23,585	0	0
Moss & Sons, Ltd., Loughborough ( <i>recommended</i> )	23,349	7	4
Colborne	23,223	7	3
Brown & Son	23,169	0	0
Drever	22,222	0	0

**HOVE.**

For external painting, &c., and other works at Ellen Street schools, and the committee's offices. Mr. H. H. Scott, borough surveyor.

Grafham	£132	0	0
Diplock	117	13	0
Gates & Sons	97	10	0
Leney	92	0	0
OLLIVER & SONS, Brighton ( <i>accepted</i> )	70	0	0

**HOUGHTON-LE-SPRING.**

For laying outfall sewer on the High Newport, Silksworth, building estate.

Hudson & Sons	£525	0	0
Carrick	512	5	0
CHATT & Co., Sunderland ( <i>accepted</i> )	496	10	0
Surveyor's estimate	475	0	0

**IPSWICH.**

For erection of stables at sanitary authority's yard. Mr. E. BUCKHAM, borough surveyor.

Roper	£557	0	0
Grayston	480	17	6
Cubitt & Gotts	436	0	0
Cundall	435	0	0
Borrett	425	0	0
Kenney	424	0	0
Death	413	0	0
Linzell	397	0	0
Grimwood & Sons	395	0	0
Green	388	0	0
Fisk & Co.	382	0	0
GAYFORD, Ipswich ( <i>accepted</i> )	343	0	0

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Ashley	£3,633	6	
Matthews	3,397	14	
Firth	3,256	12	
Jowett Bros.	3,256	0	
Dolman	3,128	5	
Dean	2,930	10	
Mackay & Son	2,872	17	
Baker	2,830	13	
Parkin & Co.	2,829	4	
Bushey & Sons	2,765	0	
McLaren	2,651	16	
Crawford	2,640	15	
Hudson & Sons	2,633	15	
MORLEY & SONS, Keighley ( <i>accepted</i> )	2,493	17	

**LEDGBURY.**

For making-up Back Lane. Mr. R. G. GURNEY, surveyor Ledbury.

McCann	£789	0	
Morgan	540	0	
Dyke	390	0	
Cement Products (Bowen's patent)	377	3	
JAMES, Colwall ( <i>accepted</i> )	348	19	

**LEWES.**

For alterations to the Infirmary boiler-house and laundry. SMITH & SON, Brighton (*accepted*).

For erecting an additional storey in the Infirmary and flooring.

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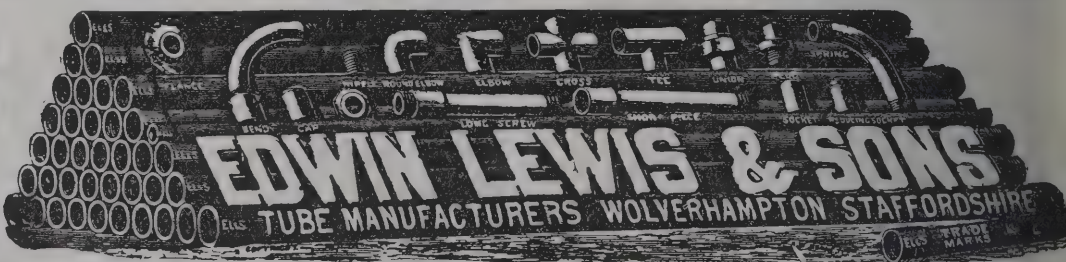
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Dartnell	375	0	0
Kelland	276	0	0
Brown	269	0	0
Rhodes	233	0	0
Emmett	230	0	0
Crane	225	0	0
Stapleton & Sons (recommended)	220	0	0

For painting and decorating Shoreditch town hall, Old Street, E.C. Mr. T. L. HUSTLER, borough surveyor.

Fryers, Ltd.	£1,483	6	2
Pritchard & Son	1,210	0	0
Dudley	1,167	0	0
Battiscombe & Harris	1,165	0	0
Killby & Gayford	1,079	0	0
Woollaston & Co.	965	11	8
Jarvis & Sons	940	0	0
Boekbinder	930	0	0
De Jong & Co.	925	0	0
Spiers & Pond	910	0	0
McArthur & Co.	905	0	0
Staines & Son	859	0	0
McCarthy	792	0	0
Aldin Bros. & Davies	774	0	0
Spencer, Santo & Co.	760	0	0
Campbell, Smith & Co.	666	0	0
CAMPBELL & CHRISTMAS (accepted)	650	0	0

For supply and erection of three penstocks, &c., on the southern low-level sewer at Heathwall, Kennington Cross, and Old Kent Road.

Cochrane	£790	0	0
Waller & Son	776	0	0
Glenfield & Kennedy	774	0	0
Hunter & English	730	0	0
Blakeborough & Soris	720	0	0
Ashton, Frost & Co., Blackburn (recommended)	699	0	0

LONDON—continued.

For building front premises for Boardmans, Stratford, E. MESSRS. GEO. BAINES & SON, architects, 5 Clement's Inn, W.C.

McCormick & Sons	£14,987	0	0
Lawrance & Sons	14,932	0	0
Carmichael	13,982	0	0
Greenwood, Ltd.	13,975	0	0
F. & H. F. Higgs	13,858	0	0
Wallis & Sons, Ltd.	13,840	0	0
Johnson & Co., Ltd.	13,555	0	0
Shurmur & Sons, Ltd.	13,010	0	0
Lawrence & Son	12,982	0	0
Holloway	12,747	0	0
Patman & Fotheringham, Ltd.	12,523	0	0
Chessum & Sons	12,515	0	0
Battley, Sons & Holness	12,471	0	0
Jerram	12,426	0	0
MINTER (accepted)	12,275	0	0

For the supply, delivery and erection of seventy-eight feeder pillars required for the electrification of portions of L.C.C. tramways.

General Electric Co.	£3,827	15	0
Kelvin & James White	3,290	13	8
Wenham & Waters	2,677	17	6
Western Electric Co.	2,569	6	6
Johnson & Phillips	2,535	1	3
Brush Electrical Engineering Co.	2,521	4	0
Cox-Walkers	2,470	9	0
Estler Brothers	2,444	13	0
Tramway Supplies	2,424	8	0
Universal Electrical Manufacturing Co.	2,420	0	6
Callender's Cable and Construction Co.	2,355	13	0
Blackwell & Co.	2,304	10	1
Henley's Telegraph Works Co.	2,304	2	9
Dick, Kerr & Co.	2,244	19	5
Spagnoletti & Co.	2,178	15	0
Scott & Co.	2,154	17	6
British Insulated and Helsby Cables, Ltd., Prescott (recommended)	1,896	3	0

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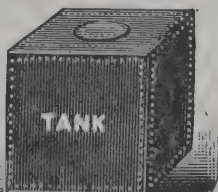
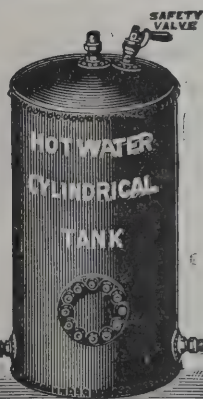
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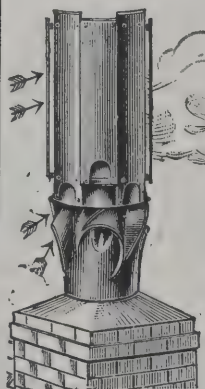


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## LONDON—continued.

For alterations, additions and repairs to school buildings,  
Paradise Street, Rotherhithe.

Hall & Jacobs	£1,808	0	0
Hollingsworth	1,693	0	0
Patman & Fotheringham	1,673	0	0
Holloway	1,658	0	0
Thames Joinery Co.	1,651	0	0
Prior	1,646	16	6
Staines	1,645	0	0
Falkner & Sons	1,543	0	0
F. & T. Thorne	1,485	0	0
Brand, Pettit & Co.	1,430	0	0
Long	1,424	0	0
Castle & Son	1,412	0	0
Hubbard	1,399	0	0
Nash	1,398	0	0
Pasterfield & English	1,394	0	0
Martin, Wells & Co.	1,389	0	0
Gale	1,379	0	0
White & Co.	1,379	0	0
Mills	1,373	0	0
Calnan & Sons	1,359	0	0
Wallsgrave	1,338	16	2
Loasby & Salmon	1,332	0	0
SHORTER & Co. (accepted)	1,258	0	0

For the supply of special trackwork (points and crossings)  
required for the electrification of the tramways from  
Beresford Square, Woolwich, to Wickham Lane,  
Plumstead, on the overhead trolley system.

Lloyd & Co.	£1,295	0	0
Allen & Co.	1,064	5	0
Hadfield Steel Foundry Co., Sheffield (recommended)	967	5	0

For providing shelter at Ruskin Park, Denmark Hill.

Harding & Son	£139	5	0
Lapthorne & Co.	138	0	0
Richardson	138	0	0
Boughton	127	0	0
Garrett & Son, 83 Balham Hill, S.W. (recom- mended)	117	0	0

## LONDON—continued.

For erection of stores for the Edmonton Co-operative  
Society, High Road, Tottenham. Mr. H. SEYMOUR  
COUCHMAN, architect, Tottenham.

Dearing & Son	£3,097	0	0
Snewin Bros. & Co.	2,992	0	0
Thomas	2,980	0	0
Shurman & Sons	2,970	0	0
Christie	2,953	0	0
Porter	2,819		
Monk	2,790		
Brand, Pettit & Co.	2,752	0	0
Mattock Bros.	2,749	0	0
PATMAN & FOTHERINGHAM, LTD. (accepted)	2,723	0	0
Rogers	2,634	0	0

For cleaning or painting L.C.C. schools.

## Tenders recommended for acceptance.

Lole & Co.—The Marlborough school, Chelsea	£630	0	0
Triggs—New Road school, Clapham	608	0	0
Sims—The Chaucer (including special school), Bermondsey	406	0	0
Haydon & Sons—Hague Street school, Bethnal Green	421	0	0
Willmott—Gainsborough Road school, Hackney	430	0	0
Willmott—Hackney Downs Secondary school, Hackney	359	0	0
Vigor & Co.—Essex Street school (including pupil-teacher centre, Mile End	262	0	0
Bristow & Eatwell—Kilburn Lane school, Paddington	415	10	0
Young—Peckham Secondary school, Peck- ham	237	0	0
Foxley—Kentish Town Secondary and Burghley Road junior girls' school, St. Pancras	323	0	0
W. & C. Brown—The Earlsfield school (in- cluding iron buildings), Wandsworth	355	0	0
Garrett & Son—West Hill school, Wands- worth	406	0	0
Barker—Deal Street school, Whitechapel	298	0	0
Fenn—Bostal Lane school, Woolwich	328	18	0

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For the supply, delivery and erection of overhead electrical equipment required for the tramways from Beresford Square, Woolwich, to Wickham Lane, Plumstead.			
Smith . . . . .	£2,962	0	11
Fry Bros. . . . .	2,811	18	6
British Insulated and Helsby Cables . . . . .	2,652	16	9
Blackwell & Co. . . . .	2,413	19	3
Brush Electrical Engineering Co. . . . .	2,389	0	6
Dick, Kerr & Co., Ltd. (recommended) . . . . .	2,323	4	2
For the supply and delivery of one 5-ton and one 3-ton overhead travelling crane for the central car-repair depôt.			
Broadbent & Sons . . . . .	£1,305	0	0
Applebys . . . . .	1,276	0	0
Spencer & Co. . . . .	1,240	0	0
Ransoms & Rapier . . . . .	£1,200 and 1,370	0	0
Higginbottom & Mannock, Manchester (recommended) . . . . .	1,116 to 1,205	0	0
For extensions and alterations at Maltina bakery. Mr. W. EGERTON, architect, Erith.			
Wiles & Son . . . . .	£7,683	9	6
Hoare & Son . . . . .	7,239	0	0
Friday & Ling . . . . .	7,226	0	0
Courtney & Fairbairn . . . . .	6,933	0	0
Thomas & Edge . . . . .	6,929	0	0
GUNNING & SONS, Erith (accepted) . . . . .	6,822	0	0
For painting, &c., at Harrow Road infirmary. Mr. E. HOWLEY SIM, architect, 14 Norfolk Street, Strand, W.C.			
Hilborn . . . . .	£1,100	0	0
Dearing & Son . . . . .	623	0	0
Burnell & Sons . . . . .	551	10	0
Boekbinder . . . . .	490	0	0
Brock . . . . .	475	15	0
Woollaston & Co. . . . .	453	4	0
Foxley . . . . .	450	0	0
Fryers . . . . .	425	0	0
Jarvis & Lello . . . . .	387	0	0
Warburton & Son . . . . .	377	0	0
Troy & Co. . . . .	370	0	0
Flower Bros. . . . .	349	15	0
SABEY & SON, 3 St. Peter's St., N. (accepted) . . . . .	312	0	0

SHENSTONE.

For the construction of sewerage and sewage-disposal works. Mr. W. E. ROGERS, engineer, Rugeley.			
D. & C. Macdonald . . . . .	£2,093	15	0
Sharp & Sons . . . . .	2,057	5	5
Smith . . . . .	1,958	3	7
Mason . . . . .	1,894	13	5
Hardy, Bate & Co. . . . .	1,807	7	0
Dean & Co. . . . .	1,763	7	0
Oakley . . . . .	1,739	12	7
Cottle . . . . .	1,653	0	0
Goodall . . . . .	1,592	15	0
Reading . . . . .	1,579	0	0
Willmott . . . . .	1,565	0	0
Ward & Tetley . . . . .	1,534	3	4
Barker Bros. . . . .	1,510	0	0
Law . . . . .	1,460	0	0
Holmes . . . . .	1,448	8	3
Manton . . . . .	1,400	0	0
Holmes & Son . . . . .	1,398	5	0
BARRY, Radcliff-on-Trent (accepted) . . . . .	1,320	18	0
Blewitt . . . . .	1,269	10	5

SOUTHAMPTON.

For covering the engineering yard at Hartley University College.			
DYER & SON. (accepted) . . . . .	£650	0	0

For works of repair at the College.

BAGSHAW & SONS (accepted) . . . . .	£172	10	0
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TORQUAY.

For erection of a lounge at the Imperial hotel. Messrs. WATSON & WATSON, architects, Torquay.			
Watson & Son . . . . .	£1,975	0	0
Smerdon . . . . .	1,966	13	0
Vanstone . . . . .	1,910	0	0
Rowland . . . . .	1,878	10	0
Yeo & Sons . . . . .	1,870	0	0
Narracott . . . . .	1,832	0	0
Mumford . . . . .	1,795	0	0
Bovey & Son . . . . .	1,780	0	0
BLAKE, Plymouth (accepted) . . . . .	1,691	0	0

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CONNOR BROS., Crowborough (*accepted*) . . . . . 1,187 0 0

**WESTON-RHYN.**

For erection of village institute. Messrs. DOUGLAS & MINSHULL, architects, Chester.

Matthews . . . . . £1,851 0 0  
Browne-Morton . . . . . 1,843 11 0  
Mayers & Co. . . . . 1,765 16 0  
McLellan Bros. . . . . 1,758 0 0  
Browne . . . . . 1,722 0 0  
Thomas . . . . . 1,589 5 4  
Williams & Son . . . . . 1,581 0 0  
FELTON, Oswestry (*accepted*) . . . . . 1,584 11 2

**YNYSHIR.**

For erection of vestry and classrooms, with minister's house.

Evans Bros. . . . . £2,272 0 0  
Davies . . . . . 1,988 0 0  
RICHARDS, Ynyshir (*accepted*) . . . . . 1,975 0 0

THE Staffordshire County Council at their last meeting agreed on the acceptance of the tender of Messrs. T. & E. Cooke, Congleton, for 6,488*l.* for the erection of the new Council school at Biddulph; also the tender of Messrs. James Heath & Sons, of Leek, for 3,129*l.* for the erection of the Biddulph Moor Council school. The architect submitted sketch plans for Talke new Council school, and it was resolved to amend the plans by making provision for cookery instruction. The architect's sketch plans for Talke (Butt Lane) new Council school showing provision for 300 older children and 100 infants, for Brockmoor new Council school (268 boys), for Tutbury new Council school (208 girls and 100 infants) and for Shelfield (Brownhills) Council school (416 older children) were approved.

**SCHOOL HOOKS.**

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are deposited at one time. The list of public buildings so fitted is a formidable one, including the new General Post Office, Liverpool, for H.M. Office of Works; churches, schools, infirmaries, banks, &c. The accompanying illustration is testimony to the strength of the hooks. The manufacturers are Messrs. Brookes & Co., Ltd., 4 Cateaton Street, Manchester.

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CTIONS TO WICKHAM HALL, KENT: ENTRANCE FRONT.

RLEY CROFT, NEAR RINGWOOD: NEW EAST WING.

E. GEORGE'S CHURCH, FORDINGTON, DORCHESTER.

## TRADE NOTES.

ROAD schools, Maidenhead, have been ventilated "Boyle" natural system under the direction of J. Shrewsbury, architect, Maidenhead.

directors of John Oakey & Sons, Ltd., have declared dividend at the rate of 10 per cent. per annum Ordinary shares for the six months ending June 30. ds payable on September 2.

Norwich Town Council have approved the recomon of the sewerage and irrigation committee that the of the Columbian Fireproofing Company, Ltd., of William Street, London, E.C., to construct and lay h reinforced concrete rising main on the "Bonna" in accordance with the specification prepared by engineer for 9,988l. be accepted. It was stated that unt was several hundred pounds less than the esti- the city engineer.

E. C. YOUNG, of Bethnal Green, has contributed to den City exhibition at Letchworth a variety of un whitewood, hardwoods, pine planks, mahogany; rptions of square and round turning, especially and balusters, handrails, mouldings of almost every ion, three-ply in great variety, compoboard, over- pedestal seats, dining-table legs. A specialty is ne picture hanging rail at 5s. per 100 feet. Also balusters, &c.

Westminster City Council proposes to acquire, for onnection with the disposal of refuse, the freehold Grosvenor Canal and some adjoining property at a 0,000l.

## NEW CATALOGUES.

It is an exacting test for a shopfitter to prepare a shop for a jeweller. The contents being valuable and limited in size, care must be taken that they are not oppressed by the massiveness of the cases which contain them. At the same time safety has to be secured. Lightness and strength are among the first requirements. Beauty of form is also desirable, but it must be kept within bounds, for there should be no rivalry. Indeed, some jewellers appear to think that their wares should only be exhibited amidst a halo of artificial light, which would appear as supplementary but yet as allied to the gold and precious stones. The catalogue of Messrs. Parnall & Sons, Ltd., Bristol, reveals the anxiety to insure that whatever is exhibited shall be seen under the most advantageous conditions. They have avoided massiveness unless when it is required for the fronts of counters, and then care is taken by the adoption of panels to impart variety and light and shade. The woodwork is generally mahogany or other hard wood French polished. In some cases the bases are covered with hammered copper. Plate-glass is mainly used for the shelves as well as for the parts through which the valuables will be seen. The glass is sometimes bent, which allows variety and is, moreover, convenient in crowded shops. The workshops of the firm have been lately extended and electric motive-power and the latest woodworking machinery have been introduced in them. All that skill and experience, in combination with capital, can accomplish is available for the representatives of one of the most important of businesses.

WE have received the catalogue of Mr. S. H. Heywood, electric-power engineer, of Reddish, near Stockport, manufacturer of electric pulley-blocks, &c. The advantage of the electric pulley-blocks is that one man can do the same amount of work in less time than it takes three by the old hand pulley-blocks, and that no skilled labour is required in using them. Mr. Heywood informs us that they are being extensively adopted in shipyards, locomotive, electrical and general engineering works, and that in these days when so much attention is being drawn to labour-saving devices the adoption of the electric pulley-blocks should not be overlooked.

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## VARIETIES.

PLANS are to be prepared and forwarded by the Lexden and Winstree Guardians, Essex, for the proposed increase of infirmary accommodation.

THE contractor for the new library and public offices about to be erected at Llanidloes is Mr. Lloyd, of Rhayader, as announced in an earlier issue. Messrs. Shayler & Ridge, of Oswestry, were the successful architects in a recent competition.

THE Willesden Board of Guardians have decided to build a new workhouse and receiving home for children, and application has been made to the Local Government Board for sanction to borrow the money required. Three ratepayers' associations in the parish are opposing the scheme.

THE Morecambe Town Council have decided, by fourteen votes to four, to take over and electrify the present traction on the sea front. One member said horse trams were an attraction and suited invalid visitors. The estimated cost of the reconstruction and electrification is 46,000*l.*

IMPROVEMENT schemes under the Labourers' Acts have been made by the Ballinrobe District Council at a total estimated cost of 61,380*l.*; Westport District Council, 20,341*l.* 7*s.*, and Killala District Council, 17,459*l.* 10*s.* Comprehensive schemes are also in course of preparation by the five other district councils in the county.

THE streets and buildings committee of the Edinburgh Town Council have agreed to recommend the widening of the bridge at Milton Road, Portobello, in view of the North British Railway Company doubling their line there. The estimated cost is 1,200*l.*, and the superiors have intimated their willingness to pay a fourth of the cost.

A NEW sensation has been provided at the Balkan States Exhibition at Earl's Court. It has in it something of the great wheel, the switchback and the water chute, but is unlike either. The orbit of the larger wheels which carry the car is eccentric, and imparts a peculiar movement which is undoubtedly popular. It is the invention of Mr. Robt. H. Bishop, and the framework and mechanism, which is ingenious, has been set up by Messrs. Hawksley, the well-known engineers.

A MEETING of the Street Noise Abatement Committee was held on Saturday, at which it was stated that the motor-omnibus and traction-engine traffic had in the course of two years depreciated the value of houses in London to the extent of fully 6,000,000*l.*, while last week was adding thousands of pounds to the loss being incurred by property owners.

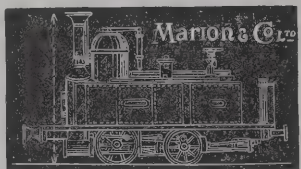
THE Metropolitan Water Board have just appraised the estimate of 30,000*l.* in respect of pumping machinery for houses, &c., at Walton, on the recommendation of the works and stores committee. It was also decided to have some discussion as to designs to erect a water tower on the Board's land at Shooter's Hill, the estimate for construction being 5,000*l.*

MR. L. V. HARCOURT, appointed by the Board to inquire as to the probability of the river Dee being damaged by the operations proposed under the Bill, says any abstraction of water in the river reaches would damage the tidal part of the Dee, but could be remedied by dredging the river at an estimated cost of 316*l.* a year.

AT Tuesday's meeting of the London County Council after a long discussion upon the merits and demerits of the Council's works department, the highways committee was authorised to obtain tenders from selected firms, with sealed estimates from the works committee considered concurrently—for the erection of a portion of the central car repair depot, the Tooting ways sub-station and the first portion of the Bow car shed.

THE Mexborough Secondary school authorities have adopted the final plans of the new school prepared by the architect, Mr. J. E. Knight. The estimated cost of the building, including furnishing, fittings and boundaries, is 15,300*l.*, while the price of the site is 2,200*l.* This is to accommodate 346 scholars, which works out at a building cost of 36*l.* per head. Mr. Lee pointed out that the whole price per head was 50*l.* The architect is at Bishop Auckland and Castleford, where similar schools are being erected, the cost per head on these amounted to 37*l.* The plans were approved.

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## CASES FOR BINDING THE ARCHITECT

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Model Cottage Exhibition at Wincobank, Sheffield, ve forty-two cottages, divided into three classes. cottages will contain two bedrooms, with living- and scullery, and must be built for 175*l.*; class B will ree bedrooms, and will cost 200*l.*; while the third ll include a parlour, with 225*l.* fixed as the maximum The exhibition will be opened during this week. On 8 the members of the International Housing Con- ill make a special visit.

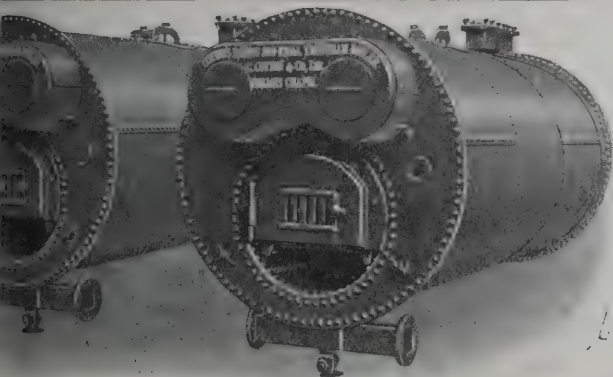
Board of Trade report on the state of employment any, just issued, says that in May there was a con- ong demand for labour in the principal industries, ges in consequence showed an upward tendency. tch to the Foreign Office states that after the lock- been declared in Berlin on May 18 work was on only on those buildings where men were paid ob, or where danger to life might result from a il. In order to compel the workmen to yield, the ed mortar works bound themselves to supply mortar contractors who had received permission from the rs' organisation to continue working. On the nd, the workpeople decided only to work for those rs who agreed to fix the working day at 8½ hours ay 80 pfennigs (9½*d.*) per hour.

interesting housing scheme has been placed before ratives of a large Dundee shipbuilding firm. g to a circular issued by them on Saturday, it is d to erect within a few minutes' car ride from the wellings suitable for artisans and clerks. The will be semi-detached and detached two-flat each having ground to the extent of about 10 poles in front as a garden and in rear as a bleaching The houses could either be purchased or rented. after event the annual charge would be merely t to cover expenses and give a very small per- on the cost. The object of the circular is to test the ty of the idea, the employés being asked to state they are in favour of the scheme, whether they ent the house at from 12*l.* to 20*l.* per annum, or e right out, and whether they have any practical ons to offer.

THE general purposes committee of the Holborn Borough Council state that a nuisance having been reported at No. 112 Oxford Street, it was discovered that it was due to the fact that in the course of repair to the main sewer in New Oxford Street, some two and a half years ago, the out- let from the drain in question was bricked up by the work- men of the London County Council, the drain being sup- posed to be what is technically known as "dead." The committee are of opinion that henceforward, before any old drains are bricked up, greater care than appears to have been exercised in the present case should be taken to dis- cover where the drainage of the adjoining premises really does discharge itself, and a communication to this effect has been addressed to the engineer of the London County Council.

At the Wesleyan Conference on the 20th inst. Mr. R. W. Perks, M.P., said he was in a position to make a statement with reference to their site at Westminster and the church house. The cost of the site had been altogether 360,000*l.* They had already sold land to the value of 200,000*l.*, and they had still left 35,000 square feet for their own purposes, which was five times as large as the site of the mission- house. They had been paid 100,000*l.*, and they would have another 100,000*l.* within twelve months; they had still land that they expected would sell for 100,000*l.* The net result was that they had a site at Westminster that was worth 250,000*l.* which had cost them 60,000*l.* They had got out the foundations, and as the result they had been able to let contracts for the erection of buildings up to the floor on the most advantageous terms, and the work would be begun on the 22nd inst. and completed in about twelve months.

MR. H. SHELFORD BIDWELL, M.Inst. C.E., attended at the Birmingham Council House on Tuesday, on behalf of the Local Government Board, to conduct an inquiry relative to applications by the Birmingham Tame and Rea District Drainage Board for sanction to borrow money for the purpose of sewage disposal. It was explained that in 1903 the Board adopted the bacteriological system of treating sewage, and an experimental bed of one acre was laid down. There



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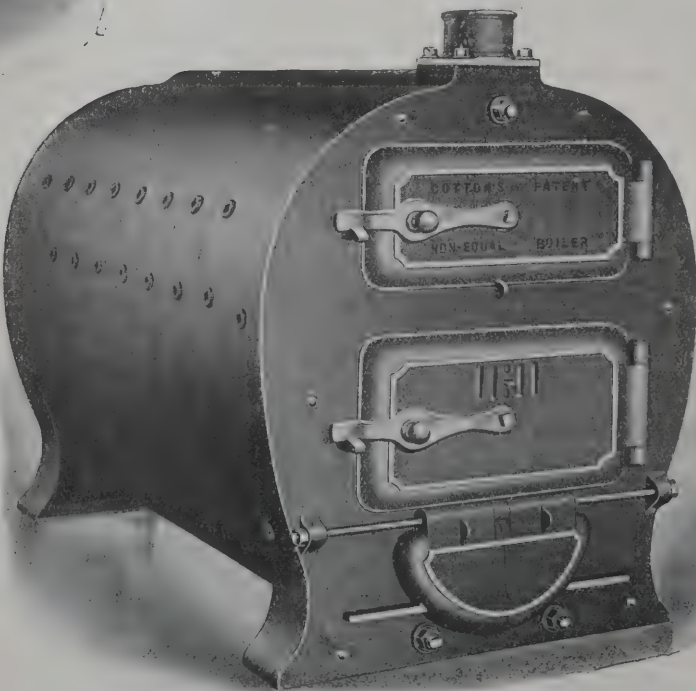
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were now  $15\frac{1}{2}$  acres of beds. One acre was capable of dealing with 750,000 gallons of sewage per day, and the normal flow of sewage was 24,000,000 gallons. Therefore they were now only able to oxidise half the normal flow. They were anxious to improve the existing conditions, and to lay down a further seven acres. For this purpose the Board desired to obtain sanction to borrow 45,000*l*. The new beds would be an extension of the existing beds, and the work would be adjoining. They asked that the repayment of the loan be extended over a period of thirty years.

THE chairman of the Worcestershire County Council at the last meeting, calling attention to the requirements of the new education code, said it was probable that no schools would be recognised except on the 10 feet basis of accommodation instead of the existing 8 feet, which will necessitate a large expenditure by managers of non-Provided schools. If they were unable to find the money the County Council would have to take over the schools or build new ones. Of the 250 schools in the county, H.M. inspector had already reported twenty-one for overcrowding, usually in the infants' departments; fifteen school premises were defective and would necessitate heavy expenditure; in five cases new schools would have to be built, or they would lose the grants; and in fifty-three cases orders had been given for the removal of galleries, which would necessitate structural alterations. In ninety-three cases the inspectors were calling attention to alterations needed in the floor space.

### AUGUST BANK HOLIDAY ON THE CONTINENT.

TICKETS at reduced fares available for eight days will be issued to Brussels July 31, August 1, 2, 3 and 5, and to Zurich *via* Harwich and Antwerp. Dining and breakfast cars are run between London and Parkeston Quay, Harwich, on the Antwerp service. Passengers leaving London in the evening reach Brussels next morning, after a comfortable night's rest on board the steamer. For visiting The Hague, Scheveningen (the Dutch Brighton) and Amsterdam for the dead cities of the Zuyder Zee, special facilities are offered

*via* the Great Eastern Railway Company's British Mail Harwich-Hook of Holland route. A corridor with vestibuled carriages, dining and breakfast cars on the Hook of Holland service between London and Harwich. From the Hook of Holland through and restaurant cars are run in the North and South express trains to Cologne, Bale and Berlin, reaching at noon, Bale and Berlin in the evening. For convenience of passengers tickets dated in advance obtained at the Liverpool Street Station Continental and Booking Offices. The Danish Royal Mail steamer the Forenede Line of Copenhagen will leave Harwich on the west coast of Denmark) on August 6 and 7. The General Steam Navigation Company's steamers will leave Harwich on July 3 for Hamburg, returning August 4 and 7.

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Is the title of a pictorial poster by which the Great Eastern Railway Company draws the public attention to its arrangements for the holiday season, and an examination of their A B C programme demonstrates that this enterprising company has done everything possible to provide for the holiday traveller. For those wishing to visit the health resorts on the North-East coast, tickets are available every Saturday during the season, covering a period of three to seventeen days, for 17*s*. to Cleethorpes or Scarborough and Filey. Similar tickets are issued for West coast watering-places, viz. to Southport and Llandudno for 19*s*., to Blackpool, Lytham, St. Anne's and Fleetwood for 21*s*., and to Douglas (Isle of Man) for 23*s*. and 27*s*. 6*d*. Every Thursday cheap tickets for sixteen days are obtainable to all the principal health and pleasure resorts in Ireland. Cheap tickets are also issued every Saturday for three, six or eight days to over 400 towns and places in the Midlands, Yorkshire, Lancashire and North of England. The majority of cases the fare for an eight-days' ticket is less than a sovereign. Such low fare tickets are, however, offered to the detriment of comfortable and expeditious travel, as passengers are allowed to perform the journey

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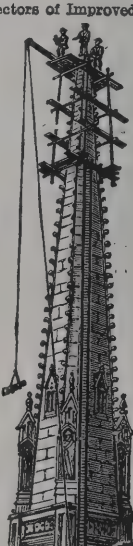
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For Friday and Saturday week-end tickets, available on ordinary train, are issued to all the inland and holiday resorts, extending from the Midlands to the Scotland.

The arrangements are conveniently tabulated in the form of an A B C excursion programme, obtainable, free of charge, at Marylebone Station, N.W., the company's town offices, and at the numerous agencies situated throughout London and suburbs. Publicity Department, 216 Marylebone Road, N.W.

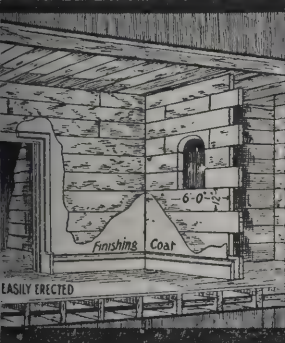
### VALUE OF SEASONED TIMBER.

The "Zeta" Wood-Flooring Company, Ltd., of Crispin's Marshgate Lane, Stratford, London, E., is a new company established for the carrying on business of wood-flooring manufacturers and workers in parquetry. The company was registered on May 14 this year. They have erected an up-to-date factory at Stratford which has been equipped with all the most modern machinery obtainable for the purpose of carrying on this industry. Owing to the support of the authorities of the West Ham Corporation, the company has been enabled to run the whole of their machinery by electricity. A few words of description of their works will doubtless be of interest to many of our readers. The works consist of two machine-rooms measuring 80 feet by 30 feet, and the entire installation has been completed (which shortly will be) the company will be in a position

to turn out some 200,000 yards of wood-block flooring annually. The premises have a water frontage of 280 feet, so that the timber is brought in by the ship and lighter direct to their works. This is an important point in any company, and the "Zeta" directors, who are all good shrewd men of business, have not lost sight of this fact. At the same time, the factory is in close proximity to all the goods depôts of the leading railway companies, thus enabling the "Zeta" company to despatch their goods promptly and cheaply to any part of the country. Perhaps the part that will be most interesting to architects and builders is the fact that the company have erected at some considerable cost desiccating chambers fitted with the most efficient and modern plant, so that all floors supplied and made by the company, whether under their first, second, or third schedule, will consist of the wood which has been thoroughly matured owing to this treatment. This enables the company to give a written guarantee for five years on all floors manufactured and laid by them. Although the business has been so recently founded, the company have secured several very large contracts; one at the present moment on which they are engaged is for a big factory in Brixton. A small, neat handbook has been prepared giving particulars of their floors in different classes, containing a price-list, the figures in which are based on the execution of high-class work.

### PLANNING AND GROWTH OF TOWNS.

At the last meeting of the Yarmouth Town Council Councillor Arnott and Mr. F. Milton Harvey (deputy borough surveyor) reported on their attendance at the Conference between the Association of Municipal and County Engineers and delegates from local authorities, at Liverpool. They stated:—"After full discussion the Conference decided unanimously against the present method of town growth, by the development of individual estates without reference to the requirements and planning of the whole town as a whole, the disadvantages of the present method being as follows:—(a) The laying out of each estate in such a manner as to prevent the develop-



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ment of adjoining land, thus confining town growth to comparatively small and closely packed areas. (b) The planning of the largest number of houses, with minimum air space required by by-laws, upon estates nearest to town, frequently for the creation of ground rents and for securing the larger financial returns obtainable from small sites. (c) The difficulty of obtaining open spaces, sites for schools and public buildings, before value of land has risen by commencement of building operations. (d) The costliness of present method, having regard to the injurious effects upon health and life arising from overcrowded building land, to the probable future requirements as to street widths, and to the possibility of such closely packed areas being in the future regarded and treated as slum property. The Conference further agreed that efforts should be made to control or regulate the development of building areas immediately adjoining town boundaries and likely in course of time to become portions of such towns. Failing which, to urge upon the existing local authorities the adoption of the larger powers generally possessed by the towns affected. The Conference strongly disapproved of affording transit facilities to such districts unless development be placed under proper control. The Conference unanimously agreed that greater powers should be granted to local authorities to control the planning and future development of their towns, in order that, with due foresight and an accurate knowledge of each town's requirements, schemes might be arrived at in which each portion developed might be a part of a well-designed whole, full provision being made by main arteries for approach roads, motor and through traffic, for gardens and open spaces and sites for public buildings, due regard being paid to architectural effect. Further, that by power to limit the number of houses to the acre and prevent the overcrowding of building areas, some effect should be given to the aims of housing reformers by providing homes with abundant air space and pleasant surroundings. The Conference further urged that steps should be taken to put schemes in operation before the value of land is increased by the commencement of building operations. We desire to submit the recommendations of the Conference to your consideration, and respectfully urge their adoption in connection with the future development of the borough."

### THE NEW COUNTY HALL.

It may be assumed from the latest report of the element committee that the London County Council will not have the proposed county hall carried out as was imagined. An important part of the site is to be let on a lease which may extend to twenty years and an arrangement of that kind must seriously interfere with the building arrangements. The following report:—

We are giving careful consideration to the suggestion of the provision of a new county hall and we are in communication with the finance committee on the expenditure involved. One of the leasehold interests to be acquired is that of Holloway Brothers (London), Ltd., whose premises occupy 1.22 acre of the site and adjoin the Council's works and other premises. A notice to treat was in November 1905 served in accordance with an undertaking given by the London County Buildings Bill was before Parliament in the session of 1906, and a claim has been received. The Bill provides that the company shall remain in possession for three years from the date of the service of the notice to treat, which period will expire in November 1909, after which the company are in a position to compel the Council to take at once under the notice to treat. The Council has agreed to purchase the freehold interest from the Ecclesiastical Commissioners and the company pay the Council a rent of 1,430l. per year and the unexpired term of their lease is 72½ years.

In these circumstances we have considered the question which we can advise the Council to take at the present juncture. We have viewed the site, and having regard to its large extent, the gross area being 6.34 acres, in the area to be reclaimed from the river Thames by the new line for the embankment wall, in respect of which the Thames Conservancy are prepared to grant a license on certain conditions, we have negotiated an arrangement with the company with a view to an arrangement being made for their remaining in occupation for a term after the Council has acquired their leasehold interest under the notice to treat.

We advise that an agreement should be entered into with the company providing, *inter alia*, that the Council should proceed forthwith under the notice to treat to acquire the leasehold interest and to have assessed the cost of the same.

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which the company would be entitled for trade disturbance, inconvenience on removal, &c. The sum to be for machinery, plant and fixtures is to be settled by on at the time possession is given. The payment leasehold interest would be made now, and the company could be granted a lease at a rent to be agreed for one years, terminable at the Council's option in years, and at the option of either party after ten or 1 years, on giving two years' previous notice, the representing the trade compensation, together with ation of machinery, &c., to be paid on the company possession. In the ordinary course the sum payable ect of trade disturbance would be due at some date er than November 1909, but under the proposed ent it will not become due until the determination tenancy under the new lease, or in 1914 at the During the term of the lease in addition to the rent of 1,430*l.* a year, the Council will receive a rent on the amount paid to the company in respect of sehold interest. In view of all the circumstances, e no hesitation in saying that the proposed arrange-desirable.

#### THE STRAND CRESCENT SITE.

Establishment committee of the London County Council ce that they have had a proposal for an option of a ninety-nine years, at a rent of 55,000*l.* a year, of the portion of the crescent site formed in connection : Holborn to Strand improvement. The site has an about 124,000 square feet, and lies between Aldwych Strand, being bounded on the east and west by the approaches which it is proposed to form between nd and Aldwych. It has frontages of about 636 feet ych, about 413 feet to the Strand, about 236 feet to roach on the west side of the site and about 231 feet n the east side. The proposal has been made by erard on behalf of a syndicate who have prepared a for developing the site as a whole. M. Gerard make a deposit of 5,000*l.*, which is to be forfeited vent of a building agreement not being entered into se of the site at a rent of 55,000*l.* a year within six of the date of the provisional agreement. lease will be in the Council's usual form, subject to

such modifications as may be necessary for the special undertaking, and will give the Council entire control as to the uses to which the buildings will be put, and also the right of re-entry if the buildings are put to any other use than that sanctioned when the lease is taken up.

The balance (50,000*l.*) of one year's ground rent will be paid as a deposit upon the signing of the building agreement; this deposit will be forfeited if the lease be not taken up, so that the Council's interests are adequately safeguarded.

Preliminary sketch plans have been submitted which show a scheme for the erection of shops with offices above fronting on to the Strand, the two side thoroughfares and a part of Aldwych. On the central portion of the site with a frontage to Aldwych it is proposed to erect a stone building of commanding architectural features. This building will contain large galleries for use in connection with a permanent exhibition of arts and manufactures; it will also contain a theatre, a concert hall and a restaurant with courts around. Since the sketch plans were submitted negotiations have been entered into by the promoters which may lead them to modify the scheme in the direction of erecting a different class of building in the Strand. This would materially assist in the development of the remainder of the Council's land, and would give even greater security for the ground rent than would be afforded by the erection of shops.

The minimum amount to be spent in the erection of these buildings is to be 500,000*l.*, and the buildings are to be completed within four years of the date of the signing of the agreement. The plans, elevations and specifications of all the buildings will be entirely subject to the Council's approval.

The promoters make their offer dependent upon their being permitted to apply for a license for the sale in the café, restaurant and courts of beer, wines and spirits to be served at tables by waiters, who will also serve other refreshments, but no bars are desired in connection with this part of the scheme. In the theatre such facilities for refreshment will be provided as are usually allowed in theatres licensed by the Lord Chamberlain. The lease will provide that these facilities will be afforded only while performances are being given in the theatre, and that they will

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be in strict accordance with the regulations of the Lord Chamberlain governing such cases. The part of the site to which the sale of alcoholic liquors is restricted will be defined on the plan attached to the lease when granted. The requirements in the matter of licenses will not be greater than those agreed to by the Council in the case of the letting sanctioned on March 20, 1906, to the syndicate of which Mr. L. Wormser was secretary.

The land has not yet been submitted to public auction, but adjoining sites have been offered on several occasions, and this has been sufficient to test the market, while the fact that the site was to be let on lease has been well advertised. The committee consider that the acceptance of the present offer will have a beneficial effect as regards the disposal of the Council's remaining surplus land.

#### AN ANGLO-CHINESE PORT.

THE British Vice-Consul, Mr. H. G. Parlett, has reported on the condition of Tairen, otherwise known as Dairen, Talien, or Dalny, in the Liaotung Peninsula. So far, he says, there has been no inrush of foreign merchants into the newly-opened port, which is scarcely to be wondered at, in view not only of the present state of uncertainty regarding the future of the place, but also of the disabilities under which, for the time being, all alike labour. In the first place, the regulations relating to the leasing of property are sufficiently vexatious to deter any but the most enterprising from investing capital. Land or buildings may, by the rules now in force, be confiscated at any moment at the discretion of the authorities, one week's notice being given in the case of buildings, one month's in that of land. In addition a lessee may not transfer his lease to another party, nor may he mortgage his rights as security for debt. It is not sufficient for the authorities to assure would-be lessees that the first of these conditions will never be enforced; the merchant naturally asks why, if this be the case, the objectionable rule is not struck out.

Of Tairen itself little is to be said. Outside the Russian administrative quarter there are scarcely any solid foreign-built houses, and the few that exist are mostly relics of the days of the Russian régime. The Japanese are, it is true, erecting buildings in fair numbers, but these, almost without

exception, leave much to be desired both in the quality of their workmanship and in that of the materials used. The greater part of the town, which was planned by the Russians on a very ambitious scale, still remains waste ground. Such streets as do exist are occupied almost entirely by Japanese or Chinese shops and dwellings of a poor and squalid description. This remark applies even to the busiest streets. The probable explanation is that the capital has so far been invested in the place, the amount of Japanese investors having been monopolised by an extraordinary revival of trade and industries proper immediately after the war. It would also be the case that the rate of wages and the price of materials is so much higher here than in Japan that the cost of building is far short of double what the Japanese are accustomed to pay. Finally, there is the uncertainty of tenure referred to.

#### BUILDING IN SAN FRANCISCO.

THE Board of Trade have received information from a trustworthy source to the effect that building in San Francisco is fast approaching stagnation owing to the high price of material and a fear of further demands for higher wages by the artisans. The labour situation appears to have reached a point where the supply is far greater than the demand, and under ordinary economic conditions the competition for employment would cause a reduction of wages were they not artificially supported by the unions. Long wages can be upheld by these agencies remains to be seen. For the 40,000 men reported to be idle, the probability of obtaining employment in other cities on the coast does not appear to be encouraging. One of the largest construction companies in the city reports that it has contracted to erect forty-two new buildings of all sorts, but no work has not been begun on account of the outlook for rising wages. Meanwhile, the decline in the cost of building material appears to be general. Brick has fallen 5 per cent, per 1,000, lumber has declined from 6 to 10 dollars per 1,000 feet and is expected to go lower; lime and cement and wire-lath have all dropped materially, and only structural steel remains stationary with no immediate prospect of change.

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EDITORIAL NOTICES.

w of the many difficulties which are certain to arise in  
connection with the law, practice rules and procedure under  
the Workmen's Compensation Act, we have added to our  
staff A VERY EMINENT BARRISTER, who has  
made the subject a special study, and will be glad to answer  
the columns of this paper any questions relating to the  
complicated matters arising from the provisions of this  
difficult Act. Our LEGAL ADVISER will further  
answer any legal question that may be of interest to  
our readers. All letters must be addressed "LEGAL  
ADVISER," Office of "The Architect," Imperial Build-  
ings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications  
as brief as possible. The space we can devote to Corre-  
spondence will not usually permit our inserting lengthy  
communications.

The Editor will be glad to receive from Architects in London  
and the Provinces results of Competitions and Tenders  
and other particulars of Works in progress in which they  
may be interested.

No communication can be inserted unless authenticated by the  
name and address of the writer—not in every case for  
publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must  
necessarily be held responsible for their contents.

TENDERS, ETC.

\* \* As great disappointment is frequently expressed at the non-  
appearance of Contracts Open, Tenders, &c., it is par-  
ticularly requested that information of this description be  
forwarded to the Office, Imperial Buildings, Ludgate  
Circus, London, E.C., not later than 2 P.M. on Thursdays.

CONTRACTS OPEN.

ASHFORD.—Aug. 29.—For construction of a public con-  
venience under the Assembly Rooms, High Street. Mr.  
William Terrill, surveyor, Ashford, Kent.

BARNARD CASTLE.—Aug. 7.—For erection of a station-  
master's house, for the North-Eastern Railway Co. Mr.  
William Bell, the company's architect, York.

BILLERICAY.—Aug. 5.—For additions and alterations at  
the workhouse. Deposit 1/1 is. Mr. Walter J. Wood,  
architect, 26 Alexandra Street, Southend-on-Sea, and 1 Fins-  
bury Circus, London, E.C.

BIRMINGHAM.—Aug. 8.—For alterations to the hotel build-  
ing at Snow Hill station, and provision of a new entrance  
to the station, &c., for the Great Western Railway Co. The  
Engineer at Wolverhampton Station.

BISHOP'S STORTFORD.—Aug. 6.—For carrying-out altera-  
tions at the municipal offices. The Surveyor's Office,  
7 North Street, Bishop's Stortford.

BRADFORD.—Aug. 7.—For erection of nurses' home and  
isolation block, and alterations to existing buildings at the  
City hospital, Leeds Road. The City Architect, Whitaker  
Buildings, Brewery Street, Bradford.

BRYMBO.—Aug. 9.—For additions and alterations to Sion  
Cottage. Mr. E. Jones, Sion Cottage, Brymbo.

CARLISLE.—Aug. 6.—For builder, joiner and plasterer-  
work required for pulling-down old property and erecting  
billiard hall in East Street, Botchergate. Mr. H. H. Hodg-  
kinson, architect, 64 Lowther Street.

COMPSTALL.—Aug. 21.—For alterations and additions to  
the elementary school buildings. Deposit 1/1. Mr. H. Bes-  
wick, county architect, Newgate Street, Chester.

CUDWORTH.—Aug. 9.—For erection of premises in  
Pontefract Road. Mr. Geo. Moxon, architect and surveyor,  
26 Church Street, Barnsley.

DODWORTH.—Aug. 3.—For alterations to the Cross Keys  
inn, Dodworth, Yorks. Mr. John Robinson, Wombwell.

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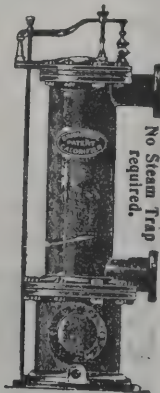
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**GAINSBOROUGH.**—Aug. 7.—For pulling-down and erecting market buildings. Deposit 3*l*. 3*s*. Mr. Decimus M. Robbs, clerk, Council Offices, Gainsborough.

**HIGH HARRINGTON.**—Aug. 10.—For erection and completion of seven dwelling-houses. Mr. I. Dodds, Fern Bank, High Harrington, Cumberland.

**HINDLEY.**—Aug. 17.—For additions and alterations to the engine-house and screening-chamber at the sewage works, Platt Bridge. Deposit 1*l*. 1*s*. Mr. Oswald P. Abbott, Council Offices, Hindley, Lancs.

**HOLLINGWORTH.**—Aug. 10.—For erection of an elementary Council school on land adjoining Market Street, to accommodate about 600 children. Deposit 2*l*. Mr. C. T. Adshead, architect, Leinster Chambers, St. Ann's Square, Manchester.

**HUDDERSFIELD.**—Aug. 9.—For erection of a Municipal Secondary school for girls on the site of Greenhead Hall. Deposit 2*l*. 2*s*. Mr. K. F. Campbell, borough engineer, 1 Peel Street.

**HULL.**—Aug. 7.—For the erection of a greenhouse in the West Park, Anlaby Road. Mr. Joseph H. Hirst, city architect, Town Hall, Hull.

**HUNTINGDON.**—Aug. 3.—For works of alteration and addition to the Grammar school. Mr. Herbert Leete, county surveyor, High Street, Huntingdon.

**ILFORD.**—Aug. 12.—For the erection of a plant-house and sheds in South Park. Deposit 2*l*. 2*s*. Mr. Herbert Shaw, M.I.C.E., engineer and surveyor, Town Hall, Ilford.

**IVYBRIDGE.**—Aug. 28.—For alterations and additions to the Ivybridge Council school, Devon. Deposit 1*l*. 1*s*. Architect, 1 Richmond Road, Exeter.

**KINGSTON-ON-THAMES.**—Aug. 19.—For erection of a children's home within one mile of a goods station and within the area of the Kingston Union. Mr. Jas. Edgell, clerk, Union Offices, Coombe Lane, Norbiton, Kingston-on-Thames.

**KINGSTON-ON-THAMES.**—Aug. 3.—For erection of a gymnasium in the Penrhyn Road. Deposit 1*l*. 1*s*. Mr. Alfred Mason, architect and surveyor, Broughton Chambers, Victoria Road, Surbiton.

**LONDON.**—Aug. 6.—For construction of station building, verandahs, &c., at Hammersmith. Engineer to Hammersmith and City Railway Joint Committee, Paddington Station, London.

**MANCHESTER.**—Sept. 4.—For erection of an infant school and for alterations and additions to existing South Street Municipal school, Cheetham. Deposit 2*l*. 2*s*. Education Offices, Deansgate, Manchester.

**MELKSHAM.**—Aug. 6.—For alterations and additions to the station buildings for the Great Western Railway Co. The Engineer at Bristol Station.

**MORLEY.**—Aug. 12.—For erection of a warehouse, Deanfield Mills. Messrs. T. A. Buttery & S. B. B. architects, Queen Street, Morley, Yorks.

**NORTHALLERTON.**—Aug. 3.—For strengthening and pairing of Smallways bridge (stone) on the Bowes Scotch Corner main road, near Greta Bridge, Barnsley. The County Surveyor's Office, County Northallerton.

**PLYMOUTH.**—Aug. 6.—For erection of a verandah at Great Western Docks, for the Great Western Railway Co. The Engineer at Paddington Station, London.

**ST. IVES.**—Aug. 3.—For works of alteration to girls' infants' departments of St. Ives Council school, Hunts. County Surveyor's Office, Huntingdon.

**SCOTLAND.**—Aug. 3.—For mason, carpenter, plumber and plasterer's work of offices to be erected at Towie public school, Glenkindie. Mr. James Thomson, clerk, Belnaboth, Glenkindie.

**SCOTLAND.**—Aug. 5.—For mason, carpenter, plasterer, slater, painter and glazier, and heating works alterations and additions to public school, Kintore. Geo. Gray, architect, Inverurie.

**SCOTLAND.**—Aug. 5.—For mason, carpenter, plumber, plasterer, painter and glazier's work of two houses to be erected in Mid Street, Fraserburgh. Messrs. & McRobbie, architects, Saltoun Chambers, Fraserburgh.

**SCOTLAND.**—Aug. 5.—For mason, joiner, slater, and plumber's work of proposed school at West Linton. Mr. John Sanderson, clerk, West Linton.

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COTLAND.—Aug. 12.—For construction of a retaining wall alongside Wellington Road, Aberdeen, involving about 1,000 cubic yards of excavation, 1,800 cubic yards of concrete and 2,700 yards of masonry work. Deposit 1*l.* 1*s.* Mr. A. Parker, C.E., 80 Guild Street, Aberdeen.

COTLAND.—Aug. 12.—For convalescent home to be built. Mr. John Sim, architect, Montrose.

COTLAND.—Aug. 15.—For erection of a post office at Barton. Deposit 1*l.* 1*s.* Mr. W. T. Oldrieve, H.M. Office of Works, Edinburgh.

HEFFIELD.—Aug. 6.—For erection of a head post-office. Deposit 1*l.* 1*s.* The Commissioners of H.M. Works and Buildings, the Office of Works, S.W.

SUNDERLAND.—Aug. 13.—For construction of a reformatory, retaining walls, purifying-house, &c., to be erected on Ayres Quay gasworks. Mr. John H. Cox, secretary manager, Fawcett Street, Sunderland.

TOTNES.—For erection at the workhouse, Totnes, Devon, male and female infirmary of eighty beds, male and female receiving wards, porter's lodge, nurses' apartments and other work. Deposit 3*l.* 3*s.* Mr. W. F. Tollitt, architect, 10 High Street, Totnes.

WALSLEY.—Aug. 3.—For erection of nine cottages at Mynach, for the Cylla Cottage Co. No. 2. Mr. J. M. Dowdeswell, architect, Treharris.

WALSLEY.—Aug. 3.—For alterations, &c., at the Welsh Wesleyan chapel, Llandegla. Mr. Nicholas, Merlins, Johnstown.

WALSLEY.—Aug. 6.—For erection of a public sanitary convenience at John Street, Porthcawl. Mr. R. W. Jones, architect, 10 John Street, Porthcawl.

WALSLEY.—Aug. 12.—For erection of a chapel, with 100 seats, on Duffryn Estate, near Maesteg. Mr. J. D. Morgan, architect, 6 Caerau Road.

WALSLEY.—Aug. 12.—For erection of West End Congregational church, Ebbw Vale. Mr. Henry Waters, architect, 10 Ebbw Vale and Beaufort.

WESTON-SUPER-MARE.—Aug. 3.—For alteration to the play-room at the Weston-super-Mare central school. Messrs. Price & Jane, Weston-super-Mare.

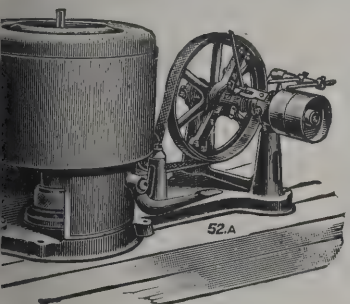
WORKINGTON.—Aug. 10.—For whole of works or any of the trades required in building kitchen block and nurses' quarters at the infirmary. Messrs. Oliver & Dodgshun, architects, Carlisle.

WREXHAM.—Aug. 12.—For erection of a public elementary school for 1,000 scholars, in Holt Road. Deposit 2*l.* 2*s.* Mr. Lawson Taylor, clerk to the Education Committee, Guildhall, Wrexham.

YORK.—Aug. 10.—For erection of two dwelling-houses on the Southlands estate, facing Bishopsthorpe Road. Mr. George H. Pegg, architect and surveyor, 23 Spurriergate, York.

THE Glasgow Corporation Tramways Department give the following statistics in their annual balance sheet. During the year there were open for traffic 168½ single miles of line, and the average traffic revenue was 5,035*l.* per mile. The car miles run were 20,350,367, and the number of passengers carried was 224,063,098. The percentage of working expenses to total receipts was 54.17; the average traffic revenue per car mile was 10.465*d.* The population served by the tramways in the city and suburbs numbers 1,050,000. The average traffic revenue per head of the population served was 16*s.* 11*d.*, and the average total revenue per car mile was 10.565*d.* The average car miles per day per car was 101.20, and the average speed per hour was 7.91 miles. The average working expenses per car mile (excluding power works cost) was 5.353*d.*; average working expenses per car mile (including power works cost), 5.721*d.*; average working expenses per passenger (including power works cost), .520*d.*; average working expenses per car mile (including power works cost and amount expended on permanent way renewals), 6.186*d.*; average working expenses per car mile (including total power cost and amount expended on permanent way renewals), 7.226*d.* The scale of fares ranges from ½*d.* to 7*d.*, and the average distance of the stages ranges from .57 of a mile for the former to 14.32 miles for the latter, and the average fare charged per mile is .45*d.* The average fare paid per passenger was .95*d.*, the average number of passengers per car mile was 11.01; average journeys per head of population per annum, 213.39; number of cars in stock, 780.

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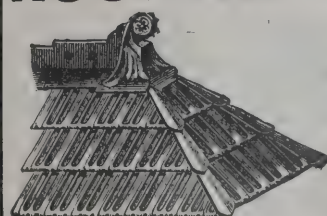
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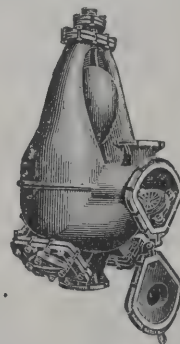
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For erection of chapel and school. Mr. W. J. Fyfield, architect, Witney.

Pethor . . . . .	£779	0	0
Barnes . . . . .	746	0	0
Godwin . . . . .	703	0	0
Groves & Sons . . . . .	695	0	0
BARTLETT & Bros., Witney (accepted) . . . . .	629	10	0

**BASSINGBOURN.**

For alterations at the mills. Mr. WALTER WHITE, surveyor, Curridge, Newbury.

Crimson & Co. . . . .	£465	10	0
Hinkins & Son . . . . .	374	0	0
Jacklin & Co., Royston (provisionally accepted) . . . . .	364	10	0

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For laying sewers at Horsley Woodhouse. Mr. R. C. CORDON, surveyor, Duffield, Derby.

Porter . . . . .	£257	9	7
Hawley & Son . . . . .	211	7	0
Igo . . . . .	209	4	9
Ward & Tetley . . . . .	200	12	6
Warner . . . . .	179	13	0
Bennett . . . . .	178	0	0
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A. Booth . . . . .	133	5	0
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Nicholson . . . . .	£221	7	6
Oliver . . . . .	216	5	8
CARRICK (accepted) . . . . .	200	8	1

**EDINBURGH.**

For alterations at the Warrender Park baths, for the Town Council. Accepted tenders.

Calder, mason and joiner . . . . .	£825	0	0
Knox & Son, plumber . . . . .	680	0	0
Mackenzie & Torrance, engineering work . . . . .	328	0	0

**EAST THURROCK.**

For erection of schools. Mr. C. M. SHINER, architect, 110 Hamilton House, E.C.

Leaney & Co. . . . .	£8,600
Davey . . . . .	7,987
Potter . . . . .	7,959
J. Brown . . . . .	7,872
Patman & Fotheringham . . . . .	7,850
Dobson . . . . .	7,710
Wall . . . . .	7,500
C. Brown . . . . .	7,460
Sheffield Bros. . . . .	7,250
Pavitt & Sons . . . . .	7,225
Hammond & Son . . . . .	7,075
Carter, Grays (recommended) . . . . .	6,806

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Whiffin & Sons . . . . .	815
Randall . . . . .	759
Willis & Powis . . . . .	750
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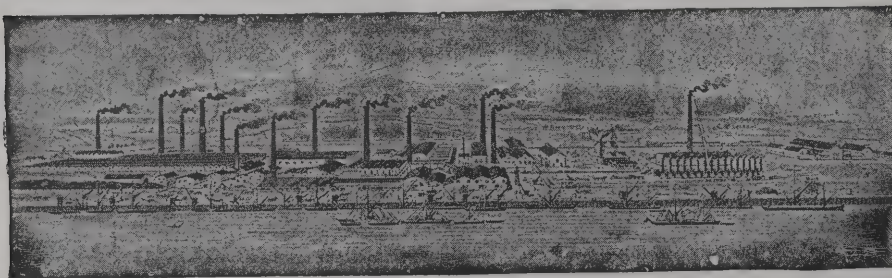
**HARPENDEN.**

For additions and alterations at school, for the Herts. County Council. Mr. U. A. SMITH, county surveyor, Hatfield.

Howard . . . . .	£1,772
Jarvis . . . . .	1,549
McKay . . . . .	1,392
Barber & George . . . . .	1,374
Drever . . . . .	1,371
Martin . . . . .	1,370
Phillips & Blake . . . . .	1,350
Erwin . . . . .	1,318
Jarvis & Son . . . . .	1,296
Hall . . . . .	1,215
Salisbury & Son . . . . .	1,208
BROWN & SON, Wellingborough (accepted) . . . . .	1,171

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Alterations and additions to the Chalford Hill Council school. Mr. R. S. PHILLIPS, architect, Shire Hall, Gloucester.			
eman	£1,641	0	0
ilton & Son	1,490	10	0
rdner & Sons	1,428	4	9
eece	1,398	0	0
monds	1,370	0	0
lins & Godfrey	1,364	0	0
w	1,299	4	3
hard & Peer	1,299	0	0
ne	1,293	0	0
ll & Hook	1,290	10	7
nders & Sons	1,290	0	0
borne	1,274	11	0
ylor & Sons	1,250	0	0
ok, Stroud (accepted)	1,241	0	0

HERTFORD.

aking-up part of Tamworth Road, laying water main, with other work. Mr. J. H. JEVONS, borough engineer, Hertford.			
	Street Works	Water Main.	
house & Son	£1,084	£144	
llace & Inns	932	—	
kinson	899	172	
linson	899	234	
liams	877	—	
es	832	—	
drill	822	—	
p	815	—	
ris & Son	792	—	
xson, Forest Gate (accepted)	779	140	
mas	—	175	
od & Sons	—	166	
	—	163	
ment & Son	—	151	

KETLEY BANK.

For alterations and additions to Primitive Methodist church and school. Mr. ELIJAH JONES, architect, Hanley.			
Goodwin	£944	15	0
Wellington & Son	930	10	0
Bickerton	904	0	0
Millington	894	10	0
Hoosep	881	14	4
Cornes & Sons	873	0	0
France	761	3	10
Bullock	761	0	0
BLACKMORE & SON, Oakengates (accepted)	716	8	0
Holmes	709	14	6

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For supply and erection of boundary fencing required by L.C.C. at Eaglesfield, Shooter's Hill.			
Mulford	£579	8	2
Marshall	570	0	0
Agate	559	11	0
W. Stenning & Son	521	15	0
White	520	0	0
J. Stenning & Son	517	0	0
Batcheller	505	0	0
Horton & Son	505	0	9
Bowen	485	0	0
Turner & Son, Uckfield, Sussex (recommended)	451	0	0
For removing the low-pressure steam apparatus and providing and fixing two boilers and a low-pressure hot-water apparatus at Byron and Bright Street schools, Poplar.			
Purcell & Nobbs	£989	0	0
Stevens & Sons	922	0	0
Rosser & Russell	855	0	0
Brightside Foundry and Engineering Co.	820	0	0
Lancashire Heating Co.	770	0	0
Cannon & Sons	769	10	11
Strode & Co.	759	0	0
Wenham & Waters	754	0	0
Kinnell & Co.	735	0	0
Yetton & Co.	645	0	0
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For erection of manual training centre on arches for forty boys at Westminster Bridge Road, enclosing, tar paving and gates for the admission of fire-escapes.

Wiles & Sons . . . . .	£2,208	3	8
Lapthorne & Co. . . . .	2,187	14	5
Ford . . . . .	2,127	7	7
Holloway Bros. . . . .	2,001	0	0
Lathey Bros. . . . .	1,997	0	0
Galbraith Bros. . . . .	1,966	12	11
Marsland & Sons . . . . .	1,958	19	8
Downs . . . . .	1,943	0	0
Rice & Son . . . . .	1,924	0	0
Akers & Co. . . . .	1,910	0	0
Appleby & Sons . . . . .	1,880	0	0
Whitehead & Co. . . . .	1,840	0	0
Parsons . . . . .	1,820	0	0
King & Son, 3 Vauxhall Bridge Road ( <i>recommended</i> ) . . . . .	1,746	0	0
Architect's (Education) estimate . . . . .	1,775	0	0

For enlargement of Broadwater school, Wandsworth.

Carmichael . . . . .	£6,379	0	0
Lathey Bros. . . . .	6,045	0	0
Bulled & Co. . . . .	5,935	0	0
Rice & Son . . . . .	5,883	0	0
Parsons . . . . .	5,844	0	0
Marsland & Sons . . . . .	5,829	0	0
Wall . . . . .	5,817	12	10
Smith & Sons . . . . .	5,758	0	0
Higgs . . . . .	5,688	0	0
Patrick . . . . .	5,552	0	0
Triggs . . . . .	5,535	0	0
Wallis & Sons . . . . .	5,532	0	0
Garrett & Son . . . . .	5,526	0	0
Appleby & Sons . . . . .	5,500	0	0
Moss & Sons . . . . .	5,331	6	11
Whitehead & Co. . . . .	5,297	0	0
J. & C. Bowyer, Upper Norwood ( <i>recommended</i> ) . . . . .	5,293	0	0

## LONDON—continued.

For erection of a school for the accommodation of 60 mentally defective boys on land at the rear of Acre Lane residential school for mentally defective children, Brixton.

Ford . . . . .	£3,435
Wiles & Sons . . . . .	3,265
Downs . . . . .	3,181
Lathey Bros. . . . .	3,115
Marsland & Sons . . . . .	3,064
Galbraith Bros. . . . .	3,044
Triggs . . . . .	3,040
Akers & Co. . . . .	3,028
J. & M. Patrick . . . . .	3,014
J. & C. Bowyer . . . . .	2,919
Rice & Son . . . . .	2,901
Whitehead & Co. . . . .	2,900
Holliday & Greenwood . . . . .	2,858
Garrett & Son . . . . .	2,831
Tucker, 82 Lavender Hill ( <i>recommended</i> ) . . . . .	2,816
Architect's (Education) estimate . . . . .	2,976

For wiring and fittings for electric lighting, bells, telephone and power at Central School of Arts and Crafts, Holborn.

Barlow Bros. & Co. . . . .	£3,466
Hulett & Co. . . . .	3,294
Cannon & Sons . . . . .	3,199
Glover & Co. . . . .	3,150
Cozens . . . . .	3,128
Aberdeen Electrical Engineering Co. . . . .	2,918
Cox-Walkers . . . . .	2,854
Grant & Taylor . . . . .	2,821
Suter & Co. . . . .	2,767
Galliers . . . . .	2,714
Beaven & Sons . . . . .	2,700
Vaughan & Cook . . . . .	2,525
Pinching & Walton . . . . .	2,496
Pudney . . . . .	2,480
Barton & Sons, 11 Forrest Road, Edinburgh ( <i>recommended</i> ) . . . . .	2,120
Mercer, Rance & Co. . . . .	2,025

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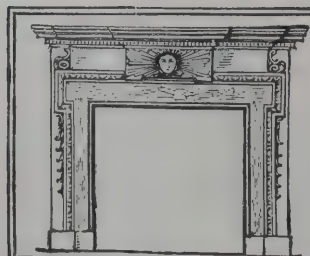
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LONDON—continued.

or painting external wood and ironwork at the Whitefriars fire-station.

Davis	£272	3	4
Coates	227	15	10
Foster	225	0	0
Mason & Co.	196	19	3
Vigor	196	0	0
Harding & Son	176	16	10
Webb	176	10	0
King	163	5	10
Cope & Co.	154	0	0
Woollaston & Co.	137	15	0
Dudley	124	14	0
Asby & Horner	114	0	0

French, 121 Warwick Street, S.W. (recommended)

Twenty other stations are to be painted without the intervention of a contractor at a total cost of 1,257l. 4s. 1d.

for the manufacture, delivery and erection of coal and ash conveyers for the second portion of the Greenwich electricity generating station.

Dempster & Sons	£3,554	5	6
New Conveyer Co.	2,547	19	10
Spencer & Co., Ltd., Melksham (recommended)	2,314	0	0

for the supply and erection of a timber clough on the southern outfall sewer enlargement.

Ashton, Frost & Co.	£183	0	0
Flavell & Churchill	177	10	0
Glenfield & Kennedy	175	0	0
Seagers	169	10	0
Hunter & English	155	0	0
Blakeborough & Sons	147	0	0
Waller & Son, Stroud (recommended)	117	0	0

for supply of oil tanks, filters, &c., for the Greenwich electricity generating station.

Russell & Sons	£654	13	0
Shelby & Co., Ltd., London (recommended)	423	10	6

LONDON—continued.

For taking-down and rebuilding 338, 340, 342 and 344 Walworth Road, for Messrs. Grose Bros. Mr. GEORGE A. LANSDOWN, architect, 9 Regent Street, S.W.

Johnson & Co.	£12,800	0	0
Kirk & Kirk	12,286	0	0
Ford & Walton	11,865	0	0
H. & E. Lea	11,825	0	0
Nightingale	11,736	0	0
Downs	11,732	0	0
Marsland & Sons	11,575	0	0
F. & H. F. Higgs	11,288	0	0
Battle, Sons & Holness	11,187	0	0
Whitehead & Co.	11,180	0	0
PARKER (accepted)	10,957	0	0

For additions and alterations to De Laune Works, Kennington. Messrs. BRIANT & SON, surveyors, 200 Kennington Park Road, S.E.

Rice & Son	£2,087	0	0
Partridge	1,990	0	0
Mills & Son	1,879	0	0
Patman & Fotheringham	1,871	0	0
Marsland & Son	1,855	0	0

For painting and repairs to The Cedars, East Sheen. Mr. R. B. ROWELL, architect, East Sheen.

Harvey	£300	0	0
Hughes & Co.	297	0	0
Bailey & Sons	275	0	0
Lilleywhite	256	0	0
SEAL & Co., Richmond (accepted)	255	0	0

For alterations to 2 South Street, Wandsworth. Mr. R. B. ROWELL, architect, East Sheen.

Bates & Son	£550	0	0
Soole & Co.	500	0	0
Hughes & Co.	482	0	0
SHUTE, Putney (accepted)	475	0	0

RE ESCAPES, VERANDAHS, and COVERED WAYS. N & DAVIDSON, Ltd., Carrick Foundry, STANNINGLEY, LEEDS.

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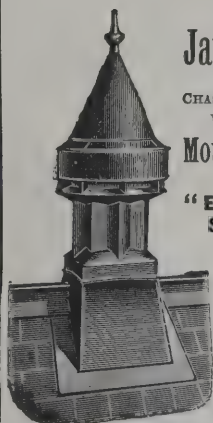
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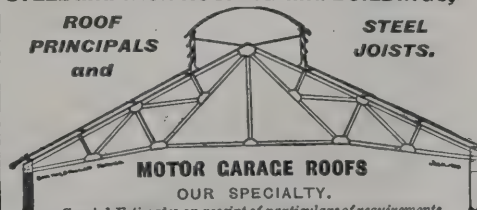
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**MIDDLEWICH.**

For erection of shop and cottage in Lewin Street.	Mr. T. DUTTON, architect, Winsfield.
Fowles & Sons	£1,490 0 0
BIRCHALL BROS., Middlewich ( <i>accepted</i> )	1,350 0 0
Court	1,315 0 0
Pickstock & Royle	1,063 0 0
Dickenson & Noden	998 10 0

**NEWTON BANK.**

For erection of two cottages.	Mr. T. DUTTON, architect, Winsfield.
Court	£536 10 0
Pickstock & Royle	480 0 0
FOWLES & SONS, High Street, Winsford ( <i>accepted</i> )	470 0 0
Birchall Bros.	470 0 0
Dickenson & Noden	337 10 0

**PRESTON.**

For shopfitter and cabinetmaker's work, Central Stores.	Mr. W. D. TOWELL MUNFORD, architect, Preston.
Harris & Sheldon	£6,485 0 0
Scott Bros.	6,230 0 0
Curtis & Son	5,840 2 6
Walker	5,582 0 0
Whitesides, Ltd.	5,336 0 0
Parnell & Sons	5,192 10 0

**RISCA.**

For alterations and additions to Zoar Presbyterian church.	Mr. WYNDHAM MOSES, architect, Risca.
Davies & Son	£1,910 0 0
King & Co.	1,610 0 0
Reed	1,603 0 0
Lewis	1,590 0 0
G. F. Leadbeter	1,520 0 0
Evans	1,500 0 0
J. H. Leadbeter	1,426 0 0
Poulton & Whiting	1,303 0 0
PRITCHARD, Risca ( <i>accepted</i> )	1,300 0 0
Jerman	1,044 0 0

**ROWDE.**

For erection of non-Provided elementary school.	Mr. A. RANDELL, architect, Devizes.
Hoskings Bros.	£1,325 0 0
Sainsbury	1,325 0 0
Holloway & Son	1,291 8 0
Bigwood & Co.	1,250 0 0
Billett & Musselwhite	1,230 0 0
Moore & Sons	1,210 0 0
Chivers & Sons	1,119 0 0
Webb	1,094 0 0
Linzey	1,055 0 0
ASH, Devizes ( <i>accepted</i> )	958 0 0

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For laying of main-pipe outfall sewer, &c.; also for laying subsidiary pipe sewers, construction of screen chambers, tanks, filters, &c. Mr. FRANK MAS engineer, Tetley House, Wakefield.

*Contract No. 2.*

GRAHAM & SONS, Huddersfield (*accepted*) . £2,640 0 0

*Contract No. 3.*

SIDEBOTTOM & BROWN, Cleckheaton (*accepted*) . £1,086 1 0

*Contract No. 4.*

GRAHAM & SONS, Huddersfield (*accepted*) . £2,490 0 0

**SOUTHEND-ON-SEA.**

For alterations and additions and external painting of London Road school. Messrs. CABUCHE & HAYWARD architects, Westcliff.

*Alterations and additions.*

Whur	£701 10 0
Davey	670 0 0
Flaxman	635 0 0
Elvy & Son	626 0 0
Davey	622 0 0
Garon & Son	612 0 0
JAY & Co., Southend ( <i>accepted</i> )	585 0 0

*Painting.*

PAWLEY & BECKWITH, Southend (*accepted*) . 75 0 0

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WALTHAMSTOW.

rebuilding and enlargement of the Markhouse Road schools. Mr. H. PROSSER, architect. Quantities by G. T. G. WRIGHT.

linter	£13,250	0	0
ymes	12,300	0	0
atman & Fotheringham	12,271	0	0
ood	11,933	0	0
ean	11,610	0	0
addison	11,410	0	0
rand, Pettit & Co.	11,060	0	0
owley Bros.	10,981	0	0
oxhead	10,977	0	0
arris	10,844	0	0
ammond & Son	10,597	0	0
& E. EVANS, Peckham (accepted)	10,459	0	0

TRADE NOTES.

Bath Stone Firms have supplied the Whitbed Port-stone used in the London and Provincial Bank at rich, of which the architect is Mr. T. W. Cotman and builder Mr. Fred Bennett, both of Ipswich.

THE Newellite Glass Tile Co., of Shenton Street, Old Kent d, have obtained the contract for the tiling at Messrs. and & Wolff's new premises at Southampton, for h the Waring-White Building Co. are the contractors.

A LARGE clock with Westminster chimes has just been ted in Casterton Church, Yorkshire, by Messrs. John h & Sons, Midland Clock Works, Derby. It is fitted all the latest improvements, and is generally to the gns of the late Lord Grimthorpe. The same firm are now making a large clock for Windermere and one for ish Town, London.

MESSRS. WM. POTTS & SONS, LTD., clock-makers, of Leeds Newcastle, have received instructions from the Countess ount-Edgcombe to erect a new clock with chimes and external dials at Lamesley parish church. They have just completed new clocks at North Bovey Church, near ton Abbot, and Kingley Stoneclough, near Manchester, are now erecting the memorial clock to the late Earl of brook at Low Moor, Bradford, Yorks.

TILE MANTLES.

MESSRS. GEO. WOOLLISCROFT & SON, LTD., of Hanley, Staffs, the old-established firm in the tile industry, are now introducing slabbed-tile mantels to suit their numerous patterns of tile-surrounds. The appearance is very effective. They are being produced in rich plain enamel



glazes, in mottle effects and in numerous styles of relief and decoration to harmonise with the interior tiles, and raised bevel panels in a plain enamel glaze to blend with the colouring of the background and giving the mantel a bold and impressive appearance. All returns are carried on the tiles themselves, which will at once appear a distinct advantage over small corner beads, obviating all the difficulties that used to be associated with them. "Grip"-back tiles are used throughout these fireplaces, making it impossible for the tiles to come away from the cement. The surround is slabbed in one piece, as also is the mantel and the shelf, the former being soffited into the latter when fixed into position. The mantels are made to overlap the surround 3/4-inch and with a face projection of 1 1/4-inch. This new departure will doubtless be welcomed by architects, builders and the general public alike, as these tile mantels give a completeness and unity to a fireplace that is

distinctly pleasing. The block shown represents another new line that this firm are introducing; it consists of a slabbed-tile panel into which is flanged a faience shelf or hob, which will be found a great convenience for holding a teapot, or in the summer time a plant or flower vase. These hobs can be introduced in almost any pattern of panel and in colourings to match, and we think will commend themselves as a distinct novelty.

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132 GROSVENOR RD, PIMLICO.

**MANCHESTER:**  
TRAFFORD PARK.



**BUILDING AND BUILDERS.**

THE Court of Common Council have adopted a report from the Bridge House Estates committee asking for authority to accept the tender of Messrs. Beaumont & Sons at 4,948*l.* 7*s.* for repainting the Tower Bridge.

A DAUGHTER of a Leicester builder recently climbed a chimney 150 feet high which is being constructed at one of the Corporation reservoirs. She mounted the outside ladders, and, having reached the top, walked round the edge of the scaffolding platform. This is her second feat of the kind during the week. The builder challenges his daughter against any girl under eighteen for climbing high chimneys and steeples.

THE Cumberland education committee have accepted tenders for the erection of three schools, viz. Whitehaven secondary school, Messrs. Hughes & Stirling, Bootle, Liverpool, 10,416*l.*; Carlisle girls', Messrs. J. & R. Bell, Nelson Street, Carlisle, 11,629*l.*; Brampton, Mr. John Heward, Brampton, 2,920*l.* Messrs. Grayson & Ould, architects, Liverpool, have been asked to report upon plans for the Alston school, sent in by Messrs. Moffatt & Bentley, Whitehaven; Messrs. Oliver & Dodgshun, Carlisle; Mr. H. Higginson, Carlisle; and Mr. T. Taylor Scott, Carlisle.

MR. W. HEMINGWAY MILLS, M.I.C.E., the arbitrator appointed to assess the purchase money of the Waterford toll bridge, which is sought to be purchased by the Waterford Corporation, has made his award. It is practically a confirmation of the previous award of 63,000*l.*, but the arbitrator further awards the bridge proprietors 35*o*l. costs against the Corporation. As neither the Bridge Commissioners nor the Corporation are satisfied with the award an appeal is considered inevitable.

At the Leeds Assizes on the 25th ult., before Mr. Justice Grantham and a special jury, Mrs. Gourlay, of Harrogate, sought an injunction to restrain a builder, of Harrogate, from working a mortar mill on land near her house. For the plaintiff it was said the mortar mill was erected two or three years ago. It caused such a noise and vibration that she complained of the nuisance and for a time the defendant ceased to use it. In April 1905 the mill was again used and was stopped when the plaintiff complained. In November 1906, however, the mill was started again and it was worked until March. The plaintiff related how on one

occasion a clergyman called at her house about some in which they were mutually interested, and they were unable to continue their conversation on account of noise. She was unable to get any afternoon sleep on one occasion she had to stuff her ears with cotton wool on account of the noise. The jury found for the plaintiff and granted an injunction, with costs.

THE interlocutor has been issued in connection with a charge against a Glasgow firm of joiners for all the occupancy of a house belonging to them in Finnieston Street without a certificate from the Master of Works that it was fit for occupancy. At the Court the agents for the respondents argued that the Dean of Guild Court was a competent Court to deal with such a case, and that the actions of the Master of Works had been harsh and oppressive. The Fiscal, in reply, showed that the Dean of Guild Court had the power to administer their own law and the power to punish those who went against it. The Court repelled all the defences, and fined each of the respondents 1*l.* 1*s.* for every day the house had been occupied, 3*l.* 14*s.*, and the expenses of process as such may be by the auditor of the Sheriff Court of Lanarkshire. An appeal has been intimated.

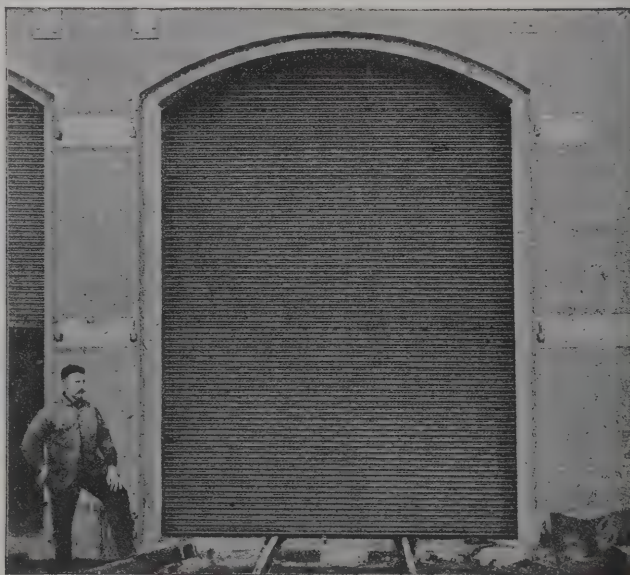
At the last meeting of the Lambeth Council it was reported that several contractors had evaded the clauses of their contracts by paying their workmen less than those scheduled in the contracts. It was decided to hold over some of the balances that were due to the contractors, and to issue the following public notice: "The Lambeth Borough Council has in its hands a sum of money forfeited to the Council under certain cartage contracts in respect of the breach of a condition of the contracts providing for the payment of a minimum wage of 1*s.* per day to all workmen engaged by the contractors for work for the Council. Notice is hereby given that the Council proposes to take into its consideration applications by any workmen employed in the Council's work by any of the contractors mentioned who may be able to prove that they were employed by either of such contractors for the Council and received less than the minimum wage of 1*s.* per day." It appears that the total amount which the Council had detained from various contractors amounted to about 1,000*l.*

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ILLUSTRATIONS.

ECCLIASTICAL COMMISSION BUILDING, GROSVENOR ROAD, WESTMINSTER.—DETAIL OF ENTRANCE.

TOLLARD ROYAL HOTEL, SOUTHAMPTON ROW, HOLBORN.

THE VICARAGE, EALING.

ETHELBURGA, EALING.

LONDON HOMOEOPATHIC HOSPITAL.

FEDERAL SERIES.—SOUTHWARK: THE NEW HARVARD CHAPEL.  
THE GOWER MONUMENT.

ELECTRIC NOTES.

The Corporation of Manchester have given notice that and after August 1 the Corporation will only connect to their electric mains consumers' installations which have been carried out by a firm approved and registered by the electricity committee. The names and addresses of all firms on the registered list may be obtained on application to the secretary of the electricity department.

The tramways committee of the Wolverhampton Town Council recommend that a tramway be constructed from Green Square via Worcester Street to Penn Fields, on the main system. Application is to be made to the Board of Trade for consent to any alteration to the original plan as to turnouts and other matters. Tenders are to be invited for the construction of the permanent way. The estimated cost is set down at 18,300l.

At the meeting of Edmundson's Electricity Corporation, Ltd., in London the Chairman said the Lancashire Power Construction Company, Ltd., which belonged to them, was the only company at present from which they got no return, but eventually he believed it would be one of the best, as there were plenty of openings in Lancashire for electrical enterprise. A great many towns were using more electricity for power than for lighting. The latter had been very much checked by the invention of the gas incandescent lamp, but a new mantle had been invented for the electric lamp which would practically treble its lighting power and reduce the cost.

At the West Hartlepool County Court, Judge O'Connor spent seven hours hearing a case in which the owner and occupier of a house and shop in Penrith Street, Hartlepool, claimed 75l. damages from the Northern Counties Electricity Supply Company. The plaintiff alleged that the noise and vibration from the power-house which the company had erected at the back of Penrith Street caused considerable annoyance, and also had damaged his premises. The Judge awarded 10l. for annoyance and nothing for structural damage. Other similar claims were adjourned.

EXPERIMENTS in methods of street lighting have been arranged by the public health department of the City of London for the purpose of proving the best form of street illumination. The City of London Electric Lighting Co. will demonstrate on the Holborn Viaduct by means of flame arc lamps, in Farringdon Street by enclosed arc lamps, and in Newgate Street by smaller arc lamps, the charges to be at the rate of 17l. 10s. each, instead of the existing charge of 26l. per lamp, and a considerable reduction for the smaller lamps. The Charing Cross, West End and City Electric Lighting Company will demonstrate in Cannon Street by means of centrally-hung flame arc lamps at a cost of 17l. 10s.

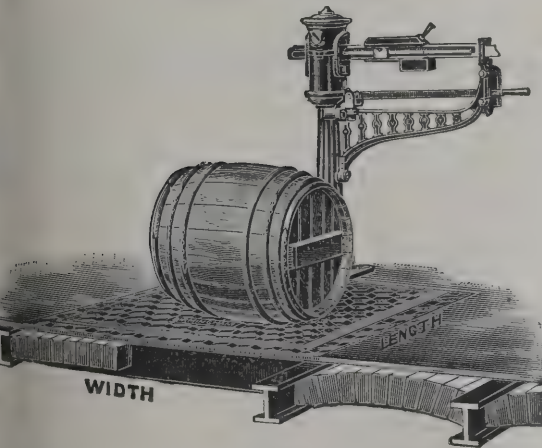
DR. A. W. BRIGHTMORE, an inspector of the Local Government Board, held an inquiry at the Manchester town hall recently into an application by the electricity committee of the Corporation for sanction to borrow 112,850l. for the purposes of the electricity undertaking. The loan was needed partly to provide new machinery at the Dickinson Street and Bloom Street stations, and also at the Stuart Street station, for purposes of economy. For these works 5,752l. was required. For mains a sum was required of 60,498l., for transforming plant at sub-stations on consumers' premises 32,000l., and for additional plant at the Corporation distributing stations 14,600l., making up the total to 112,850l.

THE Rawtenstall Town Council have decided to apply to the Local Government Board for power to borrow 29,000l. for providing an electricity generating station at Hareholme, and the mains and equipment for a general electricity supply for the borough, including a supply for tramway purposes. Messrs. Lacey, Sillar & Leigh, electrical engineers, have been asked to prepare the necessary plans



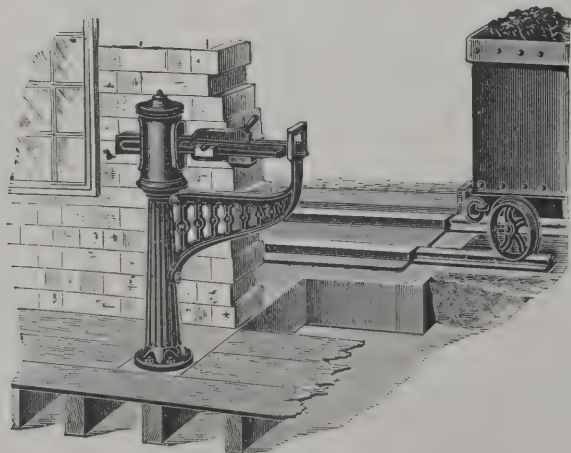
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and estimates of the cost. It has also been decided to offer a certain price to the Rossendale Valley Tramways Company for their undertaking, which is to be electrified by the Rawtenstall Corporation. The Corporation has declined to fall in with a proposal from the Bacup Corporation that the three boroughs of Bacup, Rawtenstall and Haslingden should combine in purchasing electricity in bulk from a private company.

THE London County Council adopted last week the proposal of the highways committee that as an experiment the tramways between Aldgate and Bow be reconstructed on the "G. B." system of surface contact electric traction. In the committee's report it was pointed out that owing to special difficulties on the part of this route its electrification on the conduit system would entail a very heavy expenditure, while the Stepney Borough Council had opposed a proposal to reconstruct a portion of the line on the overhead system. It was calculated that the total cost of the trackwork of the whole length of about six miles of line would be about 66,000*l.*, or 11,000*l.* a mile of single track, compared with about 19,000*l.* a mile single track which it was estimated would be involved by the adoption on this particular route of the conduit system.

An electric-power installation of interest to all power users has been completed at the Cambrian Collieries, situated in Clydach Vale, South Wales. About three years ago the management of the three mines owned by the company, employing about 3,500 men, producing a million tons of coal per annum, resolved upon an experimental installation of electricity for working haulages, coal-cutting machinery, pumps and other underground purposes. The experiment proving satisfactory, the company decided to have a complete installation practically for all purposes, and to erect a power station for the production of their own current. Tenders were invited, and the result was that Messrs. Siemens Brothers, Dynamo Works, Ltd., London and Stafford, secured the contract, and the work is now completed. In the engine-room space is provided for three generating sets. At present the generating plant consists of two Siemens-Belliss and Morcom sets.

MR. A. G. DRURY, on behalf of the Local Government Board, held an inquiry at Wolverhampton on the 23rd ult.

with regard to an application by the Town Council to sanction to borrow 35,000*l.* for their electricity undertaking. The town clerk said the money was required to extend the generating station, erect new boilers, put in plant and extend the mains. The Town Council entered into a contract to supply Messrs. Bayliss, Jones & Bayliss with electricity to be used at their works at more Green. This will involve an expenditure of 16,000*l.* on generating plant. In addition, the Corporation will have to cope with the general increased demand for electricity is proposed to provide four more boilers—the boiler will have to be enlarged—and four more generating with a capacity of 4,000 kilowatts, and water-tube boiler with an evaporative capacity of 20,000 lbs. per hour. electricity will be transmitted to Messrs. Bayliss, Jones & Bayliss's works, where it will be transformed. The clerk asked that the repayment of the loan should be on the longest possible terms.

#### VARIETIES.

MR. ROBERT MORRISON, builder, of Wavertree, Liverpool, senior partner of the firm of Messrs. Morrison & Sons, died June 10, intestate, aged sixty-two, left estate valued at 60,285*l.* gross, with net personalty 48,219*l.*

THE Coventry education committee have decided to purchase land at a cost of 2,500*l.* for extension of technical institute, and the city engineer was instructed to prepare plans for the proposed extension. It was decided to recommend the Council to build a new elementary school at Leicester Causeway, at an estimated cost of 18,000*l.*

WE have received a copy of "Where to Stay and What to See," published by Mr. Walter Hill, of 67 and 69 Southampton Row, London, W.C. An almost exhaustive list is given of seaside, farmhouse and country lodge hotels and boarding-houses, in the districts served by Midland, London and North-Western, Great Central, Great Northern, Great Eastern and Great Western railways. The work is well printed and illustrated, and can be obtained for the modest sum of 1*s.* at any of the railway stations, or from the companies mentioned, or from the publisher by post for 6*d.* extra.

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A PUBLIC meeting has been held at Rusholme, Manchester, to further the movement for the preservation of the fields as an open space. A resolution was passed unanimously in favour of asking the Corporation to buy the land for public use. The opinion of all who spoke was that it would be deplorable if the estate, with its fine trees, were allowed to go to the speculative builder.

A PETITION, with accompanying plans, was presented in Milton Dean of Guild Court last week for the erection of a hippodrome at the corner of Townhead Street and Lowwick Street. The plans were submitted by Mr. E. H. Lock, the Zoo, Glasgow. There is a large auditorium gallery, with a full-sized stage. The accommodation is 1,350, and the estimated cost is about 5,000*l*. The plans were found to be all in order, but before formally passing a week's continuation was agreed to to permit of the City Commissioners holding a special meeting to consider as to a probable street improvement at the site.

THE Old Bailey site was put up for auction at the Mart, Cannonhouse Yard, on Monday by Messrs. Jones, Lang & Co. to be let on a building lease for ninety-nine years. The land was offered in three lots. Lot 1, having an area of 709 feet, started at 500*l*. It rose by 100*l*. bids to 700*l*, it was knocked down at an annual rental of 800*l*. Lot 2, with an area of 5,062 feet, commenced at 500*l*, and rose by bids of 50*l*., 25*l*., 10*l*. and 5*l*. to 650*l*., being knocked down at the latter figure. Lot 3 contained an area of 314 feet, and on this portion of the site the auctioneer announced that a part of Old London Wall still stands. No bid higher than 625*l*. was forthcoming, and the lot was withdrawn.

QUARRYING at the Abbey Craig, Stirling, was stopped by an agitation against the taking of rock from the quarry, which, it was stated, was disfiguring the effect of the Wallace Monument. The Secretary for Scotland has now refused the request to reopen the quarry on condition that quarrying is confined to certain parts indicated on a plan, that the metal taken from the quarry be used for road purposes on the north side of the Forth only; that no metal be used and that the operations be conducted without the use of smoky or noisy engines or machinery.

"Moods of a City Square" forms the subject of a remarkably well-illustrated article in *Harper's Magazine* for this month. It relates to Madison Square, which is in the centre of the hurry of New York and bordering on its strongest current, and forms a little oasis of repose and philosophy that bears the charm and distinction of a glory that has passed, and although it is a place of memories it is still lives, while it has a future that promises to be in a different way as brilliant as its past.

A SUCCESSFUL sale of freehold land, consisting of quarter-acre to acre sites, suitable for the erection of bungalows and bijou residences, was held in a marquee on the Kent Park estate, Margate, on Monday last by Messrs. Payne, Trapps & Co., who took down from London a large and respectable company of buyers and others, who were well entertained to a substantial luncheon, and the greater portion of the fifty-five plots offered changed hand at satisfactory prices, the total amount realised being nearly 1,200*l*.

THE executive committee of the Scottish National Exhibition meeting in Edinburgh appointed Mr. Freeman, C.E., who had been assistant engineer at the Glasgow Exhibition and engineer at the Wolverhampton Exhibition, to be engineer; and Mr. A. Hay and Mr. J. D. Gibson to be surveyors for the building. It was reported that the building plans would be immediately placed in the hands of the surveyors; that it was hoped that in three weeks schedules would be in the hands of contractors, and that a beginning might be made with the construction of the exhibition buildings early in September. It was explained that the exhibition buildings in 1886 were not begun until the middle of October.

THE proposed erection of the French Exhibition and Canadian buildings will make Aldwych one of the most important architectural thoroughfares in London. The Waldorf and Aldwych theatres are already in existence, and the Waldorf Hotel is rapidly approaching completion. With regard to the latter the beauty of the fine elevation, which owes its design to Mr. A. Marshall Mackenzie, the architect, is now in striking evidence. The building has been carried out by the Waring-White Building Co. with remarkable speed and efficiency; the interior decorations, by Waring & Gillow, are well advanced, and two or three

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months will see this noble hotel equipped and ready for the admission of guests. Thus the projected new buildings when erected will complete an almost unique group of fine public edifices.

THE finance committee of Paddington Borough Council, in a report issued on Saturday, refer to the increasing number of empty properties in the borough—mainly ascribed to motor-omnibus traffic nuisances—and the consequent heavy loss to local rates. The increase in the loss of rates from "empties" during the quarter ending June 30 last, as compared with the corresponding period 1906, is 14.4 per cent. The total loss on 1,577 separate premises in the last quarter is 7,004 $\frac{1}{2}$ ., against 6,120 $\frac{1}{2}$ . in the June quarter of 1906, in respect of 1,357 premises. The legal committee, reporting on the interview of representatives of metropolitan, city and borough councils with Sir E. Henry, at Scotland Yard on the 22nd ult., concerning the alleged nuisances and damage caused by motor traffic, mention that the Commissioner of Police agreed that where there was motor traffic there was depreciation of property, but he could not hold out much hope that anything he could do would remove the noise.

In the annual report on factories and workshops for 1906 the inspector for Edinburgh (Mr. Newlands) writes:—I had some experience in this district from 1896 to 1899, and on comparison with conditions, found their development is marked. Possibly that in the hosiery trade is the most conspicuous. The increase in the number of factories, size and improvement of machinery is remarkable. Electricity or suction-gas plant is here as elsewhere displacing as motive-power the more cumbersome and expensive steam, even in places where the power consumed is high. The speed of the drive in all kinds of machinery has increased. This is possibly more noticeable in printing machinery than any other class. As an example of the strides being made in this trade I would mention one machine seen recently which does away with the three different printings in the three-colour process.

A CASE was concluded at Bristol on the 25th ult. before Judge Castle and a special jury, in which a nurseryman sued the Bristol Tramway Company for damages for injury to plants alleged to result from the company's use of

creosoted blocks for road paving on the roadway along his nursery. The question raised was one not hitherto at law, and the hearing of the evidence occupied two days. The jury found that the injury to the plants was caused by the wood paving. To the question, Was it reasonable and necessary for the tramway company to repave the road in the way and at the time they did, the jury said "Yes." The question being decided on the knowledge of the tramway company at the time, "No," in the light of the evidence given. The jury also found that it was not absolutely necessary for the tramway company to use creosoted blocks. Judgment was given for the plaintiff and an appeal was granted.

THE medical officer to the Liverpool Corporation made a report to the housing committee recommending that several courts, alleys and premises in Porter Street, Denison Street and Newsham Street, being unfit for habitation, ought to be demolished. The housing committee, reporting on the proposed acquisition of Nos. 30 Saltney Street and the courts adjoining for the erection of workmen's dwellings, recommend that an application be made to the Local Government Board for a provision order under the Housing of the Working Classes Act, for acquiring these sites. The finance committee will now prove of the same on financial grounds. The Corporation surveyor reports that it is possible on this area to provide dwellings suitable for housing the dispossessed, providing for twenty-four three-roomed dwellings and twenty-two two-roomed dwellings, and he estimates the cost of acquiring the land and erecting the houses at 15,005 $\frac{1}{2}$ .. He estimates that the income to be derived from these dwellings at the present standard of rents is 447 $\frac{1}{2}$  4s. per annum, less outgoings 45 per cent. 201 $\frac{1}{2}$  4s., leaving a net income of 246 $\frac{1}{2}$  4s. per annum, or equal to a return of 17. 12s. 9d. per cent.

THE new town hall at Leigh was recently opened. The site contains 1,882 square yards, and has frontage to the Market Place, Market Street and Newton Street. The ground-floor frontage to Market Street is occupied by shops with basements. The main entrance is in the centre of the Market Place front by a projecting portico supported by columns and carved caps, carrying a moulded frieze and cornice surmounted by a circular pediment, showing the borough's coat-of-arms. The entrance hall is 45 feet

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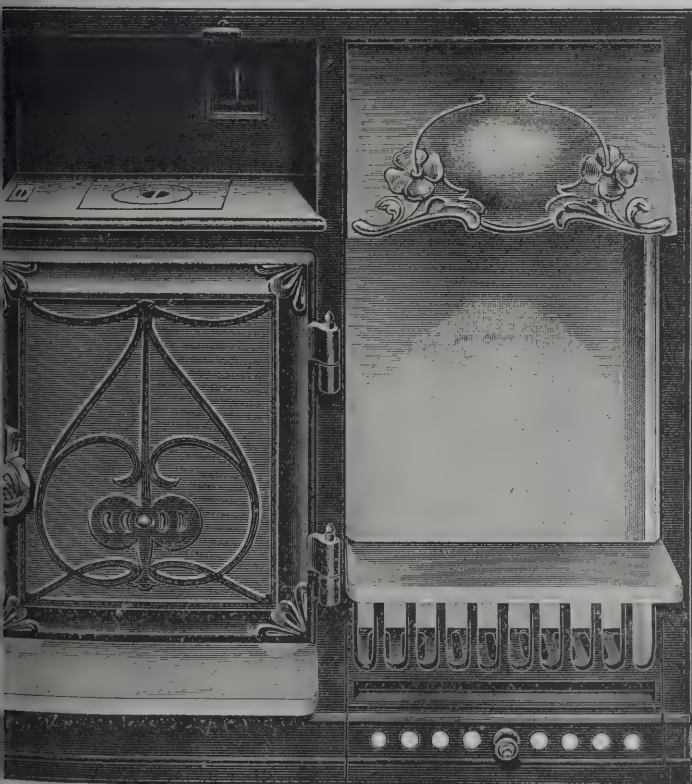
122 feet wide. The council chamber and two committees occupy the whole first-floor frontage to the Market place, and are divided by large removable doors. The two fronts to Market Street and the Market Place are in grey Dale stone. The building is designed in Late Renaissance style, and is surmounted by a large turret with a flagstaff. Mr. J. C. Kestwich, of Leigh, was the architect, and Messrs. R. Neill & Sons, of Manchester, were the builders. The total cost of the buildings, including furnishing and decorating, is about 30,000*l.*, or including the cost of the land, 40,000*l.*

A STATEMENT has been published by the London County Council relating to the debts of those towns of the United Kingdom with a population of over 250,000. The rateable value of London per head of population is 8.89*l.*, and this is only approached by Edinburgh, with 8.25*l.* per head, the next being Dublin, with 2.06*l.* per head. London's debt is given as 109,928,546*l.* Manchester has a debt of 21,000*l.*, Glasgow 17,584,000*l.*, Birmingham 16,986,000*l.*, Liverpool 14,870,000*l.* and Leeds 12,277,000*l.* The total debt per head of population is in London 23*l.* 9*s.* 3*d.*, but this high figure is exceeded by Manchester with 35*l.* 13*s.* 6*d.*, Birmingham with 31*l.* 5*s.* 8*d.*, Bradford with 28*l.* 15*s.* 10*d.* Leeds with 26*l.* 17*s.* 8*d.* Whereas less than half of the debt of London is stated to be remunerative debt, that is, that of undertakings established on the assumption that the revenues therefrom would wholly or partially meet the outgoings, the "remunerative debt" of Manchester, Birmingham and Bradford is more than two-thirds of the whole, only in the case of Leeds is the "unremunerative debt" more than that of London on the basis of population.

THE Board of Water Supply of New York City has opened bids before August 6 on the largest single contract ever undertaken by an American city, except that for construction of the first New York subway. It is for building the great masonry and earth dams of the Ashokan Reservoir in the Catskill Mountains. The principal items in the engineer's estimate of the work are as follows:—Moving steel pipes when directed; control of stream flow, Olive Bridge dam; control of stream flow, middle dam; 2,055,000 cubic yards earth excavation; 425,000 cubic yards rock excavation; 7,055,000 cubic yards refilling and embanking; 210,000 cubic yards soil for surface dress-

ing; 1,100,000 barrels Portland cement; 280,000 cubic yards concrete masonry; 530,000 cubic yards cyclopean masonry; 64,000 cubic yards concrete blocks; 125,000 square feet face dressing for concrete; 95,000 cubic yards dry rubble paving; 929,000 lbs. cast and wrought-iron, steel and bronze; caring for and setting 900,000 lbs. of metalwork furnished by the city; 200 acres clearing; 11,500 linear feet vitrified pipes not exceeding 10 inches in diameter; 10,000 linear feet vitrified pipes more than 10 inches and not exceeding 18 inches in diameter. Time allowed for the completion of the work is 84 months from the date of service of notice by the Board to begin work.

THE Board of Directors of the Manchester Chamber of Commerce have decided, at the suggestion of a joint meeting of the members of the Chemical and Engineering Sections, to place the following resolution on the agenda paper for adoption by the Association of Chambers of Commerce at the annual meeting to be held in Liverpool:—"That in view of the strenuousness of the competition between this and other leading industrial nations engaged in productive processes, it is, in the opinion of this Association, most desirable that all users of fuel, whether for power-raising purposes or for manufacturing processes, should adopt means whereby the heat-raising properties of the fuel consumed should be made use of to the highest possible percentage. This Association would respectfully urge British manufacturers to avail themselves of the most effective appliances for economising the use of fuel and for reducing the output of black smoke—taking expert advice in these matters where necessary. Incidentally—but as a most desirable consummation—this would have the effect of greatly improving the atmospheric conditions of our manufacturing centres, and would tend to reduce the friction which is apt to arise between local authorities and manufacturers where insufficient care is given to the subject of economy in fuel. The Association further believe it to be essential that the Government should press upon the various local authorities of the country that they should adopt a uniform basis of regulation with regard to the amount of black smoke allowed to issue from manufactories; and the executive of the Association is hereby requested to bring this matter before the proper Government department."



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THE Continuous Transit Securities Company of New York have applied for a privilege to build a subway under Broadway from Fourteenth to Forty-second Streets, and equip it with a continuous train or moving-platform railway. The company declares that moving-platform railways would offer the most effective solution for the transportation problems such as exist on many crowded thoroughfares in New York and on the bridges to Brooklyn. The moving platform would require a right of way of only 35 feet, although its capacity would be twice as large as a four-track subway. The proposed platform would afford a seating capacity exceeding 47,000 passengers an hour in each direction. This is three times the seating capacity of a train system operating five-car local trains upon one-minute headway, and practically six times the seating capacity of a system of surface cars operating upon 150-foot headway. The applicants declare that there is practically no danger of accidents from falls on the moving platforms. The matter is under consideration.

### SAFE WOOD-WORKING PLANT.

UNDER the terms of the new Act owners are liable to heavy penalties for accidents incurred by their workpeople. This responsibility will doubtless induce the prudent employer of labour to provide every possible safeguard against risks of this nature, and has induced Messrs. Glover & Co., Leeds, to give prominence to the useful and effective contrivance illustrated in Fig. 1, showing the plant with "Ideal" guard attached, which is designed to fit saws of various diameters, while at the same time not interfering with the work in progress. This is accomplished without detracting in any way from the efficacy of the guard, which gives protection all ways; neither does it obstruct the light nor interfere with the correctness of sawing. Some guards appear only able to "box in" the saw when not being used. The "Ideal," however, claims to give the greatest possible satisfaction when working, while it allows sawing as deep as the saw will cut. From the illustration it will be seen that the sliding hood protects the front of the saw as far down as the wood being cut will allow, thus saving hands and fingers. Its angle section

makes it very rigid, and it cannot spring off by any pressure against it, nor can it be shaken off by vibration. The guard is adjusted for various diameters of saws by means of a bracket and carrying block and the horizontal shaft. The block, working on an upright shaft, also enables the guard to be swung aside, in case of sharpening in the bench when changing saws. The back of the saw is protected by a long-thin-curved-circularly adjustable hinged steel blade

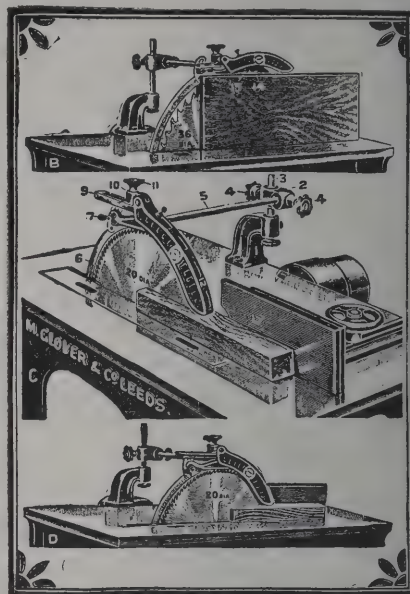


FIG. 1.

held firmly at one end under the bench top by an adjustable bracket and bolt. There is a fork-hinged tailpiece in large sizes whereby the hinged blades are kept linable with the saw and rigid sideways. If preferred, for long saws a special rear guard may be arranged to lift out of place the wood, when it forms a safety "dog." A small hand wheel is used for fixing the block with the hood in

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desired position. These are a few details of the apparatus which will serve to show how thoroughly and carefully the general arrangement has been carried out. Various styles of cutter blocks are supplied, as may be preferred, and if desired guards can be supported from above or at the side, leaving the top of the bench quite free.

Another excellent specialty which is calculated to absolutely prevent the possibility of such serious accidents and complications for which planing machines are responsible deserves notice. The "Hand Planer" is a most valuable machine, and would be still much more valuable except for the danger of using it even when fitted with the best guard. The usual practice has been for makers to supply the cutter blocks, upon the flat surface of which the work is done. The illustration (Fig. 2) will help to explain the design. Thus it will be seen that as the knife

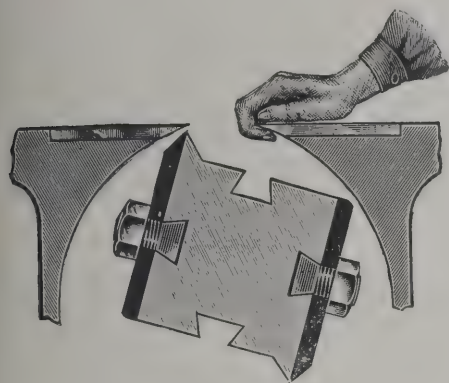


FIG. 2.

has to just revolve above the table the other parts of the cutter-block spindle are by necessity left to revolve considerably underneath the table top, so that the bolts may catch the wood being planed. Then, again, the other sides of the square cutter block, not being utilised, are revolving still further away from the table top. Thus, the revolving square cutter block presents such an uneven surface, it would seem to be the most cruel and dangerous

engine for damage that could well be constructed, for it simply knows no mercy when it once commences to draw into its clutches the fingers of a man's hand; but not so with the patent "Ideal" safety circular cutter block, as illustrated in Fig. 3. It will at once be evident to our readers that in this circular arrangement it is practically impossible for any person to incur much damage, even if by accident the hand slips upon the round cutter block, for

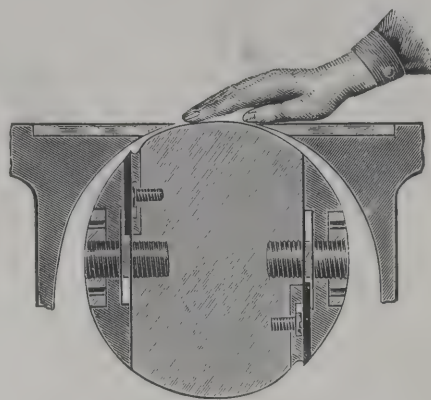


FIG. 3.

it provides its own guard which revolves with it, and which renders it impossible for the hand or any fingers to become chopped off or seriously damaged, because the limbs are not permitted to become trapped or ensnared by any low places or gaps such as are inherent in square cutter blocks, as shown in Fig. 2, and hence it is with pleasure we call attention to this most humane and important departure. For the sake of safety alone it is worthy the consideration of everyone employing hand-planing and moulding machines, but there are several other distinct advantages which may be mentioned. First, as thin steel strips are only necessary as knives, it will at once be seen that a great saving in steel and expense is effected. Second, as perfect pressure is brought to bear right up to the

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cutting edge, these are found to cut sweeter and with a much better finish. Third, these thin knives are much more quickly and easily sharpened, and are less liable to become unequally balanced. Fourth, we may point out that an extra knife is provided (and which is adjustable) immediately underneath the cutting edge of the planer knife, and which serves as the back iron in an ordinary hand plane, and most perfect planing of soft or hard wood is secured. Fifth, it will be readily understood that the patent circular cutter block is run with much less power, because there is offered no resistance to the air, but not so with the square form of cutter block, which makes a great humming noise and disturbance and unpleasant vibration. Sixth, it is astonishing to notice what heavy cuts can be taken with perfect ease, such as would be a most dangerous proceeding with the ordinary square cutter block.

### BUILDING DISPUTE AT HINDHEAD.

THIS was an action brought by Messrs. Jones Bros., builders, of Chelsea, against the Misses A. and M. Bilton, to recover the sum of 141*l.* 10*s.* balance of contract and extras for building a pair of semi-detached cottages at Hindhead. Mr. Ruegg, K.C., appeared for the plaintiffs, and Mr. J. Samuel Green, K.C., and Mr. Johnson for the defendants.

The plaintiffs claimed the sum of 100*l.* balance of contract and 41*l.* 10*s.* extras, of which sum 22*l.* was paid into Court, leaving 119*l.* 10*s.* in dispute.

The specification and contract provided that the buildings should be erected to the requirements of the Rural District Council and to the satisfaction of the defendants, and that the contract sum should be paid in instalments, the sixth instalment of 50*l.* to be paid when the houses were entirely finished, all town charges paid and the houses ready for occupation, and the balance of 50*l.* three months after completion.

The defendants pleaded that the buildings were not completed in accordance with the specification, nor to the requirements of the Rural District Council; that they were not liable for the sum of 19*l.* 10*s.* claimed as extras, and counterclaimed for the sum of 78*l.* 15*s.* for omitted works

and 86*l.* 5*s.* for work and materials of inferior description and quality, and not in accordance with the specification and 16*l.* for loss of rent, owing to the buildings not completed within contract time.

Mr. Bushell, surveyor, Mr. A. Brown, architect, Mr. F. A. Dodd, surveyor, gave evidence for the plaintiffs.

Mr. Frederic W. Hingston, architect and surveyor, Portland House, Basinghall Street, E.C., gave evidence in support of the defence and counterclaim, as to the original work and the inferior description of the materials and labour in the buildings, and Mr. Edmund J. Harcourt, architect, of 9 Gray's Inn Square, W.C., gave corroborative evidence.

After a hearing lasting over four and a half days before the Official Referee, judgment was delivered on Saturday last.

The Official Referee held that the buildings were completed in accordance with the specification and contract at the time the action was commenced, and therefore the plaintiffs could not recover the balance of their contract. As regards the sum of 19*l.* 10*s.* claimed as extras, he held there was no specific or implied contract by the defendants to pay the charges making up this amount. Judgment was therefore given for the defendants on all points, with costs of the action and counterclaim.

### SCOTTISH NATIONAL EXHIBITION.

Good progress is reported in connection with the arrangements for the Scottish National Exhibition which is to be held next year in Edinburgh. The plans have been accepted subject to any alteration required, and work on the grounds and buildings will be commenced within the next few days.

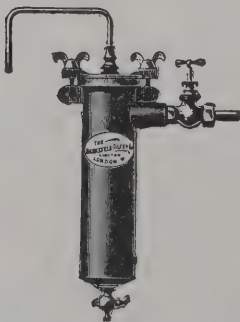
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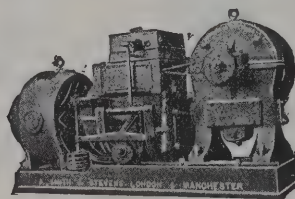
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Any further information can be obtained on application to the manager, Mr. W. H. Knight, 45 York Place, Edinburgh.

### ALSTON COTTAGE HOSPITAL.

A memorial-stone of the Ruth Lancaster James cottage hospital, which is being erected in the Townhead Field, Alston, through the munificent gift of 5,000l. from the late James, of Beaconsfield, Liverpool, has been laid. The plans were prepared about eighteen months ago by Mr. T. Scott, of Carlisle, but some little delay occurred in the selection and arranging of the site and other incidental matters, and it was not until September last year that contracts were signed for the erection of the building and the work commenced. Tenders were received for the various parts from contractors in the three northern counties, and the selected are as follows, viz.:—Mr. Joseph Birkett, Alston; Messrs. Thomas Charlton & Sons, Alston; Messrs. Northumberland; Mr. John Hewitson, slater, Newcastle and Carlisle; Mr. Joseph H. Henderson, plumber and sanitary work, Alston; Messrs. R. M. Ormerod & Son, Alston; Messrs. R. M. Hill & Sons, painters and decorators, Carlisle. The plans are arranged for the male and female sections being isolated, but both with equal facilities of access to the working parts and administrative block. A covered verandah and airing ground will form a centre feature giving access to the main vestibule and hall, and this latter direct to the administrative block. On the west side of the ward is being erected, with nurses' rooms adjoining, a provision for supervision. A sanitary wing is

erected at the north end of this ward, with proper "cut-off" vestibule and divided into compartments, each to contain all the latest and best sanitary arrangements. Towards the east end of the site a female wing is being erected, with ward and other arrangements similar to those on the male side of the buildings. Adjoining this wing will be the operating-room, with easy communication with the main entrance. The administrative block is a large wing on the north side of the site, and will contain all the rooms and appliances found in a well organised modern hospital. One end is devoted to drug and other stores and bath-room accommodation for the hospital. The matron and nurses' bedrooms, also large box and storage-rooms, will be arranged on the top floor of the building. It is being erected with white stone, a large quantity of dressed material from the Prudham quarries in Northumberland being freely used, and stone for the rock-faced walling has been brought from Nattrass Gill.

### LIVERPOOL WATER SUPPLY.

THE total volume of water delivered from the works of the Corporation during 1906, including statutory compensation waters to rivers in Lancashire and Montgomeryshire was, in gallons, 17,777,440,000; in cubic feet, 2,848,948,000; and in tons, 76,364,000. The consumption of water within and around the city amounted to 9,643,087,000 gallons, as compared with 9,854,442,000 gallons in 1905; and the quantity supplied outside of the Liverpool compulsory district was 186,580,000 gallons against 189,130,000 gallons to Chorley, and 971,379,000 gallons against 781,822,000 gallons to other localities. The total figures were thus 10,801,046,000 gallons against 10,825,394,000 gallons, the sources of supply being Vyrnwy, 5,759,995,000 gallons; Rivington, 3,785,644,000 gallons; and wells, 1,216,461,000 gallons, together with 38,946,000 gallons of salt water. The total number of fires in the city and suburbs, for the extinguishment of which water was used from street hydrants, was 145. The additional number of new houses and other new premises supplied with water in the Liverpool district during the year was 3,463. The number of houses pulled down, or from which water was withdrawn,

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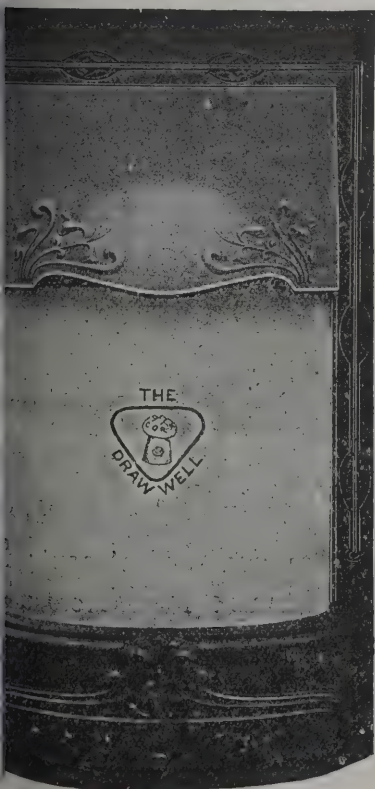
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was 975, leaving a net number of 2,488 additional water tenants. The total number of tenants on the rent roll of the water account at the end of the year was 195,535. The total length of additional distributing and fire mains laid was 73 miles, and the number of new hydrants fixed was 341, as well as four others which were substituted for fire plugs. The total number of fire hydrants in the compulsory area is now 11,646. There are also still remaining 824 of the old-fashioned fire plugs, which are being gradually replaced.

#### ADVERTISEMENTS ON HOARDINGS.

THE Building Act committee of the London County Council report that they have had under consideration the proposals contained in the Advertisements Regulation Bill which has been introduced into Parliament in the present session. The object of the Bill is to authorise local authorities to make by-laws for the regulation and control of hoardings used for advertising purposes, and also for the regulation of advertisements. The committee are of opinion that it should be made clear in the Bill that the Council's powers under section 22 (as to lines of building frontage) and other sections of the London Building Act, 1894, or under any other Acts are not to be affected by any by-laws made in accordance with clause 2 of the Bill. So far as London is concerned the powers intended to be conferred by the Bill may clash with the powers as to hoardings, particularly those powers given by section 84 of the London Building Act, 1894, now administered by the metropolitan borough councils; and further there is no express provision as to who is to enforce the by-laws when made by the Council. It is to be inferred that the administration of the by-laws is to be vested in the local authority under the Bill, *i.e.* the Council. If this be the case inconvenience may arise owing to the dual control of hoardings thus set up, and the committee suggest that this might be obviated were the administration of the by-laws, when made by the Council, vested in the metropolitan borough councils. They have sent an intimation to this effect to the Parliamentary committee, and have also drawn that committee's attention to the existing laws relating to hoardings. They recommend that the Parliamentary committee do endeavour to obtain the insertion

in the Advertisements Regulation Bill, 1907, of provision to the effect (i.) That the Council's powers under section 22 and other sections of the London Building Act, 1894, under any other Acts, shall not be affected by any by-laws made in accordance with clause 2 of the Bill; and (ii.) that the administration of the by-laws, when made by the Council, shall be vested in the metropolitan borough councils.

#### SCALE IN BOILERS.

DURING some years experiments have been undertaken at the engineering experiment station of the University of Illinois to determine the effect of scale on the transmission of heat through locomotive boiler tubes. It has been reported in a report of the American Railway Master Mechanics' Association that the effect was an average increase in the consumption of coal. The result of the Illinois experiments is stated as follows:—

From the point of view of the physicist the experiments are open to objection as to method. From the engineering viewpoint it is believed that the possible errors of the experiments do not by any means account for an irregularity in the plotted results, and, considering the controversy upon this subject and the comparatively meagre information available, it is deemed proper to publish at this time the results as they stand, in the hope that they will elicit additional information which may be of interest in some quarters. Conclusions:—

In so far as generalisation is warranted we may summarise the results of the tests in the following conclusions:—

1. Considering scale of ordinary thickness, say of thicknesses varying up to  $\frac{1}{8}$  inch, the loss in heat transmission due to scale may vary in individual cases from insignificant amounts to as much as 10 or 12 per cent.
2. The loss increases somewhat with the thickness of the scale.
3. The mechanical structure of the scale is of as much or more importance than the thickness in producing loss.
4. Chemical composition, except in so far as it affects the structure of the scale, has no direct influence on the heat-transmitting qualities.

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THE

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**NOTICE TO ADVERTISERS.**

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

**COMPETITION OPEN.**

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

**CONTRACTS OPEN.**

ALVASCOT.—For erection of a small residence. Messrs. Smiths & Marshall, surveyors, Chippenham, Wilts.

ANNFIELD PLAIN.—Aug. 17.—For erection and completion of new hall, &c., at Dipton Branch, for the Annfield Plain Industrial Co-operative Society, Ltd. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

ASHFORD.—Aug. 29.—For construction of a public convenience under the Assembly Rooms, High Street. Mr. William Terrill, surveyor, Ashford, Kent.

BALBY-WITH-HEXTHORPE.—Aug. 19.—For erection of a school at Balby-with-Hexthorpe, near Doncaster. Deposit 1l. Mr. F. W. Masters, architect, St. Vincent, Doncaster.

BARNSELY.—Aug. 13.—For the whole or separate trades for the erection of a high school for girls on a site in Huddersfield Road. Deposit 2l. 2s. Messrs. Buckland & Haywood-Farmer, architects, Norwich Union Chambers, Congreve Street, Birmingham.

BELFAST.—Aug. 13.—For making a strong-room, erecting a circular stair, heating clothing stores, and carrying-out alterations at the clerk's offices, workhouse, for the Guardians. Messrs. Young & Mackenzie, architects and engineers, Belfast.

COALPIT HEATH.—For additions and improvements to Coalpit Heath parish church, near Bristol. Messrs. Lingen Barker, Son & Ellis, architects, 3 Unity Street, Bristol.

COMPSTALL.—Aug. 21.—For alterations and additions to the elementary school buildings. Deposit 1l. Mr. H. Beswick, county architect, Newgate Street, Chester.

COVENTRY.—Aug. 21.—For works required to be executed and material supplied in connection with certain repairs, painting, &c., to St. Mary's Hall (Contract No. 2). Deposit 1l. 1s. Mr. J. E. Swindlehurst, city engineer and surveyor, St. Mary's Hall, Coventry.

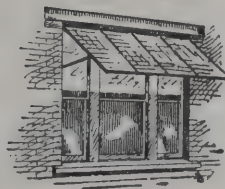
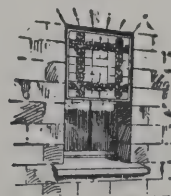
COWESBY.—Aug. 12.—For alterations and additions to farm buildings. Messrs. Jackson & Fox, architects, 7 Rawson Street, Halifax.

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EDMONDSLEY.—Aug. 30.—For alterations and improvements at the Council-school. The County Education Committee's architect, Shire Hall, Durham.

HALIFAX.—Aug. 14.—For the erection of a dwelling-house opposite Oldtown bowling-green, near Hebden Bridge. Mr. Thos. Kershaw, architect, Lancashire and Yorkshire Bank Chambers, Halifax.

HIGH HARRINGTON.—Aug. 10.—For erection and completion of seven dwelling-houses. Mr. I. Dodds, Fern Bank, High Harrington, Cumberland.

HINDLEY.—Aug. 17.—For additions and alterations to the engine-house and screening-chamber at the sewage works, Platt Bridge. Deposit 1*l.* 1*s.* Mr. Oswald P. Abbott, Council Offices, Hindley, Lancs.

HOLLINGWORTH.—Aug. 10.—For erection of an elementary Council school on land adjoining Market Street, to accommodate about 600 children. Deposit 2*l.* Mr. C. T. Adshead, architect, Leinster Chambers, St. Ann's Square, Manchester.

ILFORD.—Aug. 12.—For the erection of a plant-house and sheds in South Park. Deposit 2*l.* 2*s.* Mr. Herbert Shaw, M.I.C.E., engineer and surveyor, Town Hall, Ilford.

IVYBRIDGE.—Aug. 28.—For alterations and additions to the Ivybridge Council school, Devon. Deposit 1*l.* 1*s.* Architect, 1 Richmond Road, Exeter.

KINGSTON-ON-THAMES.—Aug. 19.—For erection of a children's home within one mile of a goods station and within the area of the Kingston Union. Mr. Jas. Edgell, clerk, Union Offices, Coombe Lane, Norbiton, Kingston-on-Thames.

MACCLESFIELD.—Aug. 10.—For the erection of an infectious diseases hospital in Moss Lane. Deposit 2*l.* 2*s.* The Borough Engineer, Town Hall, Macclesfield.

MANCHESTER.—For new church. Mr. E. H. Lingen Barker, architect, 2 Exchange Street, Manchester.

MANCHESTER.—Sept. 4.—For erection of an infants school and for alterations and additions to existing Southall Street Municipal school, Cheetham. Deposit 2*l.* 2*s.* Education Offices, Deansgate, Manchester.

MEALSGATE.—Aug. 21.—For erection and completion of twenty-six houses at Mealsgate, Cumberland. Mr. Charles

W. Eaglesfield, architect and surveyor, Gordon Street, Workington.

MORLEY.—Aug. 12.—For erection of a warehouse Deanfield Mills. Messrs. T. A. Buttery & S. B. Birrell, architects, Queen Street, Morley, Yorks.

NEWCASTLE-UPON-TYNE.—Aug. 16.—For supply and fixing of floor, wall and ceiling tiling at Walker underground convenience. The City Engineer's Office, Town Hall, Newcastle-upon-Tyne.

PONTYPOOL.—Aug. 19.—For erection of a free library Hanbury Road. Deposit 1*l.* 1*s.* Messrs. Speir & Bevan, architects, Borough Chambers, Wharton Street, Cardiff.

ROCHESTER.—Aug. 15.—For repair and cleaning of several schools between August 23 and September 23, 1907, at the education committee. Mr. Apsley Kennette, secretary, Guildhall, Rochester.

ST. HELENS.—Aug. 28.—For erection of schools in St. Helens. Deposit 1*l.* 1*s.* Mr. Frank S. Biram, architect, Hardshaw Street, St. Helens, Lancs.

SCOTLAND.—Aug. 10.—For mason, carpenter, slater, plaster, plumber, painter and glazier's work of dwelling-house to be erected at West Church Street, Buckie. Mr. Archibald, Buckie.

SCOTLAND.—Aug. 12.—For construction of a retaining wall alongside Wellington Road, Aberdeen, involving about 11,500 cubic yards of excavation, 1,800 cubic yards of concrete and 2,700 yards of masonwork. Deposit 1*l.* 1*s.* Mr. James A. Parker, C.E., 80 Guild Street, Aberdeen.

SCOTLAND.—Aug. 12.—For convalescent home to be built at Edzell. Mr. John Sim, architect, Montrose.

SCOTLAND.—Aug. 15.—For erection of a post office at Dumbarton. Deposit 1*l.* 1*s.* Mr. W. T. Oldrieve, H.M. Office of Works, Edinburgh.

SCOTLAND.—Aug. 17.—For the following works required in erection of new premises, Leven, viz. mason and brickwork, carpenter and joiner, slater, plumber, plasterer, glazier, asphalt, marble and tile, steel, ovens and machinery, gas-engine and suction plant, dynamo and electric lighting, grates and railings. Deposit 10*s.* 6*d.* Mr. William Dow, architect, Kirkcaldy.

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For Index of Advertisers, see page x.



STANLEY.—Aug. 26.—For excavation and brickwork in connection with the widening of Houghal Burn bridge, near east Shield Row Colliery, Stanley. The Surveyor, Municipal Offices, Stanley, Durham.

SUNDERLAND.—Aug. 13.—For construction of a retort-house, retaining walls, purifying-house, &c., to be erected at the Ayres Quay gasworks. Mr. John H. Cox, secretary and manager, Fawcett Street, Sunderland.

WALES.—Aug. 12.—For building new shops, bake-houses, stables and manager's house at Miskin, Penrhiw-ber. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Aug. 12.—For building additions to the Rhymney Brewery, Rhymney. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Aug. 12.—For erection of a chapel, with tower, on Duffryn Estate, near Maesteg. Mr. J. D. Morgan, secretary, 6 Caerau Road.

WALES.—Aug. 12.—For erection of West End Congregational church, Ebbw Vale. Mr. Henry Waters, architect, Ebbw Vale and Beaufort.

WALES.—Aug. 12.—For altering, renovating and re-erecting chapel, and building new schoolrooms at Ebenezer Methodist Calvinistic Methodist chapel, Cwmbach. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Aug. 14.—For new shop front, alterations and additions to 12 Pool Street, Carnarvon. Mr. Henry Thomas, architect and surveyor, Castle Buildings, Carnarvon.

WALES.—Aug. 14.—For the erection of thirty (or more) houses at Glyn-Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—Aug. 14.—For altering, renovating and re-seating chapel and building new vestry at Zion Congregational chapel, Abercanaid. Mr. T. Edmund Rees, architect and surveyor, Merthyr Tydfil.

WALES.—Aug. 16.—For building east and west wings of Court Colman, Bridgend. Deposit 2l. 2s. Messrs. Cook and Edwards, architects, Masonic buildings, Bridgend.

WALES.—Aug. 17.—For erection of a farmhouse at Tancredstone, Haverfordwest. Mr. Hugh

Thomas, architect and surveyor, 9 Victoria Place, Haverfordwest.

WALES.—Aug. 20.—For (1) building new cloak-rooms, latrines, and erecting folding partitions, &c., at Treharris Council schools; (2) alterations, erecting new latrines, forming entrances, asphalted playgrounds, &c., at Merthyr Vale Council school. Deposit 1l. 1s. each contract. Mr. J. Llewellyn Smith, committee's architect, Central Chambers, Merthyr Tydfil.

WALES.—Aug. 31.—The Council of University College of North Wales is prepared to receive the names of firms willing to tender for the proposed college buildings. Mr. J. E. Lloyd, M.A., secretary and registrar, University College of North Wales, Bangor.

WINCHESTER.—Aug. 10.—For carrying-out repairs at the old Guildhall premises. The City Surveyor, Guildhall, Winchester.

WINLATON.—Aug. 12.—For erection of ten houses. Blaydon Co-operative Society, Blaydon.

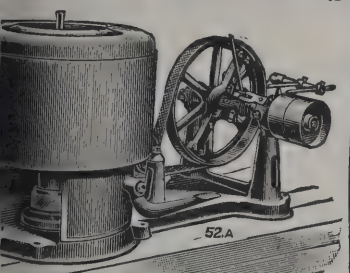
WORKINGTON.—Aug. 10.—For whole of works or any of the trades required in building kitchen block and nurses' quarters at the infirmary. Messrs. Oliver & Dodgshun, architects, Carlisle.

WREXHAM.—Aug. 12.—For erection of a public elementary school for 1,000 scholars, in Holt Road. Deposit 2l. 2s. Mr. Lawson Taylor, clerk to the Education Committee, Guildhall, Wrexham.

YORK.—Aug. 10.—For erection of two dwelling-houses on the Southlands estate, facing Bishopsthorpe Road. Mr. George H. Pegg, architect and surveyor, 23 Spurriergate, York.

IN consequence of a decision of the East Riding County Council it is believed that the construction of a bridge over the Ouse will shortly be commenced. Subject to the arrangement of toll charges and one or two other details, the Council have agreed to bear one-third of the cost of erecting a transporter bridge at Boothferry, about a mile from Goole. The total cost will be about 26,000l., and the West Riding County Council and the Goole Urban Council have already agreed to bear one-third each.

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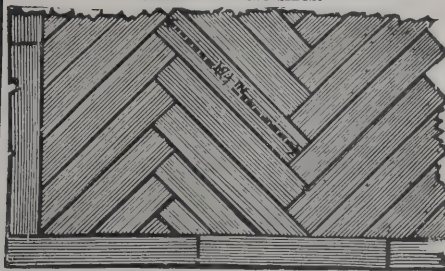
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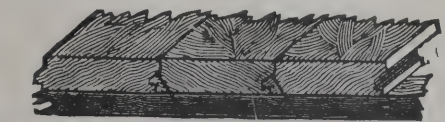
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## BECKENHAM.

For making-up Clock House Road, Church Fields Road (part of) and Kimberley Road. Mr. J. A. ANGELL, surveyor.

Martin . . . . .	£1,851	18	4
Wood & Sons . . . . .	1,797	15	7
Fry Bros. . . . .	1,749	12	1
Chittenden & Simmons . . . . .	1,740	6	4
Free & Son . . . . .	1,626	18	9
Woodham & Sons . . . . .	1,571	9	3
Pearce . . . . .	1,564	16	10
MOWLEM & Co., Westminster (accepted) . . . . .	1,446	15	6

## BELFAST.

For erection of children's infirmary.

Stewart . . . . .	£9,900	0	0
Kidd . . . . .	9,881	0	0
Courtney & Co. . . . .	9,835	0	0
Campbell & Son . . . . .	9,810	0	0
Lees . . . . .	9,550	0	0
McRoberts & Armstrong . . . . .	9,400	0	0
Martin . . . . .	9,373	0	0
McIntyre Bros. . . . .	8,999	0	0
Thornbury Bros. . . . .	8,995	0	0
McQuoid . . . . .	8,849	0	0
Keith . . . . .	8,748	0	0
Thompson . . . . .	8,720	0	0
Hogg . . . . .	8,700	0	0
Corry . . . . .	8,600	0	0
DOWLING (accepted) . . . . .	8,475	0	0

## CARLISLE.

For the erection of Norman Street school.  
*Accepted tenders.*

Logan, builder . . . . .	£2,640	4	0
Baty & Sons, carpenter and joiner . . . . .	1,746	0	0
Ormerod & Son, plasterer and concreter . . . . .	761	3	3
Sowerby, plumber . . . . .	400	0	0
Kellett, slater . . . . .	160	0	0
Ling & Mark, painter and glazier . . . . .	103	15	5

## DURHAM.

The Durham County Council have adopted the following tenders for the erection, &c., of elementary schools.

Cockton Hill—Hilton . . . . .	£5,588	5	0
Shildon (excluding foundations)—Hilton . . . . .	15,214	0	0
Shildon (foundations only)—British Concrete Steel Co. . . . .	3,146	0	0
Sherburn Hill—Braithwaite & Co. . . . .	1,757	8	0
Harlow Green (superstructure)—Darlington Construction Co. . . . .	570	0	0
Harlow Green (foundations)—Oates . . . . .	287	0	0
Birtley—Bolam . . . . .	5,067	0	0
Gilesgate Moor—Oates . . . . .	2,750	0	0
Highfield—A. & R. Davis . . . . .	5,928	0	0
Consett—Hunter & Son . . . . .	11,666	0	0
Dean Bank—Davison . . . . .	9,486	10	0
Leadgate—Taylor . . . . .	5,914	0	0

## EAST STONEHOUSE.

For redecorating portions of the town hall. Mr. C. TROUNCE, surveyor.

Turpin . . . . .	£257	0	0
Fouracre & Son . . . . .	252	0	0
Cameron . . . . .	245	0	0
Ayres . . . . .	205	0	0
Osborne . . . . .	194	10	0
Prowse . . . . .	172	0	0
HARRIS & SON, Plymouth (accepted) . . . . .	138	0	0

For the erection of sanitary annexe at town hall.  
C. H. TROUNCE, surveyor.

Turpin . . . . .	£244	0	0
Blake . . . . .	240	0	0
Smith . . . . .	236	0	0
Crews . . . . .	230	0	0
Taylor . . . . .	213	0	0
Endicott . . . . .	194	10	0
Cameron . . . . .	189	0	0
PORTER, Stonehouse (accepted) . . . . .	171	0	0

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alterations to school. Mr. J. A. L. BEASLEY, architect and surveyor, 35 Friar Lane, Leicester. Quantities by Architect.		
Lycock & Sons	£186	0 0
Loughton Cox & Co.	165	0 0
Manage	160	0 0
ng & Ridley	157	0 0
path	149	17 0
oke	147	0 0
RD & Son, Sharnford (accepted)	138	15 0
chitect's estimate	150	12 0

GUILDFORD.

Laying stoneware pipes and construction of manholes. Mr. C. G. MASON, borough engineer.		
neeler	£1,125	0 0
nton	870	13 0
ley, Strong & Co.	780	0 0
e	650	0 0
erson	599	0 0
nglas	598	0 0
dy, Bate & Co.	550	0 0
nan	547	0 0
eter & Co.	530	0 0
nks	482	10 3
7	475	0 0
es & Co., Guildford (accepted)	423	0 0

HEADINGTON.

rection of school. Mr. W. H. ASHFORD, architect, Birmingham.		
ne	£4,752	7 0
ris	4,369	16 0
berly	4,367	0 0
ner, Sons & Co.	4,316	18 0
erlee & Sons	4,140	0 0
an Bros.	4,080	0 0
orne	3,999	10 0
att & Son	3,988	7 6
on	3,961	0 0
DRIDGE, Oxford (accepted)	3,809	0 0

HASLEMERE.

For erection of house at Marley. Messrs. F. J. HODGSON & W. SYMONDS, architects, Guildford.		
Cæsar & Sons	£1,245	0 0
Mercer	1,153	0 0
Smith	990	0 0
Fry, Godalming (accepted provisionally)	968	0 0

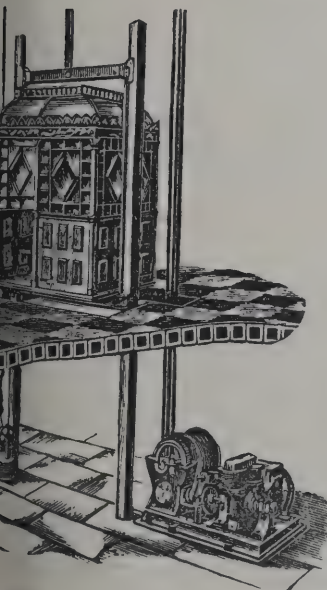
HULL.

For latrines and alterations. Latrines, Central Secondary school.		
Lison	£620	0 0
J. Houlton & Son	614	13 0
Harper	606	0 0
Harrison	599	4 3
G. Houlton & Sons	594	0 0
Southern	586	7 5
Quibell, Son & Greenwood	585	0 0
Jackson & Sons	579	10 7
Fenwick	568	0 0
ARNOTT, Hull (accepted)	541	10 0
Alterations, St. Matthew's Hall.		
Berridge	170	0 0
Southern	168	6 6
HARRISON, Hull (accepted)	137	18 0

ILFORD.

For erection of St. Clement's parish hall. Mr. C. J. DAWSON, architect.		
Clemens Bros.	£3,878	0 0
Walter	3,807	0 0
Price	3,737	0 0
Jerram	3,698	0 0
Myall & Upson	3,685	0 0
Westgate	3,645	0 0
Lawrence & Son	3,642	0 0
Hammond & Miles	3,637	0 0
Shurmur & Sons	3,591	0 0
Bentley & Co.	3,590	0 0
Willmott	3,456	0 0
Garbett	3,439	0 0
Symes	3,430	0 0
Hammond & Son	3,260	0 0

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Griffiths & Co. . . . .	955	7	5
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PORTER, 2 Arthur Street, N.E. (accepted). . . . .	903	16	5
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Styles & Son . . . . .	2,000	0	0
Wright & Son . . . . .	1,925	0	0
Love & Co. . . . .	1,888	0	0
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Kendall . . . . .	1,769	0	0
Patman & Fotheringham . . . . .	1,375	0	0
Monk . . . . .	1,310	0	0
Macey & Sons . . . . .	1,250	0	0
Sabey & Son (recommended) . . . . .	1,167	0	0

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Stewart . . . . .	1,752		
Bowie . . . . .	1,666		
Osborne & Sons . . . . .	1,100		
McCarthy . . . . .	1,082		
Mills . . . . .	977		
Dudley . . . . .	965		
Proctor . . . . .	946		
Woolaston & Co. . . . .	942		
Kirkaldy & Son . . . . .	933		
Abbott & Charlton . . . . .	870		
Gavin Bros. . . . .	807		
Anglo-American Cleaning Co. . . . .	757		
BRAGG & SONS, 19 Robsart Street, Brixton (accepted) . . . . .	667		
For erection of factory, for Maynards, Ltd., Wood Green. Mr. W. STONE, architect.			
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Falkner & Sons . . . . .	14,677		
Marsland & Sons . . . . .	14,538		
Roome & Co. . . . .	14,100		
Renshaw . . . . .	14,065		
Jarvis & Sons . . . . .	13,980		
Shurmur & Sons . . . . .	13,977		
Harris & Wardrop . . . . .	13,966		
Thorne . . . . .	13,804		
Todd & Newman . . . . .	13,333		
Gregar & Sons . . . . .	13,200		
Porter . . . . .	12,833		
Lawrence & Sons . . . . .	12,770		
For alterations and additions at 15 Gloucester Square. Messrs. JOSEPH & SMITHEM, architects.			
Simpson & Son . . . . .	£3,227		
Hanks . . . . .	3,120		
Kinimont & Sons . . . . .	2,600		
Beale & Sons . . . . .	2,427		
Richardson . . . . .	2,340		

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Castle & Sons	1,813	0	0
Munday & Co.	1,738	0	0
Beale	1,696	0	0
Jarvis & Son	1,686	0	0
Irwin	1,641	0	0
Nash	1,587	0	0
Shurmur & Sons	1,575	0	0

For street improvements, new bridge and sewers at Powys and Broomfield Lanes, Palmer's Green. Mr. C. GRIFFIN LAWSON, C.E., surveyor.

MANDERS, Leyton, E. (accepted) . . . £7,176 16 8

**LUDLOW.**

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Westwood	£192	12	0
YORK & Co., Wellington (accepted)	176	6	0

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For construction of 9-inch and 6-inch sewer, with collecting tank, wind pump and appurtenant works. Messrs. PRICE & BELSHAM, engineers, 52 Queen Victoria Street, E.C.

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Pearson, Wilson & Co.	630	0	0
Parren & Son	590	0	0
Rayner	580	0	0
Thompson	573	0	0
Buxton & Jenner	525	0	0
Rogers & Wood	519	0	0
Gurton	510	0	0
PORTER, 19 Moorgate Street, E.C. (accepted)	459	4	2

**NEWPORT.**

For erection of club premises. Mr. W. H. SHUTE, architect, Western Mail Chambers, Newport, Mon.

Williams	£5,650	0	0
Dowden	5,620	0	0
Phillips, Clark & Co.	5,600	0	0
Leadbeter	5,496	0	0
Partridge	5,490	0	0
Williams	5,490	0	0
Jordan & Son	5,175	0	0
Charles	5,098	0	0
Pitt	5,000	0	0
Powles	4,998	0	0
Reed	4,773	0	0

**NORTHAMPTON.**

For widening and repair of county bridges. Mr. C. S. MORRIS, county surveyor, Northampton.

	Wootton West Bridge.	Stoke Bruerne Bridge.
Berrill & Green	£349	£223
Gosford	335	265
Hacksley Bros.	331	211
Goodman & Murkett	265	187
Freeman	256	172
Brown & Sons	246	165
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Ratledge	231	145
HOLLOWAY, Northampton	229	132*
HENSON, Finedon	228*	145

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Holloway	£847	4	10
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**ROTHERHAM.**

For street works. Mr. B. HEY, surveyor, Rotherham.

Cooper	£970	0	0
Green	969	0	0
Bennett	904	10	5
ASHLEY (accepted)	721	18	4
Nadin	709	17	11

**SALISBURY.**

For making-up Waterloo, Farley and Polden Roads.

Harris Bros.	£630	0	0
Wort & Way	577	0	0
DOUGLAS, Southampton (accepted)	527	0	0

**SEDGEFIELD.**

For sewage disposal works for Denebridge, Chilton Buildings, and Windlestone Row, Chilton. Mr. J. STONES, engineer, Sedgefield.

Atkinson	£3,999	0	0
Firth	3,142	12	6
White	3,033	0	0
Chatt & Co.	2,976	8	3
Firth & Co.	2,949	5	4
Pearson	2,937	3	5
Davison	2,896	0	0
Hudson & Son	2,774	5	2
Meredith	2,671	7	0
Carrick	2,634	17	4
Reevell	2,593	0	3
ANNAKIN, Harrogate (accepted)	2,357	14	7

**TENBURY.**

For building concrete wall. Mr. R. W. JARVIS, surveyor, Tenbury.

Vale & Sons	£260	0	0
Waghorn	210	0	0
Speake	205	0	0
Edwards	198	0	0
Friend	194	0	0
Hewett	188	0	0
Tunford & Southward	182	0	0
WOWELLS, Tenbury (accepted)	145	0	0

**SLOUGH.**

For erecting Elementary schools. Messrs. LEE &amp; FAR architects, High Street, Slough. Quantities by Messrs. W. T. FARTHING &amp; SON.

Godwin	£9,009	0	0
Lane & Son	8,850	0	0
Burfoot & Son	8,716	0	0
Harris	8,572	0	0
Pattinson & Sons	8,340	0	0
Green	8,310	0	0
Bowyer	8,260	0	0
Hanson	8,248	0	0
Cox & Sons	8,195	0	0
Gibson	8,151	0	0
Lovell & Son	7,837	0	0
FLINT, High Wycombe (accepted provisionally)	7,767	0	0

**WALTHAMSTOW.**

For additions and alterations to the Pretoria Avenue school. Mr. H. PROSSER, architect. Quantities by Mr. G. T. WRIGHT.

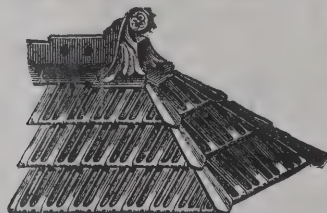
Minter	£2,650	0	0
Davis	2,630	6	6
Symes	2,600	0	0
Patman & Fotheringham	2,450	0	0
Maddison	2,442	0	0
Coxhead	2,405	0	0
Rowley Bros.	2,375	0	0
Behrend	2,346	0	0
Wood	2,263	0	0
Dean	2,248	0	0
Harris	2,146	0	0
Brand & Pettit	2,055	0	0
Hammond & Son	1,943	0	0

**WEALDSTONE.**

For road works, Frognall Avenue and Thompson Roads. Mr. HERBERT WALKER, surveyor.

Mann	£1,154	2	5
Champniss	1,113	5	5
FREE & SON, Maidenhead (accepted)	1,086	6	6

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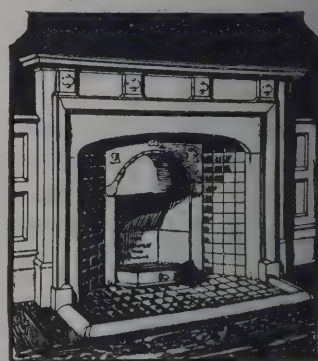
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BRISTOL.

extensions to The Grove, Stoke Bishop.	Mr. W. H. WATKINS, architect, Bristol.
Cowlin & Son	£1,360 0 0
Marsh & Stone	1,185 0 0
Neale Bros.	993 0 0
Hayes	964 0 0
Walters & Son	947 0 0
STEPHENS, BASTOW & Co. (accepted)	894 0 0

TRADE NOTES.

South Wales and Monmouthshire Training College, Llanarthney, has been ventilated on the "Boyle" natural system, under the direction of Mr. Ernest Collier, architect, Llanarthney.

The isolation hospital for the new Leicestershire and Rutland asylum is being warmed and ventilated by means of Shorland's patent Manchester grates.

The British Flooring Company (W. A. Osborne) have secured the contracts for 600 yards mosaic paving at the Wesleyan College, Handsworth, Birmingham; large parquet floors, Wimpole, Street, W.; and wood-block floors for several houses at Hendon.

The following awards have been made at the Congress School Hygiene:—

Silver Medal.

British Sanitary Company, earth closet.

Bronze Medals.

Bratt, Colbran & Co., heated fireplace in glazed earthenware; British Challenge Glazing Company, lead-covered steel glazing bar; Candy & Co., glazed faience "Devon" fireplace; England Works, Leeds, steel-contained cloakroom fittings; Fletcher, Russell & Co., Ltd., laboratory and workshop appliances for use with gas; Leeds Fireclay Company, "Infanta" closet for girls and "Taper" type coal; Newton, Chambers & Co., "Izal" co-efficient 13.0.

NEW CATALOGUES.

The series of dog grates in the catalogue issued by the "Bell" Range and Foundry Co., Ltd., 70 Mortimer Street, London, W., has been well inspired. They are suggestive of old-fashioned hearths, but they possess the scientific advantages which have been derived from modern experience. The style will be indicated by the titles—Queen Anne, Old English, Georgian, Gothic, Adams, Louis XIV., Tudor. Each has sufficient characteristics of the special period to warrant the classification, but there is no slavish or obtrusive ornamentation. The designers have remembered that a grate has a purpose of its own, and they have been careful to preserve it. It would be difficult to decide which is most deserving of preference. But whichever is selected for a house in any of the styles named, it will be found to harmonise with the architecture. The "Bell" Range and Foundry Co. allow a three months' trial of every grate, and if at the end of that time there is any disappointment the grate can be returned at their expense, and they will not only remit the full amount charged, but will also pay the builder's account for fixing and removing. Self-confidence could not be more clearly expressed.

The Hull City Council have decided to purchase a site in the Cottingham Road for the erection of a training college.

The Aberdeen Town Council with a view to prevent explosions have authorised the engineer to replace the existing copper strip culverts by cables on the solid system, and that the Union Street system should be commenced as soon as arrangements can be made. The estimated cost of the work is about 9,000*l*.

The Manchester city treasurer, in the course of a voluminous report, appends a detailed statement showing the net payments from the year 1821 to March 31, 1907, on account of public street improvements in the city. The amount reaches a total of 3,283,892*l*. 0*s*. 5*d*. In the balance sheet only the vacant and surplus land available for sale is included. The value of all land laid to the streets is left out.

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## VARIETIES.

THE Bath Town Council have adopted a report recommending an application to the Local Government Board for sanction to a loan of 10,000*l.* for housing (in eighteen new dwellings).

MR. JAMES SCOTT WEIR, assistant borough engineer to the Halifax Corporation for the last seven years, has been appointed borough surveyor and engineer at Jarrow-on-Tyne, at a salary of 200*l.* a year.

THE Grangemouth Town Council has unanimously agreed to borrow 20,000*l.* on the security of the water assessment to defray the expense of constructing the reservoir on the Bannockburn and other works.

THE plans committee of the Aberdeen Town Council have remitted for further consideration the plans of the new slaughter-house proposed to be built by the Fleshers' Incorporation at a cost of 13,000*l.*

THE Court of Common Council have made an agreement with the Great Northern and City Railway Company and the Corporation, providing for the deposit by the Company of the sum of 30,000*l.*, pending the construction and completion of the works at Lothbury station. The document was duly sealed.

THE Cheshire County Council have approved a scheme for improving and enlarging Upton lunatic asylum, to provide additional accommodation for 438 patients at a cost of 125,500*l.*, and for enlarging the Park lunatic asylum, Macclesfield, to provide for 148 additional patients at a cost of 25,000*l.*

THE new lighthouse which has been completed at Blyth is constructed of reinforced concrete, having steel rods carried from the foundations of the pier to the summit of the tower. The base measures 35 feet in diameter. The height to the focal plane is 63 feet above high-water level. Oil for lighting purposes will be stored in the basement.

THE Surrey County Council have given formal consent to the Sanderstead Parish Council raising a loan of 4,000*l.* for the purchase of Purley Beeches. The area of the property is 13½ acres, and in the proposed deed of purchase provision has been made for the property being maintained in its present natural state.

THE tramways committee of the Rochester Town Council recently reported their decision to accept the tender Messrs. Dick, Kerr & Co. for the construction of tramways 33,568*l.* 17*s.* 6*d.* for the permanent way and 3,417*l.* 18*s.* the overhead equipment. The report was approved and Mayor observed that a start would be made with the work about a month.

THE Thames Conservancy Board have agreed to make borings in the river above Gravesend, at a cost not exceeding 500*l.*, so as to obtain data regarding the feasibility of deepening the channel. It has been stated by an engineer that a channel 30 feet deep and 600 feet wide be made from Gravesend to the Royal Albert Docks.

THE Stoke-on-Trent Town Council recently sent a committee to the Stafford destructor works, for the purpose of inspecting the process there of making paving flags from the furnace clinker, when it was recommended that a similar system be installed at these works, and that committee which visited Stafford be granted executive power to utilise the present sheds at Field Place, and to have necessary alterations to such sheds carried out and purchased materials for the flag-making process.

MR. H. R. HOOPER, an inspector of the Local Government Board, commenced an inquiry at the offices of Stretford Urban District Council into the application of the Council for sanction to borrow 53,460*l.* for purposes of their electricity undertaking and 3,985*l.* for works of street improvement in Cornbrook Street, Darnley Street and Derbyshire Lane. The inquiry as to electricity was adjourned, the inspector stating that it would probably resume in the first week of October.

In the House of Commons on Tuesday, Mr. Ellis Davison asked the Secretary of State for the Home Department whether he would undertake that some Welsh-speaking representative of the quarrymen should be a member of the Mines Commission when such Commission deals with the question of the working of open slate quarries in North Wales. Mr. H. Samuel, in reply, said:—"The Royal Commission will not reach that part of their inquiry which deals with quarries for some time yet. When they do so I will consider my hon. friend's suggestion."

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HOUSE AT MAIDENHEAD—SOUTH FRONT.

IRLAND LIBRARY COMPETITION.—FIRST PREMIATED DESIGN—  
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VILLA RESIDENCE AT ELSTREE.

Mr. HENRY KNIGHT had before him, at the Mansion House police court, a labourer charged with breaking a glass window, 21 feet by 10 feet, valued at 100*l.*, in a shop in 21 Gracechurch Street. A notice was recently hung in the window stating that this was the strongest sheet of plate-glass in the world. It measured 114 inches in length, was 114 inches high and contained a surface area of 202 feet. It was over  $\frac{1}{4}$ -inch thick, weighed nearly one ton, took three months to manufacture and required the united efforts of forty men to fix it.

The Liverpool City Council have adopted the recommendation of the lighting committee to experiment on lamps at the pierhead with a patent automatic lamp-lighting and extinguishing apparatus, which acts simultaneously through a clockwork attachment to each lamp. It is stated that the system works successfully at Folkestone. To completely instal the automatic system over the pier would cost a capital outlay of 37,458*l.*, but it was estimated it would save 13,000*l.* every year on the cost of lamp-lighting labour.

At the last meeting of the Wednesbury Town Council Mr. J. Williams, in presenting a report from the works and building committee, said plans had been made for the erection of a number of additional houses. The report showed there was great activity in the building of new houses. A most satisfactory feature was that the houses were tenanted immediately they were finished, and in some cases before they were finished. The conclusion to be drawn was that either the population and the rateable value of the town were rapidly increasing, or else people were removing from the old insanitary buildings into new houses which possessed the improvements of modern

science. In any case it was a very healthy and satisfactory position.

Mr. M. K. NORTH, M.Inst.C.E., held at Coventry a Local Government Board inquiry on the 2nd inst. into the Coventry Corporation's application to borrow 13,630*l.* for the purpose of the erection of workmen's dwellings. It is proposed to build forty-eight houses in Narrow Lane at a cost of 200*l.* each, and twenty-two tenements in Short Street at 150*l.* each. It is proposed to let the former block at 5*s.* per week each house, and the second lot at 4*s.* or 4*s.* 2*d.* The Inspector stated that the Board took exception to some details of the scheme—*inter alia*, to the staircase leading out of the living-room in the Narrow Lane houses. The city engineer replied that economy had to be studied in order to bring the total monetary outlay within an amount that would allow the houses to be let at cheap rates.

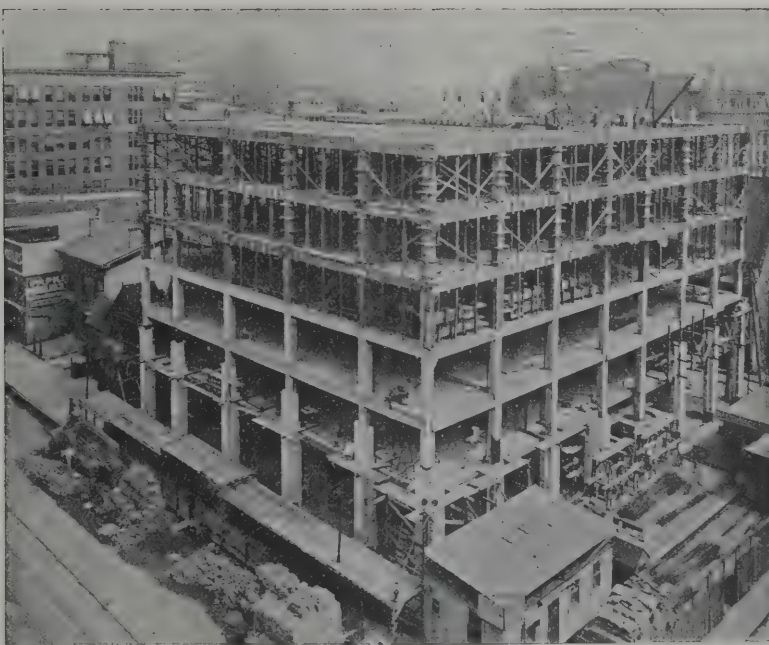
The gas and water committee of the Maryport District Council recommend the Council to apply to Parliament for powers to lay an additional pipe to the mill-race from the Derwent at the Goat, Cockermouth, and thus double the present supply at an estimated cost of 20,000*l.* At present the waterworks yield an annual profit of about 800*l.* As an alternative scheme, it was suggested that the town obtain a gravitation supply from the Dash, a stream flowing from the eastern side of Skiddaw, and so save 800*l.* on pumping from the Derwent. But as this would mean ten additional miles of pipes and the impounding of the stream at an additional cost of probably not less than 35,000*l.*, it was decided to adopt the cheaper scheme.

The Birmingham City Council have held over the consideration of the following motion till their next meeting in October:—"That, in order to avoid the evils arising from sweating, which is mainly due to sub-contracting, it be an instruction to the several committees of this Council that in all contracts for manufactured articles (not being patented articles), including stores or constructional work, where the contractors sub-let the whole or any portion of their contract they shall supply to the committee the name of such sub-contractor and the address where such work is being constructed or executed. This information shall also be given by the said committees to any member of this Council on application. In placing contracts all conditions as to rates of wages, &c., shall apply to sub-contractors."

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ACCORDING to the annual report of the Warwickshire county surveyor 37,440*l.* 17*s.* 10*d.* has been expended during the past year in the maintenance of the roads directly under the control of the Warwickshire County Council, the cost in the three previous years being—1904, 27,556*l.*; 1905, 29,033*l.*; and 1906, 32,158*l.* Mr. Willmott points out that the amount spent on the main roads during last year was the highest since the direct maintenance of the roads was taken over in 1891. The mileage of roads under notice is 457, and in their repair 40,096 tons of hard stone were used. No tarmac has been used during the year. The length on the Coventry Road which was put down about fifteen months ago has so far stood the motor and other traffic very well. There was no doubt about this material being dustless, but as far as its wearing qualities are concerned Mr. Willmott considered it was still on its trial. The average cost of road maintenance worked out at 570*l.* a mile.

THE British Commercial Agent in the United States (Mr. E. Seymour Bell) reports that a large cement company has been formed to combine several of the most extensive plants outside the control of the so-called Cement Trust—the American Cement Company. The new company, which will be known as the National Cement Company, will construct in Carpentersville, New Jersey, what is expected to be the largest Portland cement plant in the world, capable of producing 10,000 barrels of cement a day. Construction work will begin immediately, and the works are expected to be in operation by May next. A feature of the new works will be the extensive use of electricity, which power will be employed to a greater degree than has hitherto been attempted in cement making.

At the meeting of the Stafford Rural District Council on Saturday last the sanitary and plans committee reported that a letter had been received on behalf of Messrs. Chance & Hunt, chemical manufacturers, Wednesbury. The letter stated that the firm were anxious not to commit any breach of the Council's by-laws, and explaining that as the buildings they proposed to erect at Stafford were intended for the purpose of working a brine mine underneath their land, and of making salt, they did not, under these circumstances, think it was necessary to submit plans of the buildings to the Council. The clerk had been instructed to reply that, as the proposed new works would be for the manufacture of salt,

they would be regarded as a building under the war class, and requesting that plans should be submitted to the Council before any further action was taken. The decision of the committee was approved by the Council.

"THE Scottish National Exhibition of Industry, Science and Art, Edinburgh, 1908," is the title by which the Association formed to promote and carry on the exhibition at Edinburgh next year has been registered. Registration has been taken out under the Joint Stock Companies Act, a nominal capital being stated, and the word "limited" omitted from the title of the Association by license of the Board of Trade. Every member of the Association takes to contribute to the assets of the Association at the event of the same being wound up during the time he is a member or within one year afterwards, for payment of debts and liabilities of the Association contracted before the time at which he ceases to be a member, and of the charges and expenses of winding up the Association for the adjustment of the rights of the contributors and themselves, such amount as may be required not exceeding 1*l.*

THE exhibition at the Crystal Palace appertaining to health, the home, &c., and which was to be of such a comprehensive character, appealing among others to architecture, has turned out an utter failure. The exhibits are few in number, and for the most part of an uninteresting character. An exception, however, must be made in favour of the Cloisonné Glass Company, who have an artistically arranged stand, on which are displayed very good specimens of work, showing that their material is applicable in any situation in which stained or leaded glass is appropriate, including also hall doors, fanlight ceiling lights, partitions, screens, window blinds, furniture, cabinets, fire screens, tables, trays and lamps. Emdeca Company likewise have a very fair display, adjoining stand, of their decorative material, which is worthy of attention. Near the main transept, it may be added, is a large case showing the work of the different classes at the Crystal Palace School of Art, comprising original designs of sketches, oil studies and water-colour drawings, also portraits and a well-executed model in plaster, all of which are of a character that reflects credit on the students as well as the teachers.

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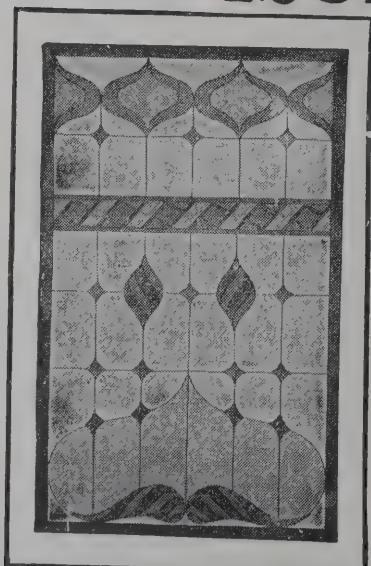
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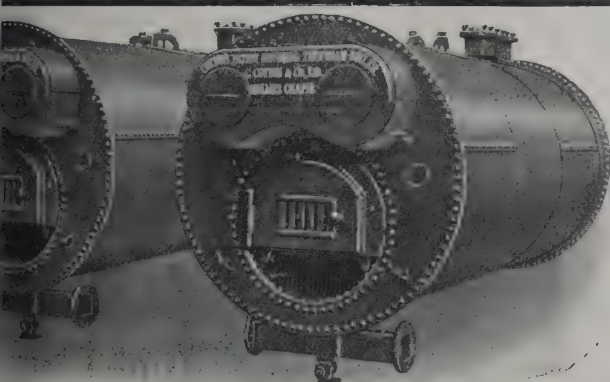
## A WOOD PRESERVATIVE.

United States Vice-Consul at Ghent, Mr. J. A. van as informed the Washington Bureau of Manu- s that recent experiments made in Belgium with a al-tar extract, known as "Injectol," for preserving have given satisfactory results. The experiments incipally devoted to the treatment of wooden poles cks used in street paving. The product is a liquid rk-brown colour, very thin and of regular density, degree of viscosity changes very little with atmo- variations. One of the principal advantages is its tion into certain woods without any pressure. It n found that where creosoted poles in the ground ly resisted decay for a few months, those treated ectol remained unattacked after three years. Similar ents were also made with railway sleepers, treated erent antiseptics. Some were soaked in a mixture reosote, creosote and chloride of zinc, and two were with Injectol. After having been left for a period ears in a steeping vat composed of liquid manure er miscellaneous decomposing substances, it was at the two treated with Injectol were still in good n, while the others were almost completely destroyed. results were obtained with wooden blocks for street Other experiments are now being carried on, and ults obtained will soon be made public.

Boulton-on-Dearne an inquest was held on a foreman er, employed by the Midland Railway Company, s knocked down by a Great Central express train. dence was that deceased with other workmen was g the wall of a bridge between Swinton and He was working about 8 feet from the rails. r bricklayer, on being given a signal of the approach in, told him to keep clear. However, on turning fter the express had passed, he saw him lying about s away from where he had been working, with his ose to the outer rail. The coroner said the only tion was that deceased stepped back to admire his en the express was passing. "Accidentally killed" verdict returned.

## COPPER MIRRORS.

THE importance from the point of view of the health of the workpeople of obtaining a substitute for the tin amalgam used in the manufacture of mirrors has led many chemists, says Mr. F. D. Chattaway in a paper read before the British Association, to study the conditions under which metals are deposited from aqueous solution. These investigations have, however, usually had for their object the preparation of a liquid which would deposit a uniform and coherent layer of silver over a large glass surface at the ordinary temperature. Liebig was the first to solve this problem satisfactorily, and his method in which milk sugar is the reducing agent was formerly extensively used. Other metals are not so easily deposited, and copper, which, from its close relationship with silver one would expect to behave similarly, has never been observed to be so laid upon glass. Although copper mirrors have never been obtained by deposition of the metal from an aqueous solution, Faraday about the time when silver mirrors were attracting much attention made the interesting observation that a mirror-like deposit could be obtained by dissolving a little oxide of copper in olive oil and heating plates of glass in a bath of this liquid up to the temperature at which the oil decomposes. The mirrors, however, obtained by Faraday's method, if of any size, are liable to be stained or discoloured in patches by decomposition products of the oil, and they are, moreover, generally lacking in brilliancy. Further, as the deposition of the metal only takes place when the oil decomposes, the process is excessively disagreeable to carry out, and since the oil is spoiled it is also somewhat costly. In the course of an investigation on the oxidation of aromatic hydrazines, the author made the observation that when solutions of cupric oxide are reduced by these compounds the metal is deposited upon the glass in the form of a brilliant coherent film if clear vessels are used. The mirrors obtained by this method are very beautiful, as they show the lustrous red colour of burnished copper, and are as perfect in reflecting surface and as uniform as the similar mirrors obtained by the deposition of silver. It seems probable that this method of depositing copper upon glass could receive important application in the production of objects of art.



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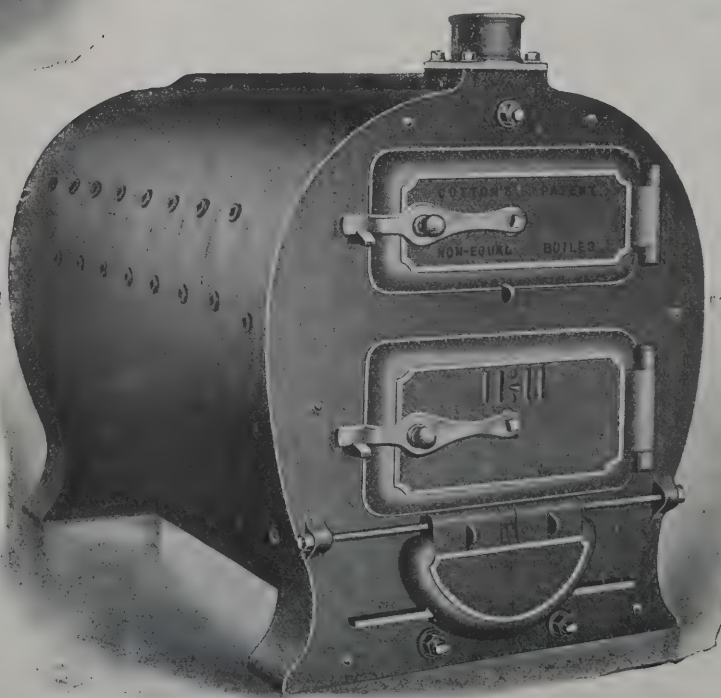
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### A CONCRETE BUNKER.

THE accompanying illustration is from a photograph of a reinforced concrete coal bunker being constructed in the southern part of England on the Kahn system. The photograph shows clearly the method of using Kahn bars in reinforced concrete and the ease with which these bars can



be used. As can be seen, the shear members are all properly placed. The rigid connection between the shear member and the main tension makes it impossible to displace any of the shear members during the operation of depositing the concrete.

### BUILDING SCHOOL FOR SOUTH LONDON.

THE education committee of the London County Council propose to acquire a site in south-east London for an institute for classes in the engineering and building trades. The new institution will be organised mainly as a school of building and engineering, with auxiliary classes in physics,

chemistry, mathematics and any other subjects which may be found necessary for the complete training of the classes connected with the engineering and building trades. The classes will be differentiated from the University classes which are held at the Goldsmiths' College, New Cross, and it is proposed to erect the new institute near Old Cross stations at New Cross or Lewisham junction. The education committee have recommended the expenditure on capital of 7,000*l.* in respect of the purchase of a site for the institute. They have also recommended the expenditure of 10,000*l.* on the purchase of a site for new premises for the Wandsworth Technical Institute. The finance committee, reporting on these proposals, state that when these matters were referred back to the education committee for further consideration in March last, they understood it was essential that the total capital expenditure involved in the provision of the two institutes, including the purchase of sites, would amount to 50,000*l.* and 42,000*l.* respectively. The finance committee have since been in communication with the education committee as to the general policy they propose should be adopted in connection with the provision of facilities for technical education in London. The information furnished by that committee, it is stated, that the education committee contemplate expenditure during the next five years or so of over 400,000*l.* on account on the extension of the Council's institutes, and 80,000*l.* on maintenance account in the form of grants to polytechnics for works of extension, and additional expenditure on rate account after five years of 21,000*l.* a year, exclusive of any additional annual maintenance grants which may be made to the aided institutions which have to be incurred by the Council in the provision of institutions upon which the capital expenditure is contemplated. The finance committee point out, however, that the matter is one of considerable financial importance. It is represented to them that the proposals now submitted are urgent, and they have accordingly submitted recommendations, although they would have preferred before doing so to have had an opportunity of giving closer attention to the general considerations involved in the whole question of prospective expenditure upon technical and scientific education, which will, the committee anticipate, have an important bearing upon the Council's finances in the future.

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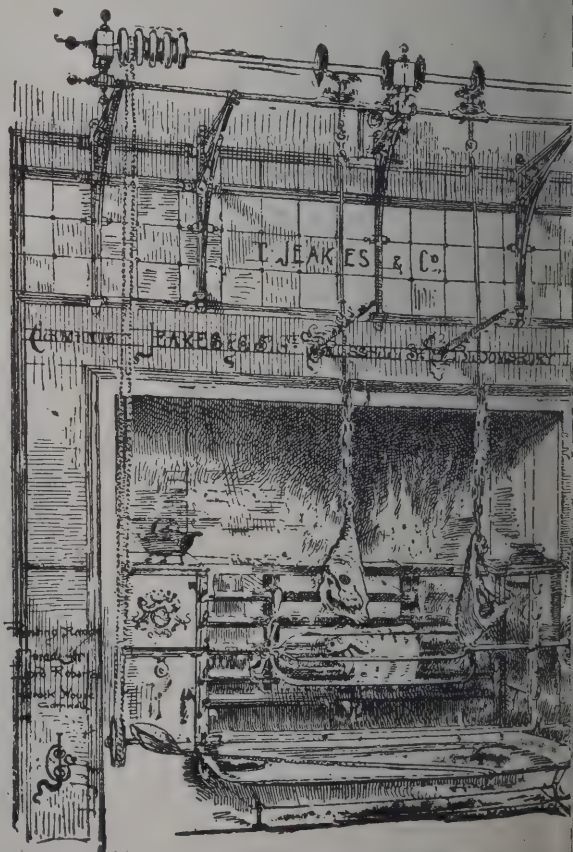
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**GRANITE QUARRYING IN ABERDEENSHIRE.**

APER on "Granite Quarrying in Aberdeenshire" was by Mr. William Simpson, assistant harbour engineer, Aberdeen. According to the *Aberdeen Journal*, he said the granite areas of North-East Scotland were distributed in an irregular manner over that part of the country, and attained their greatest development in the county of Aberdeen. Continuous masses stretched along both sides of the Dee, terminating westwards in the Cairngorm Mountains beyond Invermoriston, while in Central Aberdeenshire large irregular masses were to be found in the district occupied by the upper reaches of the Don, in which were situated the well-known Invermay Quarries, and those of Tom's Forest, Tillyfourie and Bennachie. The Aberdeen quarries were situated near the mouth of the Dee and Don in the vicinity of the city, and included, amongst others, Rubislaw, Scattie, Dancing Men and Oldtown quarries, the granites of which were of the typical colour of the granites of the Dee and Don. The Peterhead granite area was entirely isolated from those of the Dee and Don, and the stone was quarried in the immediate vicinity of that town, the typical colour being red. Nowhere in the whole of Great Britain was there such a large exposure of granite as in North-East Scotland, and the supply of granite stone of the highest quality and beauty was practically inexhaustible.

*Characteristics of Quarries.*

The Aberdeen quarries were of a characteristic oval shape in plan, and of a deep pit-like section, of which Rubislaw and Kemnay quarries might be taken as typical. These quarries were the largest granite quarries in the United Kingdom, and had each a depth of over 300 feet, which was gradually being increased. The commercial granite was found in "posts" or isolated masses cut off from each other by "bars" of inferior and even worthless granite, and the joints were highly irregular, features which rendered the quarrying of Aberdeenshire granites a difficult task, and the principles of quarrying strictly indefinable. Usually the granite was a more or less thick covering of exceedingly hard boulder clay, and for some distance down the surface rock was usually of inferior quality, owing to the decay of the felspar. The overburden was

thus costly to remove, and the top rock unremunerative. Under these circumstances the main principle underlying the development of the Aberdeenshire quarries was to work downwards, after a sufficient area had been opened out in which to locate the relative positions of good rock, "bars" and "master" joints, and to afford ample room for carrying on quarrying operations. As a rule, the quality of rock also improved with the depth, and there was thus a temptation to deepen without a proportionate surface area. Where this had been done the quarry had assumed the form of a conical pit with a small floor, difficult and costly to work and in some cases finally abandoned for these reasons.

*Sinking and Excavation.*

After a sufficient top area had been opened out in which to conduct operations, the quarry was deepened by sinking in successive benches or "dips" of about 40 feet to 60 feet at a time, and, if possible, the actual depth of the "dip" was determined by a natural horizontal bed-joint, so as to facilitate the excavation of the rock; but should this not be met with, a "dip" was rarely carried down more than 70 feet. In working out a "dip," a shaft was first opened at an extreme point of the quarry floor close up to the side or wall of the quarry, and from this shaft operations were extended outwards, until the whole area of the floor had been excavated to the level of the new "dip." The shaft was sunk as quickly as possible the full depth to the main bed-joint, and was opened out laterally to meet the "master" joints traversing the quarry in the direction of working, and thus obtain the best possible working face bounded by rock-joints. The presence of such joints largely determined the direction in which the rock was to be excavated. The rock was removed by boring and blasting, and for this purpose the working face was usually divided into two benches. The top bench was first worked back to meet a good vertical joint, a distance generally of from 20 feet to 30 feet from the face, after which the bottom bench was excavated and the rock entirely removed down to the level of the floor of the "dip." Vertical shot-holes up to 21 feet deep were used to blast out the upper part of the benches, and "breast" holes to remove the basal parts of the working face where there were no bed-joints. These latter were placed at an inclination of about 10 degs. to

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15 degs. to the horizontal, and were drilled up to 21 feet long, as the nature of the rock might require, and were calculated to increase the efficiency of the blast and level up the quarry floor. As it was not convenient to use the ordinary rock-drill tripod for such holes, a special frame made of timber was employed for this purpose on which the rock-drill was mounted, the frame being loaded with stones to steady it. As the rock was blasted out the blocks were lifted from the working face by cranes and cableways, but the larger masses, beyond the power of the lifting appliances, were further broken up as they lay.

#### *Rock Drilling.*

The drilling of shot-holes was done by power-drills worked either by steam or compressed air. Hand-drilling was only resorted to where it was impossible or inconvenient to use a machine-drill, as in bringing down dangerous parts of the quarry wall. The machine-drills were chiefly of the Ingersoll or Henderson (Aberdeen) types, and the usual motive-power was steam. At Kemnay Quarries air-drills had been in use, along with steam, for several years, and the installation was being further extended; while at Rubislaw Quarry a complete new air-compressing plant, of the Ingersoll-Rand type, driven by a 100 horse-power shunt-wound electric motor, had quite recently been laid down for exclusively working the rock-drills, the pressure being 100 lbs. per square inch. In the smaller quarries steam was exclusively used for the rock-drills, and was found to be economical. When steam was used the power was obtained from a central boiler-house situated on the quarry bank, the main steam-pipe being carried down the quarry wall to the floor, where a branch of wrought-iron piping was taken off to supply the drills, terminating at each drill in a length of flexible metal hose-pipe. As the working face receded from the main pipe new lengths were coupled on to the branch pipe to follow up the drills. A considerable loss of power thus took place when the line of steam-pipe was long, and in the larger quarries the air-worked drills were considered to be more economical if the work was not intermittent.

#### *Blasting the Granite.*

In granite quarrying the main object was to obtain large blocks, and explosives must therefore be applied judiciously

and in a sparing manner. Coarse gunpowder was used in the Aberdeenshire quarries for blasting purposes, as high grade explosives, such as dynamite and gelignite, shatter the rock too much, and were not used at all except to break away bad rock or in very wet places. No general formula could be given to determine precisely the amount of charge for a blast, owing to the very irregular nature of the rock, but it was estimated that one pound of gunpowder should produce eight tons of rock under ordinary conditions of quarrying. In blasting out a long face vertical holes were drilled right down to the horizontal bed-joint, and a distance back from the working face generally equal to the depth and small charges of gunpowder used, the object being to "heave" the mass on its bed without shattering it. If one end of a working face was "bound," as sometimes the case, a narrow trench was blasted free out between the quarry wall and the working face to prevent this method of blasting being carried out. The mass had thus been "shaken" and the joints developed, it could be blasted off into smaller blocks and dragged from the face. For "breast" blasting, where there were no natural joints, the shot-holes were usually placed in line of the face together with about 1½ inch of clearance between each hole to the top, but both the position and number were decided by the actual rock-joints and the quantity of material to be dislodged. Groups of three, five and seven holes were common, and these might be drilled parallel, radially or in different planes. If dry, vertical shot-holes were filled directly from the top with loose powder passed through a copper filter, but in the case of wet holes, the powder was made up into a cake, and the shot-hole blasted by filling it into thin waterproof tubing and tying the ends securely. Dry "breast" holes were loaded from the top with a piece of open-end copper tube 1½ inch in diameter, fixed to the end of a long timber rod. The regular shot-holes were fired electrically, and the detonator or electric fuse was placed about 9 inches from the surface of the charge in the bottom of the hole, and was tied up with the cartridge in wet holes. In some quarries a time fuse was also inserted into the charge of each shot-hole as a safeguard against electrical mishap. The charge was rammed home with a timber ramrod, and the holes were stemmed or tamped with granite dust. The electric wires of the shot-holes were connected up

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"this method being preferred to that of "in parallel," the charges were fired by a high-tension electric der. The firing was done either during meal-hours when work had been stopped for the day, unless the e of the blast was such that the men could readily safe cover in the quarry. A steam-jet was used at of the quarries for effectively washing out the tamping charge of a misfire shot-hole, instead of boring a new ongside.

#### Hoisting of Quarried Materials.

the great depth and steepness of the Aberdeenshire es necessitated the hoisting of all quarried materials surface direct by means of cranes and cableways. In smaller quarries the cranes were confined entirely to ank, and did all the hoisting necessary with the assist- of cableways; but in the larger quarries additional were placed on the quarry floor to hoist the stone the working face of the "dip," and bring it within of the bank-cranes, and if necessary the cableways. e there were a number of floor-cranes they were l within continuous reach of each other to facilitate ansport of materials to the most suitable bank-crane e stone-dressing spaces on the quarry floor. Floor- s were lowered with each successive "dip" if the was worked completely out, but bank-cranes were y permanent as regards position. Cableways were ged in such positions as would intersect the working nd give delivery of materials at convenient points on ank, but might be shifted from time to time to suit the pment of a working face or changes in surface gements.

#### The Cranes.

eam derrick-cranes were used for winding from the y bank with the exception of Rubislaw Quarry, where icity was the motive-power. The cranes were placed to the edge of the quarry on a pier of granite masonry, to give full effect to the jib and afford the operator a view, and the back legs were loaded by building them granite piers. The usual lift of such cranes was s, 10 tons and 15 tons, and steel wire ropes were used sively. The essential features of the more modern of crane used for bank winding were long jibs, large

drums for deep winding in excess of present requirements, powerful engines and gear for quick winding, slueing and luffing, powerful burden and wind brakes, and the whole of the gear within easy reach of the operator. In the more recent cranes the mast and jib were of steel. The general design of such cranes required to be heavier than that of a similar crane doing ordinary work, for, in addition to simple lifting, they were constantly used to drag rough stones over the quarry floor and to "break out" locked stones from a working face after a blast. Accidents to jibs were not infrequent, and many quarry masters preferred timber instead of steel for this purpose, as a timber jib could readily be renewed at the quarry work-shop. On the quarry floor ordinary steam or electrical derrick cranes were used, but in a number of quarries a modification of the derrick was to be found in the "all-round" crane. This type of crane had no back legs, and was supported from the top of an extra long trussed mast by a series of radial wire ropes, generally eight in number, which were anchored to the sides of the quarry, quite clear of the jib. This arrangement was economical of floor space, and allowed the jib to revolve completely round. Cranes of this type were to be found in Kemnay, Rubislaw, and other quarries. The floor cranes varied in power from 5 tons up to 10 tons and 15 tons, and either steam themselves, or were supplied from a central boiler-house on the quarry bank. An objection of self-steaming cranes on the floor arises from the black smoke in thick weather obscuring the view of cableway and crane operators on the bank, and was particularly felt in deep quarries of small area. The floor cranes in Rubislaw Quarry were originally steamed from the quarry bank, but had been recently converted into electrical machines by replacing the engines of each crane with a series-wound motor of 25 horse-power at 440 volts, and with controller and cast-iron resistances. Where very large stones for monumental and engineering purposes were quarried, a bank crane of special capacity had been laid down.

#### The "Blondins."

The successful commercial working of the Aberdeenshire quarries would be impossible at present without aerial cableways, or "blondins," as they were familiarly

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termed, and their introduction was due to the late Mr. John Fyfe, proprietor of Kemnay Quarries, who designed and erected, at No. 1 Quarry, Kemnay, the first modern cableway in this country. Two types of cableway were used, namely, "horizontal" and "inclined," the former of which had two masts, between which the main cable was stretched. In the more recent quarry cableways of long span an additional rope, called a "button" rope, about  $\frac{5}{8}$ -inch diameter, was hung above the main cable for the purpose of supporting and guiding the hoisting rope, and was provided with buttons or stops at intervals. Light iron hangers were carried on the horn of the load carriage, each having a loop corresponding to a special stop on the button rope, and as the carriage receded from the mast the hangers were caught and spaced out over the span, to be again picked up by the horn on the return journey. The load carriage was a light steel frame of flat bars with three wheels travelling on the span rope, and an extra wheel on the button rope. From it were hung directly the hoisting sheaves, and the endless travelling rope was attached to each end. To suit the carriage to the varying inclinations of the span rope, and equalise the load, two of the main wheels were placed on an equilibrating lever within the main frame. The masts were of timber, and carried the sheaves at top and bottom for leading the hoisting and travelling ropes to the engine-house. Under special conditions of height and load, masts were strengthened at the base by braced timber trestlework, or built entirely as braced timber towers, as at No. 1 Quarry, Kemnay, where the span was 945 feet and the load 8 tons. To avoid departing from the simple form of mast in such cases at many of the quarries a pier of dry-built granite masonry was raised to the required height, and on this the mast was placed without further modification. The masts were usually anchored by wire-rope backstays, connected to concrete or masonry blocks with adjusting screws between, but in some cases the main cable was passed over a pulley, and a back balance weight suspended from the end, somewhat in excess of the working load of the cableway, so that, should an overload be attempted, the back balance will be hoisted instead. Five tons lifting capacity was found to be a serviceable working load for a quarry cableway, but the older machines lifted about 3 tons, and at Scattie Quarry a com-

paratively recent cableway of about 575 feet span lifting capacity of 12 tons. The winding machinery of the quarry cableway was shown on the plan, and was made by Messrs. John M. Henderson & Co., Aberdeen, who installed practically the whole of the quarry cableway in Aberdeenshire. There were two drums, 5 feet diameter for the hoisting and travelling ropes respectively, but were worked independently, so that the load could be hoisted without travelling when necessary. In travelling the load, however, the two drums were run together, the hoisting rope being wound on at the same speed as the endless rope was travelling. The engines had two cylinders of 11 inches diameter by 18 inches stroke, and were capable of lifting and travelling the load at speeds of 300 and 900 feet per minute respectively. In every case the winding machinery was placed close to the edge of the quarry, so that the operator had full command of the hoisting and was thus frequently at a considerable distance from the mast itself, in which case guide pulleys were used to lead the various ropes into the engine-house. Steam was the motive-power for the cableways at all quarries except Rubislaw, where they were electrically driven.

#### *Drainage of the Quarries.*

The pit-like character of the Aberdeenshire quarries precluded any natural system of drainage being adopted, and the whole of the water had to be raised to the surface by pumps. The usual practice was to excavate a sump at the extreme end of a "dip," and drain the water from the quarry floor to it. The drainage pump was placed on a ledge of rock a few feet above the level of the sump, and was housed in to protect it from damage by blasting falling stones. In the smaller quarries the pump was fitted up on a frame of timber sleepers, and was hoisted to the bank out of danger when shots were to be fired, or the way of operations. As a rule the smaller quarries did not have a great deal of leakage water to contend with, but larger and deeper quarries required more or less constant pumping. As the granite rock was practically impervious to water, a spell of wet weather or a period of thaw entailed heavy pumping. The type of pump generally in use was a horizontal, direct-acting steam pump, steamed from a central boiler-house at the quarry bank. The suction-

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short, and consisted of thick armoured rubber hose a long rose box, and could be adapted to a shallow or lar sump in the early stages of opening out a "dip." discharge main was of steel piping with screwed flanges, aded by wire ropes alongside the wall of the quarry. . 1 Quarry, Kemnay, where a large amount of water be dealt with, a direct-acting steam pump was used e of throwing 7,000 gallons per hour; and at Rubis-quarry a turbine pump by Mather & Platt, of Man-r, had recently been laid down capable of delivering gallons per hour to 400 feet at 1,360 revolutions per e, and was driven direct by a 60 horse-power shunt-electric motor at 440 volts.

#### *The Inclines.*

many of the Aberdeenshire quarries the materials owered to a main line of railway by inclines. Self-inclines were usual, but at Kemnay Quarries the main to No. 1 Quarry was worked directly by a steam-engine at the top. This incline accommodated the ns of the Great North of Scotland Railway, which auled up to the quarry from the main line and loaded y, connections being made between the main incline anch lines at the quarry bank by loops and waggon es. The incline ascended at right angles to the ne of railway, but was curved in the upper part, and e ropes were guided between horizontal and vertical fixed to the sleepers. A turntable was provided at t of the incline for assembling the waggons in the se sidings, which were laid out parallel to the main Of the self-acting inclines, that of Tom's Forest might be taken as generally typical. This quarry uated in the Alford Valley, near that of Kemnay, at it of about 370 feet above sea-level, and the materials owered by an incline about one-third mile long to ding bank at Ratchill siding of the Great North land Railway, a height of about 130 feet. The was partly straight and partly curved, and was t with steep gradients at top and bottom, and a at gradient between, the maximum and minimum its being 1 in  $5\frac{3}{4}$  and 1 in  $27\frac{1}{2}$ . The permanent way ed of three rails only, laid on cross sleepers, but a passing place or loop was provided in the middle

of the length of the incline, with complete double tracks. At the top and bottom of the incline the three rails con-verged into a single track of two rails, leading respectively to the quarry and to the loading bank alongside the rail-way. The machinery consisted simply of two horizontal pulleys, placed at the top of the incline, round which the hauling rope was coiled once, and were controlled by hand brakes. The empty train was attached to one end of the hauling rope at the foot of the incline and the full train to the other end at the top, and in descending the full train brought up the empty one. The hauling rope was guided on the straight parts of the track by horizontal rollers, and on the curved parts by horizontal and vertical rollers. The train usually consisted of three waggons each way, built with underframes, on which the iron skips were placed, or timber boxes lined with sheet-iron. The loaded train weighed about 12 tons and the incline worked exceedingly well, the minimum speed being 6 miles per hour on the flattest gradient of 1 in  $27\frac{1}{2}$ .

#### *Stone Dressing.*

Granite stone was cut and dressed at the Aberdeenshire quarries into large blocks for engineering and monumental purposes, ashlar for engineering and domestic building work and paving setts, while rubble stone, road metal and crushed granite were amongst the other products. After a blast a careful examination was made of the rock brought down with a view of obtaining the greatest quantity of saleable stone at the highest value. The large pieces were set aside to be cut into engineering and monumental blocks, and in descending order of size and quality the rock was apportioned to the various uses already enumerated. Large stones beyond the power of the lifting appliances, after being tumbled on the floor were split up into smaller pieces by a small charge of gunpowder or by "plug and feather," which consisted in boring a number of holes about  $\frac{5}{8}$ -inch diameter, 5 inches deep and 5 inches apart, and inserting therein a series of steel "plugs" or wedges between steel "feathers" or splints of steel for the purpose of wedging the halves of the stone apart. The line of the holes was selected with particular reference to the grain of the stone, as all Aberdeenshire granites had at least one easy way of splitting, which was in the direction of the grain, and some

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had two, as at Kemnay. The "plugs" were driven simultaneously home by sledgehammers, and in large stones the "plugs" were assisted by a few longer steel wedges in deeper holes. The huge blocks which could be cleanly split in two by this simple method were remarkable, provided that the holes were well removed from the edges. The "plug" drilling was usually done by hand, but both at Kemnay and Rubislaw quarries compressed air hand-drills of the pneumatic hammer type were used. Stones for monumental purposes were usually long and thin, and the "plug and feather" method of splitting was not generally applicable. For such stones a small portable rock drill, mounted on a timber frame over the stone was used to drill the "plug" holes right through from side to side, at 5-inch centres, when the selvage could then be wedged off with certainty. Slabs of rock only 18 inches thick, 7 feet deep and 14 feet to 15 feet long could thus be successfully prepared, the holes being drilled the deep way of the stone, and leave little surplus material to be removed in fine dressing or polishing. Further dressing of stones, however, was not undertaken at the quarries, with the exception of those belonging to the Messrs. Fyfe, and the materials intended to be highly finished were sent to the Aberdeen and Peterhead stonecutting and polishing works, which formed a large and important part of the granite industry, quite separate from quarrying. At Messrs. Fyfe's quarries special facilities were provided for the preparation of stones of the largest dimensions for engineering purposes in the form of drafting floors and dressing sheds, and stones were despatched from their various quarries completely dressed and ready to be built into place. Stones for ashlarwork were split by "plug and feather" from the smaller size pieces of blasted rock, and blocked roughly to size by hammer, but were not further dressed at the quarry unless so required. The stone for granite setts was selected from the smaller rough materials, and was split by "plug and feather" on the quarry floor into blocks containing about enough material for two or three setts. The standard size of paving sett was 6 inches deep, 3½ inches wide and from 7 inches to 10 inches long; but other sizes were made down to cubes of 4 inches, or as ordered. Out of the blocks the settmaker formed by hand-hammer the nearest standard size of setts, taking

advantage of the natural cleavage of the stone as far as possible, but with a bad cleaving stone there was a large amount of waste, and the setts were correspondingly difficult to make. Small-size setts were more costly to make than large, as they could not be held properly, and was more waste of stone. The setts were deposited in separate heaps according to size beside the settmaker's, and were weighed upon a portable weighing waggon running on the quarry railways before being taken over by the master.

#### *Power Supply.*

The quarrying operations at the whole of the Aberdeenshire quarries, with the exception of Rubislaw Quarry, are carried out by steam-power, and the supply was obtained in most cases from a central boiler-house situated on the quarry bank. A main steam pipe was carried round the quarry bank to supply the hoisting and other machinery. Another main was carried down the face of the quarry to a convenient point to supply the machinery on the face. The latter main was of steel with screwed flanges, and was usually suspended by wire ropes, and formed a source of constant trouble from its inaccessibility. The long 1½ inch steam pipes also resulted in considerable loss of pressure, and as coal was a costly item owing to the long carriage, the supply of steam-power figured high in the quarry expenses. With a view to economy in this respect the proprietors of Rubislaw Quarry had recently converted their power supply from steam to electricity. Being advantageously situated in the suburbs of the city of Aberdeen, the supply of electricity had been taken from the Corporation without incurring the expenses of the initial cost of a generating plant and its subsequent maintenance. The quarry main was taken off the Corporation cable in the Corporation Road into the quarry offices close at hand, and is protected by automatic switches and metered before passing to the main switchboard, which is situated in the machine house of the 20-ton crane at the quarry. The distribution is made from the switchboard by bare copper wires, carrying a "ring main" round the quarry, carried on porcelain insulators, and distributed to the various machines at convenient points. The supply from the Corporation main is by direct current at 440 volts, and a total of 1,000 h.p. in machines has been installed.

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FRIDAY, AUGUST 16, 1907.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. business communications to the Managing Director,

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NOTICE TO ADVERTISERS.

In no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

One of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

TENDERS, ETC.

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITION OPEN.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

CONTRACTS OPEN.

ABERAVON.—Aug. 21.—For building new market, viz.:—(1) For masonry and general work, and (2) for roofing, for the Town Council. Deposit 2l. 2s. Mr. J. Roderick, borough surveyor.

ANNFIELD PLAIN.—Aug. 17.—For erection and completion of new hall, &c., at Dipton Branch, for the Annfield Plain Industrial Co-operative Society, Ltd. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

ASHFORD.—Aug. 29.—For construction of a public convenience under the Assembly Rooms, High Street. Mr. William Terrill, surveyor, Ashford, Kent.

AYLESBURY.—Aug. 22.—For erection of extension of Congregational Sunday schools and other works. Deposit 2l. Mr. R. Eaton, Buckingham Street, Aylesbury.

BALBY-WITH-HEXTHORPE.—Aug. 19.—For erection of a school at Balby-with-Hexthorpe, near Doncaster. Deposit 1l. Mr. F. W. Masters, architect, St. Vincent, Doncaster.

BARNSTAPLE.—Aug. 17.—For pointing and other repairs to the bridge, for the Barnstaple Long Bridge Charity. Mr. J. C. Southcombe, architect.

BELFAST.—Aug. 19.—For erection of a goods shed on the south quay of the York Branch Dock, co. Antrim, for the Belfast Harbour Commissioners. Mr. W. Redfern Kelly, harbour engineer, Harbour Office, Belfast.

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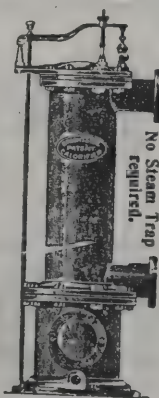
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CARDIFF.—Aug. 20.—For erection of a three-storeyed warehouse at Ely paper works. Mr. J. W. Rodger, architect and surveyor, 14 High Street, Cardiff.

CHIPPING SODBURY.—Aug. 21.—For work to be carried out at elementary school. Mr. C. G. Watts, manager, Melbourne House, Chipping Sodbury.

COMPSTALL.—Aug. 21.—For alterations and additions to the elementary school buildings. Deposit 1*l.* Mr. H. Beswick, county architect, Newgate Street, Chester.

COVENTRY.—Aug. 21.—For works required to be executed and material supplied in connection with certain repairs, painting, &c., to St. Mary's Hall (Contract No. 2). Deposit 1*l.* 1*s.* Mr. J. E. Swindlehurst, city engineer and surveyor, St. Mary's Hall, Coventry.

DARTFORD.—Aug. 26.—For erection of a bakery. Deposit 1*l.* 1*s.* Mr. W. E. Albrow, secretary of Dartford Industrial Co-operative Society, 93 Kent Road, Dartford.

DEWSBURY.—Aug. 20.—For erection of a sludge-press house and contingent works off Thornhill Road. Deposit 1*l.* 1*s.* Messrs. C. H. Marriott, Son & Shaw, Church Street Chambers, Dewsbury.

EAST GRINSTEAD.—Aug. 17.—For building additional classroom and cloak-room for girls' department of public elementary Council school. Mr. F. J. Wood, county surveyor, County Hall, Lewes.

EAST HAM.—For repairing and redecorating the pupil teachers' centre, Wakefield Street. Mr. S. A. Batchelor, secretary, Technical College, East Ham, E.

EBCHESTER.—Aug. 24.—For erection and completion of house and shop and five houses at Ebchester, Durham. Mr. Thos. H. Murray, architect and surveyor, Consett.

EDINBURGH.—Aug. 24.—For erection of industrial hall at Saughton Park for the exhibition of 1908, for the committee of the Scottish National Exhibition. Deposit 1*l.* 1*s.* Messrs. Alexander Hay & Co., surveyors, 44 Castle Street, Edinburgh.

EDMONDSLEY.—Aug. 30.—For alterations and improvements at the Council school. The County Education Committee's architect, Shire Hall, Durham.

HALIFAX.—Aug. 26.—For carpenter and joiner and plumber and glazier's work in nine dwelling-houses at

Woodside View, Halifax. Messrs. Geo. Buckley & Tower Chambers, Halifax.

HAYWARDS HEATH.—Aug. 30.—For sundry small general repairs to and painting, distempering and papering cottages on estate, and also certain officers' rooms and servants' bedrooms in the asylum buildings; also for execution of repairs to farm buildings, reroofing of cow-house, and erection of a cow-hovel in the cattle yard at the Brighton County Borough asylum. Mr. J. G. Gibbins, surveyor, 3 Palace Place, Brighton.

HENNOCK.—Aug. 23.—For erection of a farmhouse at Lower Crockham, Hennock (close to Trusham station), Devon. Messrs. Ellis, Son & Bowden, surveyors and architects, Bedford Chambers, Exeter.

HINDLEY.—Aug. 17.—For additions and alterations to the engine-house and screening-chamber at the sewage works, Platt Bridge. Deposit 1*l.* 1*s.* Mr. Oswald P. Abbot, Council Offices, Hindley, Lancs.

HOUNSLOW.—Aug. 17.—For improvements and repairs at Spring Grove infants' school and Heston schools. A. L. Lang, architect to the committee, Council House, Hounslow.

HULL.—Aug. 19.—For alterations and additions to Blenkin Street school. Deposit 2*l.* 2*s.* Mr. Joseph Hirst, city architect, Town Hall, Hull.

IVYBRIDGE.—Aug. 28.—For alterations and additions to the Ivybridge Council school, Devon. Deposit 1*l.* Architect, 1 Richmond Road, Exeter.

KINGSTON-ON-THAMES.—Aug. 19.—For erection of children's home within one mile of a goods station within the area of the Kingston Union. Mr. Jas. Edwards, clerk, Union Offices, Coombe Lane, Norbiton, Kingston-on-Thames.

LONDON.—Sept. 1.—For erection and completion of Bible Christian chapel to seat 1,050, together with a block of classrooms and other buildings at the corner of Highbury Road, South Tottenham, N. Deposit 3*l.* 3*s.* Mr. W. Bedd Rees, architect, 3 Dumfries Place, Cardiff.

MANCHESTER.—Aug. 26.—For foundationwork for 6,000-kw. turbo-generator, floor extension, air-ducts, filter house, &c., required at the Stuart Street generating station.

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MANCHESTER.—Aug. 29.—For erection and completion of brick walls, &c., including all stonework, joiner, slater and plumber's work to No. 2 retort-house at the Gaythorn gas station. Deposit 1*l.* 1*s.* Mr. C. Nickson, superintendent, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Sept. 4.—For erection of an infants school and for alterations and additions to existing Southall Municipal school, Cheetham. Deposit 2*l.* 2*s.* Education Office, Deansgate, Manchester.

MEALSGATE.—Aug. 21.—For erection and completion of twenty-six houses at Mealsgate, Cumberland. Mr. Charles Eaglesfield, architect and surveyor, Gordon Street, Workington.

NOTTINGHAM.—Aug. 19.—For alterations and additions to all Saints Council school (infants' department), Raleigh Street. Deposit 1*l.* 1*s.* Mr. Frank B. Lewis, city architect, 10, Raleigh Street, Nottingham.

PENDLETON.—Aug. 31.—For erection of a bridge in the village of Pendleton, near Clitheroe. Mr. T. Rawcliffe, surveyor, Bradhurst, Aighton, near Whalley.

PLYMOUTH.—Aug. 20.—For reinstatement of portion of house damaged by fire. Deposit 2*l.* 2*s.* Messrs. G. J. G. & Rooke, architects, 11 The Crescent, Plymouth.

PONTYPOOL.—Aug. 19.—For erection of a free library in Llanbury Road. Deposit 1*l.* 1*s.* Messrs. Speir & Beavan, architects, Borough Chambers, Wharton Street, Cardiff.

ST. HELENS.—Aug. 28.—For erection of schools in St. Helens. Deposit 1*l.* 1*s.* Mr. Frank S. Biram, architect, 10, Shaw Street, St. Helens, Lancs.

SCOTLAND.—Aug. 17.—For the following works required for erection of new premises, Leven, viz. mason and brickwork, carpenter and joiner, slater, plumber, plasterer, asphalt, marble and tile, steel, ovens and machinery, gas-engine and suction plant, dynamo and electric lighting, grates and railings. Deposit 10*s.* 6*d.* William Dow, architect, Kirkcaldy.

SCOTLAND.—Aug. 20.—For mason, carpenter, slater, plumber, painter and glazier's work of two houses erected in King Edward Street, Fraserburgh. Messrs.

Reid & McRobbie, architects, Saltoun Chambers, Fraserburgh.

SCOTLAND.—Aug. 23.—For mason, carpenter, slater, plasterer, plumber and painter's work at higher-grade school, Turriff. Messrs. James Duncan & Son, architects, Turriff.

SOUTHERY.—Sept. 6.—For erection of proposed new cloak-rooms and outbuildings at the Southery school. Deposit 2*l.* 2*s.* Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

SOUTH SIDE.—Aug. 26.—For taking-down ceiling and putting-up a boarded ceiling at Primitive Methodist chapel, South Side. Mr. R. C. Yole, secretary, South Side, Butterknowle.

STAIRFOOT.—Aug. 27.—For erection of Sunday school at Stairfoot, near Barnsley. Mr. Ernest W. Dyson, architect, 10 Regent Street, Barnsley.

STANLEY.—Aug. 26.—For excavation and brickwork in connection with the widening of Houghal Burn bridge, near West Shield Row Colliery, Stanley. The Surveyor, Council Offices, Stanley, Durham.

STANLEY.—Aug. 29.—For erection of Primitive Methodist manse. Mr. Wm. Forster, architect, Stanley, Durham.

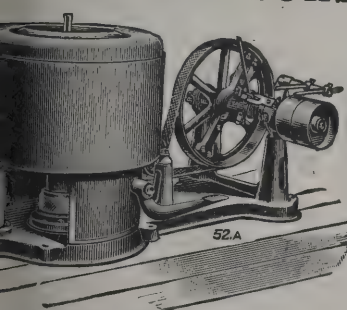
TOPSHAM.—Aug. 17.—For a range of stables and lofts at Denver Nurseries, Topsham, Devon. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

WALES.—Aug. 17.—For erection of a farmhouse at Upper House, Tancredstone, Haverfordwest. Mr. Hugh Thomas, architect and surveyor, 9 Victoria Place, Haverfordwest.

WALES.—Aug. 17.—For building residence, with stabling, &c., at Croesfaen, near Llantrisant. Deposit 2*l.* 2*s.* Messrs. Cook & Edwards, architects, Masonic Buildings, Bridgend.

WALES.—Aug. 20.—For (1) building new cloak-rooms, latrines, and erecting folding partitions, &c., at Treharris Council schools; (2) alterations, erecting new latrines, forming entrances, asphalted playgrounds, &c., at Merthyr Vale Council school. Deposit 1*l.* 1*s.* each contract. Mr. J. Llewellyn Smith, committee's architect, Central Chambers, Merthyr Tydfil.

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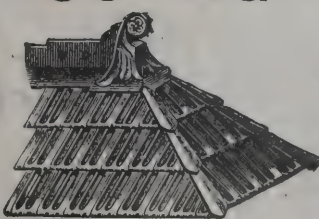
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WALES.—Aug. 21.—For erection of school for accommodation of 250 scholars at Maesycoed, Pontypridd. Deposit 5*l.* 5*s.* The Surveyor of the Council, Education Offices, Municipal Buildings, Pontypridd.

WALES.—Aug. 23.—For renovating C.M. chapel at Cwmdwyfran, near Carmarthen. Rev. S. Evans, C.M. minister, Bromwydd, Carmarthen.

WALES.—Aug. 24.—For pulling-down and re-erection of premises in Market Street, Pontypridd. Mr. A. L. Thomas, A.M.I.M.E., Church Street Chambers, Pontypridd.

WALES.—Aug. 24.—For equipment of cookery and laundry-rooms at Rhos Upper Standard school, Denbighshire. Mr. J. C. Davies, Education Offices, Ruthin.

WALES.—Aug. 26.—For erection of two additional wards at Porth cottage hospital. Mr. J. Rees, architect, Pentre.

WALES.—Aug. 27.—For erection of a Welsh C.M. chapel at Coedpenmaen, near Pontypridd. Mr. P. J. Jones, architect, 16 High Street, Tonyrefail.

WALES.—Aug. 31.—The Council of University College of North Wales is prepared to receive the names of firms willing to tender for the proposed college buildings. Mr. J. E. Lloyd, M.A., secretary and registrar, University College of North Wales, Bangor.

WALES.—Sept. 6.—For erection of ninety-one cottages, more or less, at the option of the club, for the Ynysfaio No. 1 Building Club, Treherbert. Mr. J. Rees, architect, Pentre.

THE Rev. P. P. Goldingham, the vicar of Buckingham, in announcing in his "Parish Magazine" the retirement of his curate, states:—"In trying to replace his good colleague he has had to refuse three good men simply because he cannot find a house for a married clergyman to live in. Four or five bedrooms and a bath-room ought not to be a demand too great for any place to supply in the present day, but it beats Buckingham entirely. The consequence is that the curacy is not filled up, and there appears very little chance of it being so, at any rate for the present." The reverend gentleman asks if it would not be worth while for a few Churchmen to join together and build a house for a married curate to live in.

## TENDERS.

## BASSENTHWAITE.

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I. Hodgson	£328
Maxwell	278
T. HODGSON & SONS, Keswick (accepted)	262

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For making-up Wheatash Road, Addlestone Moor.

Hebburn	£542
Kavanagh & Co.	348
Hoffmann	342
Jackson	318
Free & Sons	305
Eley	298
Wheeler	291
Franks	289
Knight & Sons	254
NORRIS, Farnham (accepted)	241

## CULGARTH.

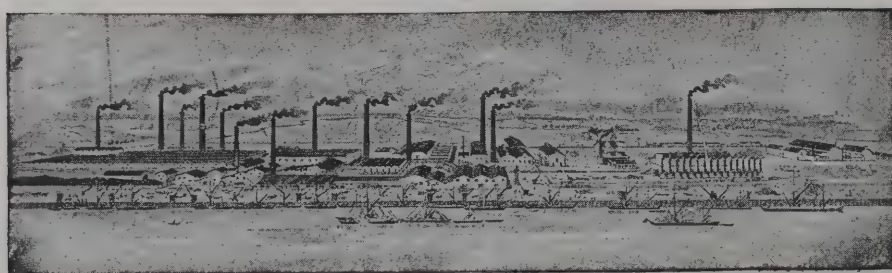
For erecting a schoolmaster's house. Mr. J. GR architect, Carlisle.

## Accepted tenders.

Sewell, mason	£199
Kitchen, other trades	117
Hudson, joiner	90

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Wazak . . . . .	2,505	0 0
USSEY, Albert Hall Mansions, S.W. (accepted)		
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erection of Moorthorpe hotel. Messrs. GARSIDE & PENNINGTON, architects, Pontefract and Castleford.		
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Walker & Co., Heckmondwike, plumber . . . . .	£1,727	0 11
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Stewart Bros., Pontefract, slater . . . . .	124	15 0
arrison, Pontefract, painter . . . . .	101	0 0
	45	10 0

DUBLIN.

erection of public library in Great Brunswick Street. Mr. C. J. McCARTHY, architect.		
Armer Bros. . . . .	£11,960	0 0
Emberton . . . . .	11,300	0 0
Onks . . . . .	11,290	0 0
& P. Good . . . . .	11,050	0 0
rampton . . . . .	11,000	0 0
. & J. Martin . . . . .	10,570	0 0
McLaughlin & Harvey . . . . .	10,500	0 0
inlen . . . . .	10,493	15 7
ollen Bros. . . . .	10,300	0 0
ackey . . . . .	10,200	0 0
onovan . . . . .	10,150	0 0
angley . . . . .	9,997	0 0

DENBURY.

For cloak-room, alterations and repairs at Council school. Mr. PERCY MORRIS, county architect (education), Exeter.		
Stevens Bros. . . . .	£189	3 0
Penevill & Son . . . . .	179	10 0
Narracott . . . . .	172	10 0
BADCOCK, Ashburton (accepted) . . . . .	151	18 3

ELMSCOTT.

For drainage works at Council school. Mr. PERCY MORRIS, county architect (education), Exeter.		
Ridge & Prior. . . . .	£244	0 0
Lee & Ellis . . . . .	228	0 6
Lane . . . . .	152	10 0
Pethick Bros. . . . .	128	16 7
CANN, Hartland (accepted) . . . . .	115	10 0

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For erection of house in South Leigh Road. Messrs. HALL, PAIN & GOLDSMITH, architects, Fareham. Quantities by Mr. C. W. BALL, Southsea.		
Osenton . . . . .	£1,455	0 0
Wright . . . . .	1,417	0 0
Wiggins . . . . .	1,316	0 0
Plummer . . . . .	1,284	0 0
Lawrance . . . . .	1,280	0 0
Dugan . . . . .	1,238	0 0
Clear . . . . .	1,230	17 10
Rubick . . . . .	1,227	13 9
Crockerell . . . . .	1,192	0 0
Privett . . . . .	1,187	0 0
Munday . . . . .	1,178	0 0
Scadgell & Son . . . . .	1,044	0 4
MUNDAY, Havant (accepted) . . . . .	1,029	6 9

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Howes	1,583	8
Gunton	1,568	8
Evans	1,559	16
Batchelor & Son	1,511	8
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Mickleburgh	1,482	0
Watts	1,473	11
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Cubitt & Gotts	296	0 0
Hawes & Sons	246	0 0
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Ludkin	237	5 0
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For new cloak-room, coal-store, repairs, &c., at Council school, for the education committee. Mr. PERCY MORRIS, county architect, Exeter.		
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Tozer	179	0 0
Perrett	176	10 0
Moore	169	12 6
Brooking	167	0 0
Rhymes	162	5 0
Lakeman	161	10 0
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Mackenzie & Macleod	4,849	8 11
Ranger	4,770	0 0
Macdonald	4,563	1 5
Robertson	4,474	10 0
Donald	4,455	0 0
Macandrew & Co.	4,346	0 0
Macrae	4,329	0 0
Macknish	4,288	4 0
Campbell	4,250	0 0
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## TRADE NOTES.

WE regret that in our notice of the awards made at the Congress on School Hygiene at Kensington, through clerical error, it should read that Messrs. Bratt, Colbran & Co. were awarded a bronze medal for their heated fireplace. This should, of course, read, their well-known patent "Heaped fire."

MESSRS. REDPATH, BROWN & Co., LTD., London, Edinburgh, Manchester and Glasgow, have taken over the contract for the supply and delivery of the steelwork for a new mill for the Wallpaper Manufacturers, Ltd., at Greenwich. The order, amounting to over 2,000 tons, was originally placed with Messrs. Milliken Bros., of New York, but the whole of the structural steelwork is being executed by Messrs. Redpath, Brown & Co., Ltd., at their London and Edinburgh works, delivery being made at the rate of 50 tons per month.

A LARGE new clock has been erected on the church of Arnesby, near Leicester, which shows time on one dial, chimes the quarters on four bells and strikes the hours. It has been made and erected by Messrs. John Smith & Son, Midland Clock Works, Derby, generally to the designs of the late Lord Grimthorpe.

MESSRS. GEORGE MILLS & Co., engineers, Radcliffe, near Manchester (the proprietors of the "Titan" sprinkler), have received the following letter from Messrs. The Shannons Ltd., Ropemaker Street, Finsbury Pavement, E.C.:—"We are glad to inform you that your sprinkler system has again done most useful work at our factory at Dalston, on the 1st inst. Were it not for the prompt alarm and the excellent action the fire would have proved a most dangerous one, as that particular department was crowded with special work almost ready for delivery, and we think it is only right that we should inform you of this. The fire was quite extinguished before the brigade arrived."

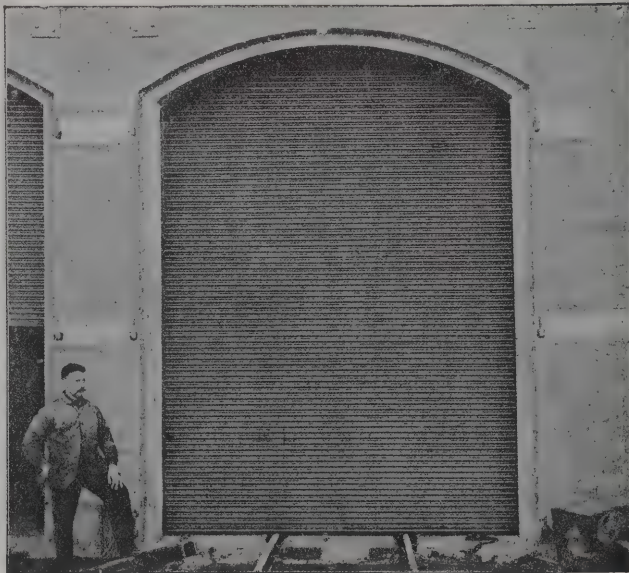
THE Colne Town Council have decided upon developing their electrical plant by expending about 5,500l., and upon laying down filters, &c., at the Laneslaw reservoir at a cost of 2,500l. An application to borrow the requisite amount will be made to the Local Government Board.

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## VARIETIES.

Prescot Board of Guardians have agreed that a new rate building be erected at a cost not to exceed 9,000*l.* to accommodate about 100 mental, epileptic and infectious cases.

A MOVEMENT is on foot to arrange for a meeting between the whole of the forty-two guilds of the City of London, the idea of seeing what sum could be raised by them towards the 100,000*l.* which is needed to save Crosby Hall.

MR. CLYNES, M.P., has given notice to ask the President of the Local Government Board whether the Manchester Corporation have submitted to his Department new building-laws; whether he can state why they have not been framed; and is he aware that similar by-laws have for years been in force in Levenshulme, a suburb of Manchester.

THE clerk of the works at Selby Abbey while engaged moving the tie beam ends which were embedded in the walls, and which had previously supported the ringing floor, was employed to inserting the steel joists in their places, discovered that the charred ends retained visible evidences of a distinguished fire. The remains were quite hot and when stirred the ashes emitted smoke, accompanied by the smell of burning wood. This unseen danger had, as it were, smothered for nine months.

In order to avoid litigation, the Bath City Council and the District Council have given a joint promise to the Somerset County Council that they will in future not send the sewage of their respective districts into the river Avon. New sewage disposal works of large extent will be constructed between the city and Bristol. No decision has been decided upon as yet, but it is expected the effluent will be allowed to run by gravitation into low land to be acquired near Salford, and that the cost of the work will be between 800,000*l.* and 1,000,000*l.*

MR. W. A. DUCAT, Local Government Board inspector, called at the town hall, Sheffield, on Tuesday, for the purpose of inquiring into three applications by the Corporation for borrowing powers. The largest of the applications was for power to borrow 26,548*l.* for works of

paving. A number of streets which are at present paved with boulders, old gritstone setts, or other unsatisfactory materials are to be put in better repair. Most of the streets will be paved with granite cubes and setts, and some with gritstone setts.

MAJOR J. STEWART, R.E., held a Local Government Board inquiry at Aston last week concerning the application of the Aston Corporation for power to borrow 17,519*l.* for the purposes of a scheme to supply electricity within the urban district of Erdington. The Inspector also inquired into an additional loan of 1,650*l.*, required by reason of the necessity to substitute the cables from Aston Cross to Salford Bridge, in order to supply the demand created in Witton by certain large manufacturers, and also by the Tame and Rea Drainage Board.

HIS MAJESTY'S CONSUL at Bilbao (Mr. A. Maclean) reports that a depression has been noted in the iron ore trade in Bilbao during the past few months. Great difficulty is experienced in selling abroad at the prices insisted on by the mine owners, and it is feared they will have to reduce their rates considerably before a frank revival in exports can be obtained. A Bilbao merchant who visited Stettin works lately found they were bringing rich ore (67 per cent. metallic) from the Ural mountains at a cheaper proportionate price than they could buy at Bilbao.

THE Ballachulish slate quarries, which are the largest in Scotland, employing about 300 hands, and the sole industry on which a population of 1,800 mainly depends, have been closed indefinitely. The reasons for this state of affairs are attributable to the unwillingness of the Quarries Company to spend any more money on the enterprise, and the refusal of the men to work on terms which would reduce their present low wages to vanishing point. The quarries closed presumably for the usual summer holidays on the 11th ult., but without the masters fixing any date for reopening the works.

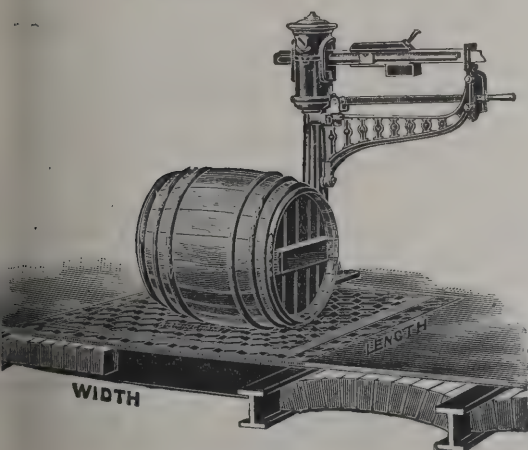
MESSRS. CARRERE & HASTINGS, of New York, have completed plans for the beautifying of Atlantic City, U.S.A. The first scheme is the development of a civic centre. It is proposed to establish a large square, the new station of the Pennsylvania R.R. to be on one side, a new city hall on the other, and smaller municipal buildings around these;



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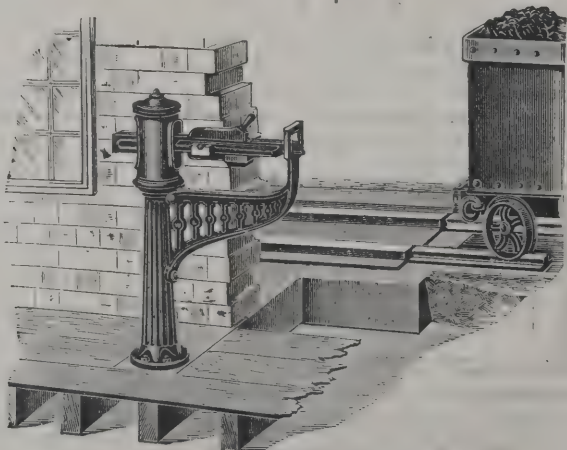
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next in importance is the drainage canal, which has been authorised by the City Council. In the development of the boardwalk it is proposed to follow the present lines, but to carry the ocean side on arches of concrete, to introduce proper electric lighting, and to construct for the convenience of visitors pavilions and shelters.

An inquiry was held last week by Mr. Richard O'Brien Smyth, Local Government Board inspector, in the South Dublin Union Workhouse into the propriety of a scheme promoted by the South Dublin District Council for the erection of seventeen labourers' cottages at Clondalkin, of one storey each, having four rooms and half an acre of ground attached. The total cost of the cottages will be 3,390*l*. At a meeting of the District Council subsequently held, a petition was adopted asking the Local Government Board to confirm a scheme for the building of labourers' cottages all over the rural district to the number of 285, at a cost of 58,000*l*.

The Chesterfield Town Council have passed the following resolution:—"That it be an instruction to the committees of the Council in all cases in which direction is given for tenders to be obtained, either for the erection of works, for the supply of materials, or for any articles to be provided in connection with the several undertakings of the Council, to require that all such tenders shall be sealed and sent direct to the clerk of the Council, and that no tender be opened by any person other than at a meeting of the committee dealing with the particular matter in question."

Mr. EDGAR DUDLEY, F.S.I., Local Government Board inspector, held an inquiry on the 9th inst., at the Birmingham Council House, with reference to the application of the City Council for sanction to borrow 4,250*l*. for the purchase of a site for a fire-station at the corner of Albion Street and Legge Lane, in the jewellers' quarter. In 1897, out of 546 fires which occurred in the city, 149 were in that district. Last year the number of outbreaks in the jewellers' quarter numbered 208 out of a total of 659. The district is served by the central station, and it takes seventeen minutes to get from the central fire station to the site of the proposed sub-station. It is proposed to expend 13,250*l*. on land and buildings.

The Manchester waterworks committee have considered the recent decision of the Council that the minimum wages

of all labourers must be 25*s*. per week. A number of men employed at Thirlmere and elsewhere receive a wage sent less than 25*s*., but the committee have taken the hitherto that living in the water-gathering area is cheaper than in the city, and that this should be taken into account. The raising of all these employes to 25*s*. per week would considerably increase the wages list, and a sub-committee to inquire what changes will be necessary. The committee may have to meet the situation by a limitation of holiday concessions, and one result may be the letting of work to contractors which hitherto has been done under the supervision of the committee's own officials.

At the last meeting of the Mersey Docks and Harbour Board the works committee recommended the acceptance of a tender for the supply of five roof cranes for the storey shed on the south side of Sandon Dock. The committee had had considerable discussion as to whether they should have electric or hydraulic cranes. Mr. Lyster, engineer, had no difficulty in persuading the committee rather the committee generally believed, that hydraulic cranes were better for the Board's purposes than electric. Besides, they had the further advantage that the initial cost was only about two-thirds that of electric cranes. In accordance with standing orders, consideration of the recommendation was postponed for a week.

The Swansea Harbour Trust on the 9th inst. decided that the contractors should be instructed to excavate the site of the land available for extension in the future to the extent of half a million cubic yards. This will involve an outlay of about 25,000*l*. The executive committee considered the equipment of the new dock, and it was decided to advertise for tenders for twenty 2-ton cranes and one 10-ton crane. The general manager submitted a statement as to the advisability of carrying out an extension of the new dock at the eastern end, which had been referred to as likely to be useful in the event of Cammell, Laird & Co. locating proposed Welsh works in the district. This will involve an outlay of about 90,000*l*. The trustees felt that the carrying out of such an important work would furnish a powerful inducement to some large firm or firms to erect works at the Burrows, where sites are available, and will be adjacent to the extension. Having regard therefore to the fact that the work can be carried out at present more

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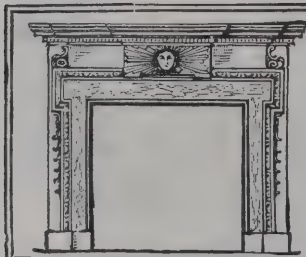
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later, it was decided to give the contractors instructions to proceed with the work.

A PUBLIC illuminated clock, which has been placed in front of the gable of the Harold Club at Low Moor by members, as a memorial of the late Lord Cranbrook, set going by the Earl of Cranbrook at 8 o'clock P.M. on day last, the 12th inst., before a large number of members, and spectators, Mr. Laurence Hardy, M.P. for Ford Division, Kent, Mr. H. B. Woodcock, Mr. Walter H. chairman, and Mr. H. Laycock, secretary. The clock was built and fixed by William Potts & Sons, clock manufacturers, Leeds and Newcastle-on-Tyne, from the plans of the late Lord Grimthorpe, and will be a great boon to the inhabitants and Bradford City trams, which run close to the front. Messrs. Potts are fixing several more clocks in the district.

CERTAIN members of the Dundee Harbour Trust last week visited Manchester and Liverpool to inspect the plans and obtain information which might be of value in considering the question of the reconstruction of the harbour at the east end of the harbour and the erection of new wharves. The draft report concludes:—Your representatives have greatly profited by their visit to these two great ports. They have seen buildings, equipment and the most modern of dock appliances. They were much impressed with the magnificent range of ferro-concrete wharves erected alongside No. 9 Dock at Manchester. These wharves seem admirably adapted for the purpose. They occupy space very considerably, are capable of storing immense quantities of all kinds of goods, and can be most efficiently supervised and worked cheaply. They are fire-proof throughout. It is believed that sheds of similar construction, but possibly of a less height, would be eminently suitable for the western and eastern wharves at Dundee, and it is suggested that the trustees should consider the expediency of reconstructing the jetties, beginning with the western wharf, in ferro-concrete, and of erecting on them sheds of similar material fitted with the latest type of electric or hydraulic cranes for the expeditious discharge, loading and delivery of cargoes. If some such scheme were carried out the trustees would have at their disposal a immense amount of storage accommodation.

## THE FOUNDRY TRADE.

THE Annual Convention of the British Foundrymen's Association was held recently in Sheffield, under the presidency of Mr. Herbert Pilkington, M.Inst.C.E. In the course of his address, according to the *Derbyshire Courier*, he said that Sheffield was the home of the steel trade, and, what was more interesting to them as foundrymen, the home of steel castings. In the city, steel castings of every type were made—crucible, Siemens and Bessemer—and there was no place in this country, or any other so far as he knew, where that industry was so large and so deeply rooted. Over the county border in Derbyshire they would have the opportunity of seeing, amongst other things, the manufacture of cast-iron pipes, which in that county had become more highly specialised than in any other part of England owing to the construction of special tackle, special handling plant, and the organised classification of work. They would also see pipe foundries, general foundries and engineering shops wholly driven by power derived from blast-furnace gases. He had been charged with being a pessimist with regard to the iron and steel of this country, a criticism with which he had no desire to quarrel, inasmuch as the charge was somewhat mistaken. In particular he was no pessimist with respect to their foundry trade, neither were any of them in the Sheffield district pessimists on that point. He believed that the English founding trade in both iron, malleable iron and steel, had a great future before it. England was a great engineering country, and with its development in mechanical engineering, constructional work, engine and ship-building, he could only see a large and increasing trade before them in foundry work. What he was pessimistic about, the President went on, was the antiquated methods and the antiquated spirit with which, for the most part, they dealt with the manufacture of castings of all sorts. Although there were excellent exceptions, it appeared to him that there was no department in the great iron and steel trades which was so behindhand, not only in commercial methods but in mechanical arrangement, systematic organisation and scientific methods as was the ordinary foundry. What was needed in English foundries was for them to "wake up," and it was the duty of an Association like theirs to wake up

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founders by such criticism and teaching as they were of capable. Although England exported thousands of tons of foundry pig-iron annually to Germany and other parts of the Continent, it was clear that Germany alone made something like double the amount of iron castings England did. Speaking more particularly of foundry methods, he pointed out that it was frequently stated that if six different firms in this country were asked to tender for any line of castings they would never fail to get one tender out of the six at such a price that the castings were bound to be made for something less than the cost of production. There was no doubt whatever that there was a grave element of truth in that statement. It clearly showed that the organisation and perfection of casting and estimating was in a very unsatisfactory condition. In the ordinary engineering works the foundry and foundry affairs were relegated to a subordinate position, and generally regarded as an objectionable, if perhaps a necessary department. There was no place, however, where systematic organisation and specialisation was more distinctly necessary than in the foundry. The ordinary jobbing foundry, whether suitable or otherwise for the work, often attempted all sorts of castings. Its products were so miscellaneous that generally the work was hopelessly confused with regard to the detailed cost of production, and therefore the founders were not in a position to properly estimate and make out tenders based on previous experience. After all, the first element of success was to be found in cost keeping within the foundry itself, the President said, and he argued strongly for the working out of the exact cost of each different job so as to provide a correct estimate and fairly accurate basis for tendering for other work. Specialisation of the production of castings would necessarily be one of the features of foundry development in the future. There was a tendency to confine the manufacture of a particular type of casting to particular shops, properly constructed and arranged for the purpose, or to build the whole foundry for a particular type of casting, and merely use different shops of different handling capacity for the different weights of castings made. Wasters were often the cause of much misplaced energy, not to speak of language in all foundries, but he thought that in most instances the production of wasters might be very much diminished

by an organised study of them. A proper "waster book" ought to be kept, and every waster recorded, and the number or name of those who made the waster, together with the type, the cost of its production, or the particular invention made with regard to it. Generally speaking, so far as foundrywork was concerned the study of various statistics carefully compiled, dealing with costly tackle, boxes, bars and other tackle, would amply repay all the cost and trouble it would entail. Perhaps the greatest advance in this country in regard to foundrywork, and particularly in the founding, had been the increased attention paid to the study of the metallurgy of cast-iron. There was still an immense amount of work to be done on the subject of cast-iron compared with steel, but it was a good omen for the future that so much had already been accomplished. Not only a large amount of research work had been accomplished, but a great deal was in progress at the present time. The attention of the chemist and metallurgist in the foundry had in every case been immediately productive of better results, owing to the fact that metallurgy had first of all to be adapted to the circumstances and conditions obtaining in the work, perhaps more frequently because it was a long time before a foundry manager or foreman was able to appreciate the value of such work. Every foundry manager, however, ought to be such a practical student of metallurgy as would enable him, at all events, to apply the work of metallurgists in a systematic and practical way in the foundry, because obviously, the manipulation of such matters must rest with the foundry chief, although he must be guided by the analysis and other work of the metallurgist. Another subject they would surely have to make up their minds to take up was in respect to the inspection of castings and the methods in which they were composed. In pointing out a few of the defects existing in the foundry system and organisation, the President said in conclusion that he was quite well satisfied that foundries existed which were above criticism and reproach, and that during the last few years immense steps had been made. They did not give precedence to the country in the excellence and soundness of their products, and British castings were still the envy of the world. He hoped that position would be maintained, and that England might also excel in the scientific and systematic method of production in every way.

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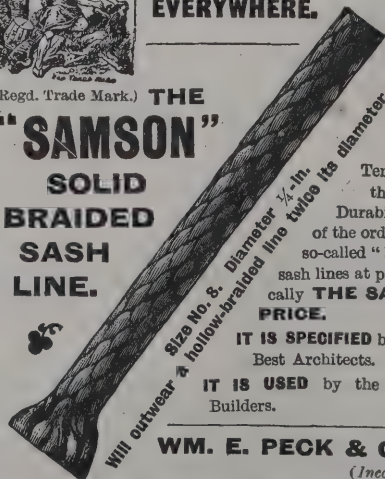
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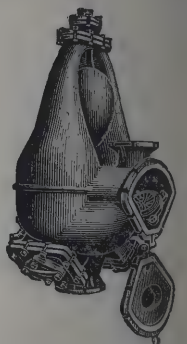


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# ICE PROBLEM IN CANADIAN ENGINEERING.\*

In Canada the physicist has excellent opportunity to study on a grand scale the operation of the natural laws governing the formation of ice in the many forms met with in the large and often turbulent rivers. To the engineer the problem is more serious, for the development of the vast water powers of the country must include means for combating the ice troubles which arise each winter. The conditions which must be met during the winter months are sometimes very serious, when ice is forming rapidly, and ice-bridges, dams and shoves may change the whole character of the levels and channels in a single night. Rivers are known to have been turned entirely out of their course to seek new channels during a winter of unusual severity, and in some instances the reversal of a rapid is of early occurrence. Nowhere can one witness a more wonderful sight of the delicate poising of the forces of nature than in one of the Canadian rivers in winter. The readiness of the temperature of the water throughout the season is a matter of great interest. It seldom varies more than a few thousandths of a degree from the freezing point even in the severest weather. This is true for rivers flowing too swiftly for surface ice to form, as well as for the quieter streams protected by an ice covering.

In general three varieties of ice are distinguished, and present characteristics brought about by their method of production. Surface or sheet ice forms over the surface of lakes or rivers, and is helpful or not, depending on the particular conditions. Spicular ice, or as it is called in Canada, frazil ice, is formed by surface agitation in the more turbulent rivers, and in waterfalls, and accumulates in great quantities in the quieter portions of the stream where it is carried by currents. It varies in size from thin needles to fine needle crystals depending on the degree of agitation of the water, and of all the forms of ice it gives the most trouble in hydraulic work. Anchor or ground ice is the most interesting form on account of the fact that it grows along the bed of a river which is not covered by a

surface sheet. It is formed in two ways: by the cooling of the bottom by the radiation of heat during cold clear nights and by the freezing of frazil ice carried down by the currents of water when in a supercooled state. A bright sun has a great influence on the ice, and as soon as its rays are sufficiently high to penetrate to the bottom, the ice is detached and rises to the surface. In so doing it frequently brings up stones or boulders of considerable size to which it is attached.

A study of the temperature conditions in the water during the production of these forms of ice shows that the freezing is accompanied by a small temperature depression in the water, amounting to a few thousandths of a degree from the freezing point. During severe cold weather the water is thus thrown into a slightly supercooled state, during which time the ice crystals grow rapidly by continued freezing and give rise to the agglomerating stage, when they possess adhesive properties and form lumps and spongy masses. In this condition the ice is dreaded by power users, for it quickly adheres to the rack-bars and to the machinery of the wheel-gates and turbines. In a short time it interferes with the operation of the wheels and may at any moment cause a temporary cessation of operations. Fortunately, it is only a minute temperature depression which brings about these conditions, and methods of artificial heat applied about the affected spots relieve the situation in a short time. An intelligent use of artificial heat, specially at night time when supercooling is most common, is found valuable in preventing any interference with the normal operation of a power-house. It is not necessary to warm the entire volume of water passing through, which would be very costly and difficult, but by applying the heat in the racks or wheel cases, or blowing steam about the affected parts, the ice is prevented from obtaining a foothold. The ice is as effective as so much water in producing a head, hence the necessity of passing it through, and never allowing it to freeze to the metal surfaces of the machinery. It is safe to say that where it is possible to apply even a small quantity of heat directly to the machinery and racks, a condition of affairs may be done away with which for many years has been regarded as involving inevitable interruption to the continuous operation of a plant.

There are other causes at work, however, to interfere

A paper by Mr. Howard T. Barnes, D.Sc., F.R.C.S., Associate Professor of Physics, McGill University, Montreal, read before the British Association.

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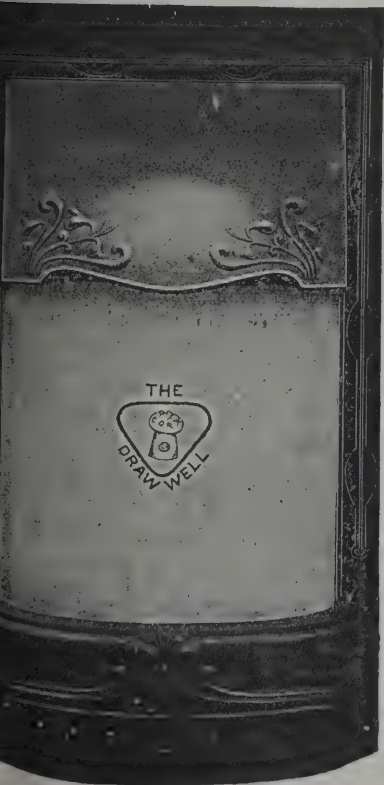
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with the operation of power plants, which depend on the particular spot where a power-house is located. Rivers like the St. Lawrence at Montreal are subjected to winter floods, occasioned by the accumulation of frazil and disintegrated anchor ice. Wherever open water or a rapid occurs above a surface sheet of ice, large quantities of frazil ice are carried under by the currents and settle upwards in the quieter parts. Large hanging dams of spongy ice are thus produced, which so reduce the available waterway as to cause serious changes in level. Sometimes the channels become blocked entirely, and then the water backs up sufficiently to clear the ice away and produce a shove. A tremendous upheaval results, and large masses of ice are piled on high for miles round, often doing much damage.

It is well known that the most effective prevention to the formation of both frazil and anchor ice is the protection afforded by a surface sheet of ice. If a power-house is located on a river normally frozen over, with no stretches of open water above, no ice troubles are experienced. When this is not possible, artificial canals are usually constructed, in which the water flows sufficiently slowly to freeze over. If the canal is fed from the open river, booms and crib-work are resorted to in order to deflect much of the ice. If the inflowing water current is sufficiently rapid to draw the frazil under the surface ice, it is often necessary to cut artificial channels to allow of sufficient water for the wheels. Thus a surface sheet may prove to be disadvantageous. So many and varied are the conditions to be met with in the location of a power-house that no set of rules can be given to meet the general case. It is only by a thorough knowledge of the laws underlying the formation of ice that means may be found to cope with any particular situation. It may safely be said, however, that the ice problem in Canada is no bar to the future development of her vast water-powers.

#### BUILDING GRANTS FOR SCHOOLS.

The following regulations were issued this week by the Board of Education in regard to grants for the building of new public elementary schools in England and Wales:—

After the passing of the Appropriation Act, 1907, the

Board of Education will, during the financial year ending March 31, 1908, make grants, in circumstances which the Board's view will render such grants expedient, in of the building of public elementary schools provided local education authorities in accordance with the following regulations. Applications for these grants may be made to the Board by any local education authority, and the Board will also consider and bring to the notice of the local education authority concerned any cases brought before them by minor local authorities or by parents.

1. No grant will be made in respect of any building enlargement for which the building contract was signed before August 1, 1907.

2. The grant may be paid in respect of the acquisition of sites or the erection of buildings or the enlargement of existing buildings.

3. The grant, which will be payable to local education authorities only, may be for a proportion, or, where the Board think fit, for the whole of the expenditure incurred for the provision of the site and building. Any question to the allocation of the grant arising in connection with section 18 (1) (c) of the Education Act, 1902, shall be determined by the Board.

4. The building in respect of which the grant is paid must be clearly distinguishable from any neighbouring buildings.

5. Except in the case of temporary buildings a grant will not be payable in respect of a leasehold site where freehold site can be obtained, and no lease should be for a shorter time than seventy-five years.

6. The plans must be approved by the Board.

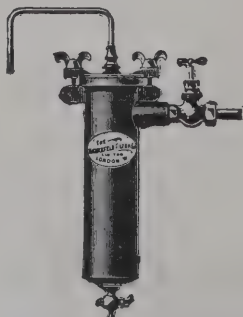
7. The Board will require an undertaking under the seal of the authority that the building in respect of which the grant is made under these regulations will not be used for purposes other than those of a public elementary school at any such time or in any such manner as will interfere with the work of a public elementary school. The undertaking must bind the authority to refund, in the event of the Board so requiring, the whole or part of the grant if this condition ceases to be satisfied, or if the school ceases to be recognised as a public elementary school.

8. The provisions of sections 8 and 9 of the Education Act, 1902, must have been fulfilled, so far as they apply

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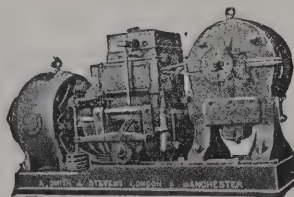
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for any grant is paid under these regulations; but on the expiration of the three months' notice required by section 8 of that Act in the case of new schools, the Board will be prepared to pay a grant under these regulations in respect of any sums, whether paid by way of instalments or otherwise, which may have been actually disbursed from time to time by the local authority between August 1, 1907, and March 31, 1908, in respect of the provision of sites or buildings in accordance with these regulations, and which are approved by the Board for the purpose of calculating a grant; but no grant will be payable under these regulations after March 31, 1908, unless a similar grant is sanctioned by Parliament in respect of the financial year ending March 31, 1909.

9. The Board must be satisfied that the accommodation to be provided, whether by permanent or temporary premises, is necessary within the meaning of section 9 of the Education Act, 1902. In considering this point the Board must, *inter alia*, be satisfied by the submission of satisfactory evidence that the parents of not less than thirty children of school age desire accommodation in a public elementary school provided by the local authority, and that the only existing public school accommodation of a permanent character available for those children is not so provided. In no case will a building grant under these regulations be payable in respect of school places which are needed to make good a numerical deficiency of public elementary school accommodation, and which the local education authority would therefore (in the absence of other proposals for supplying that deficiency) be obliged in any case to provide.

10. The decision of the Board as regards the interpretation of these regulations is final.

### CORROSION OF IRON.

At the recent meeting of the American Society for Testing Materials, Dr. Allerton S. Cushman, of the United States Department of Agriculture, made the first public announcement of the very interesting investigations he has been carrying on for several years on the causes which underlie the corrosion of iron. A number of new points were brought out, among which the most startling are that

oxygen plays only a secondary rôle in the rusting of iron, and that the best preventatives of rust are to be found among the most effective oxidising agents known, such as chromic acid and its salts. This view is so contrary to all previous conceptions, says the *Engineering Record*, that it is naturally received with some incredulity when first heard, yet those who are familiar with the investigations and conceptions upon which the new theory of corrosion is based are of the opinion that the evidence which has been brought forward is not only convincing but conclusive.

The fact that chromic acid and its salts act as inhibitors of rusting has been known for some time, but no explanation of the curious phenomenon has ever been offered heretofore, nor has its application to practice ever been suggested. Dr. Cushman has made a special study of this problem, and although it remains to be seen what practical benefit may develop out of these new ideas, it is most gratifying to be able to state that if any patents are granted covering rust inhibitors they will be taken out in accordance with the practice of the Department of Agriculture so that they will be free for all American citizens.

If a text-book is consulted for an explanation of the rusting of iron it will be found that carbonic acid has heretofore been generally held responsible for the formation of rust. Iron is supposed to be attacked by carbonic acid, with the formation of carbonate, which is then acted on by water and the oxygen of the air to form the red hydroxide known as rust, the carbonic acid being again set free to take up its destructive work. According to this theory, in an atmosphere which did not, like that of this earth, contain about  $\frac{1}{100}$  of 1 per cent. of carbonic acid, the rusting of iron would be an unknown phenomenon. That this, as well as the peroxide hypothesis which has lately been developed in England, must be relegated to the dump pile of abandoned theories seems to be conclusively shown by these latest researches.

According to the electro-chemical or electrolytic theory which Dr. Cushman upholds, the first attack on iron is not made by oxygen, even in the presence of water, but by hydrogen in the form of the hydrogen ion. According to the modern theory of solutions, many substances when dissolved in water are dissociated into ions, which may be regarded as atoms carrying static electrical charges. Water

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itself, even when pure, contains a certain proportion of hydrogen ions, and the presence of many impurities, especially those which are by nature acid, increases the hydrogen ions and thus the tendency to attack iron and carry on corrosion. The action is entirely electrolytic, being continually accompanied by an exchange of the electro-static relations between the iron and the attacking hydrogen. Such oxidising agents as the chromate and bichromate of potash inhibit rusting by polarising the iron to the condition of an oxygen electrode, thus preventing the approach or attack of the hydrogen ion. One of the most extraordinary points brought out is that this polarisation effect is to some extent lasting. That is to say, if iron is immersed or "pickled" in a concentrated solution of bichromate acid and is then washed and wiped, it is rendered passive, so that it resists electro-chemical attack whether this take the form of rust formation or the well-known plating out of copper which takes place if the chromated specimen is immersed in a dilute solution of copper sulphate. In short, the action which goes on when iron rusts is in every respect analogous to that which takes place when iron is immersed in a solution of a copper salt. In the latter case, copper ions carrying positive electro-static charges are present, iron passes into solution and assumes the electro-static charge, while copper plates out and becomes visible. When iron rusts, iron passes into solution while hydrogen "plates out." Once in solution the oxygen of the air oxidises the iron to the insoluble form of the red hydroxide known as rust. This electrolytic action can be shown taking place by the use of a special polar indicator which has been called "ferroxyl." It follows from this that anything that will inhibit electrolytic action will act the part of a rust preventive.

To what extent the various salts of chromic acid will come into use for the treatment of boiler feed waters and for "pickling" structural material will depend upon experiments carried out on a large scale. Dr. Cushman himself is emphatic in pointing out the necessity for care and conservativeness in approaching the practical application of these purely scientific investigations. One of the modern problems in boiler practice is the rapid corrosion of boiler tubes used in connection with turbine engines. The copper which is dissolved by the action of the steam jets impinging on the bronze blades of the turbine rapidly corrodes the

iron in the boilers by the electrolytic action just described. Since it has been found that the presence of bichromate feed water will prevent this action, it seems as though a solution of this important problem has been discovered. The engineering world will eagerly await the detailed publication of Dr. Cushman's researches, as well as the results of the practical tests which are sure to follow.

#### NOTICES TO TRAVELLERS.

THE case *Wilson v. Dobbins*, which was tried on the 11th inst. at the Westminster County Court before his Honour Judge Woodfall, sitting with a jury, involved a question to the length of notice to which a commercial traveller is entitled. Mr. C. E. Jones was counsel for the plaintiff, Mr. C. J. Mathews represented the defendant. It appeared that the plaintiff was engaged in the year 1904 by a company then known as the British Prismatic Light, Ltd., afterwards called the Maximum Light Window-Glass Company, of which the defendant was managing director, and that he afterwards acquired and carried on the company's business and retained the plaintiff in employment. The plaintiff was paid weekly a salary and travelling expenses, but there was no agreement between the plaintiff and the defendant as to what length of notice was to be given to determine the employment. In the early part of this year the defendant gave the plaintiff a week's notice, against which the plaintiff protested. The defendant then seems to have consulted a solicitor, whom he was advised to give the plaintiff a month's notice, which he did. The plaintiff, however, still protested that this was not a reasonable notice, and the defendant having insisted that the employment was terminated, the plaintiff brought this action claiming damages for wrongful dismissal. There was no suggestion that the plaintiff's work had not been done thoroughly well, and ultimately the jury, after consultation, found that he was entitled to three months' notice, and his Honour the judge gave judgment for 32*l.* 1*s.* 6*d.* being thirteen weeks at 2*l.* 10*s.*, the amount of the plaintiff's salary.

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**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

**TENDERS, ETC.**

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITION OPEN.**

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

**CONTRACTS OPEN.**

ALDERSHOT.—Sept. 3.—For construction of an underground convenience in High Street, adjoining the county police station. Mr. F. C. Uren, surveyor, Municipal Buildings, Aldershot.

ASHFORD.—Aug. 29.—For construction of a public convenience under the Assembly Rooms, High Street. Mr. William Terrill, surveyor, Ashford, Kent.

BARNSELY.—Aug. 31.—For erection of twenty dwelling-houses and outbuildings off Jumble Lane. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

BELFAST.—Aug. 27.—For making a store-room, erecting a circular stair, heating clothing stores and carrying-out alterations at the clerk's office, workhouse. Messrs. Young & Mackenzie, architects and engineers, Belfast.

CHATBURN.—Aug. 28.—For erection of a cottage. Mr. Edmund T. Welch, architect and surveyor, 10 York Street, Clitheroe.

CHESTER.—Sept. 16.—For public elementary school for 600 boys and girls, to be erected in Love Street. Deposit 1l. Mr. H. Beswick, architect, Newgate Street, Chester.

DARTFORD.—Aug. 26.—For erection of a bakery. Deposit 1l. 1s. Mr. W. E. Albrow, secretary of Dartford Industrial Co-operative Society, 93 Kent Road, Dartford.

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DARLINGTON.—Aug. 28.—For erecting roofs over three foldyards at the sewage farm and for relaying a wood floor at the corn exchange. Mr. George Winter, borough surveyor, Town Hall.

DENVER.—For new offices, outbuildings and fencing, &c., to the Denver non-provided school, Norfolk. Messrs. Lacey & Upcher, architects and surveyors.

DORNEY.—Aug. 31.—For supply of materials and labour for the erection of stabling at the Manor Farm, Dorney, for the Slough U. D. C. Deposit 2*l*. The Town Surveyor's Office, 1 Mackenzie Street, Slough.

DUNBAR.—Aug. 26.—For mason, joiner, plumber, plaster and slater's work in connection with proposed alterations and additions to police station. Inspector Campbell, the Police Station, Dunbar.

EBCHESTER.—Aug. 24.—For erection and completion of house and shop and five houses at Ebchester, Durham. Mr. Thos. H. Murray, architect and surveyor, Consett.

EDINBURGH.—Aug. 24.—For erection of industrial hall at Saughton Park for the exhibition of 1908, for the committee of the Scottish National Exhibition. Deposit 1*l*. 1*s*. Messrs. Alexander Hay & Co., surveyors, 44 Castle Street, Edinburgh.

EDINBURGH.—Aug. 26.—For excavator, mason and brick, carpenter and joiner, plumber, slater and plasterer, and cement works in connection with cottage at Newtongrange. Mr. Edward C. Carse, architect, 37 Frederick Street, Edinburgh.

EDMONDSLEY.—Aug. 30.—For alterations and improvements at the Council school. The County Education Committee's architect, Shire Hall, Durham.

HALIFAX.—Aug. 26.—For carpenter and joiner and plumber and glazier's work in nine dwelling-houses at Woodside View, Halifax. Messrs. Geo. Buckley & Son, Tower Chambers, Halifax.

HAYWARDS HEATH.—Aug. 30.—For sundry small general repairs to and painting, distempering and papering cottages on estate, and also certain officers' rooms and servants' bedrooms in the asylum buildings; also for execution of repairs to farm buildings, reroofing of cow-house, and for erection of a cow-hovel in the cattle yard at the Brighton

County Borough asylum. Mr. J. G. Gibbins, surveyor, 3 Palace Place, Brighton.

HUDDERSFIELD.—Aug. 26.—For new shop fronts to 1 and 3 Buxton Road. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

HULL.—Aug. 31.—For building brick wall at back of St. Andrew's Dock branch premises, also corrugated iron roofing with skylight. The Manager, St. Andrew's Dock.

IRELAND.—Aug. 27.—For engine foundations, &c., for the electric committee, Limerick. Deposit 10*s*. The Engineer, Frederick Street, Limerick.

IRELAND.—Sept. 7.—For structural additions and alterations, and also for sanitary plumbingwork and water supply, to the Manse, Milford, co. Donegal. Mr. T. Stewart, Milford.

IRELAND.—Sept. 25.—For building boot factory and warehouse, also shops and dwelling-houses, at Castle Gate Corner and Waterloo Street, Londonderry. Mr. Patrick H. Elliott, architect, Exchange Buildings, Castle Street, Londonderry.

IVYBRIDGE.—Aug. 28.—For alterations and additions to the Ivybridge Council school, Devon. Deposit 1*l*. 1*s*. Architect, 1 Richmond Road, Exeter.

LONDON.—Aug. 30.—For erection of a county court and offices at Brompton, S.W. Deposit 1*l*. 1*s*. Mr. H. N. Hawks, H.M. Office of Works, Westminster, S.W.

LONDON.—Sept. 1.—For erection and completion of Bible Christian chapel to seat 1,050, together with a block of classrooms and other buildings at the corner of High Road, South Tottenham, N. Deposit 3*l*. 3*s*. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

LONDON.—Sept. 4.—For alterations and additions to the hot-water supply apparatus for certain blocks at the Western Fever hospital, Seagrave Road, Fulham, S.W. Deposit 2*l*. Mr. W. T. Hatch, the Metropolitan Asylums Board, Embankment, London, E.C.

LONDON.—Sept. 5.—For general internal alterations, cleaning, painting, papering and repairs to be effected at 11 Amptill Square, and for exterior cleaning to front of 10 and exterior cleaning and painting to front of 11 Amptill

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LONDON.—Sept. 12.—For erection of a day-room and workshed at St. George's workhouse, Mint Street, S.E. Deposit 5*l*. Mr. Arthur J. Wade, architect, 104 Harvist Road, Kilburn, N.W.

LONGTON (STAFFS).—Aug. 29.—For erection of cart-shed and conveniences at the Corporation stable yard. Mr. J. W. Wardle, borough surveyor, Court House, Longton.

LUNESDALE.—Aug. 29.—For erection of lavatories, &c., at the Council hospital at Farleton; also for painting the hospital. Mr. A. Harold Strachan, clerk, Union Offices, Hornby, Lancaster.

MACCLESFIELD.—Aug. 24.—For erection of a post-mortem room on Corporation land in Hawthorne Street. The Borough Engineer, Town Hall, Macclesfield.

MACCLESFIELD.—Sept. 3.—For erection of a laboratory at the Macclesfield sewage works, Butley. The Borough Surveyor, Town Hall, Macclesfield.

MANCHESTER.—Aug. 26.—For foundationwork for a 6,000-kw. turbo-generator, floor extension, air-ducts, filter-house, &c., required at the Stuart Street generating station. Deposit 1*l*. 1*s*. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Aug. 29.—For erection and completion of brick walls, &c., including all stonework, joiner, slater and plumber's work to No. 2 retort-house at the Gaythorn gas station. Deposit 1*l*. 1*s*. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

MANCHESTER.—Sept. 4.—For erection of an infants school and for alterations and additions to existing Southall Street Municipal school, Cheetham. Deposit 2*l*. 2*s*. Education Offices, Deansgate, Manchester.

MIDSOMER NORTON.—Aug. 26.—For medium-sized stone-built house at Midsomer Norton, near Bath, Somerset. Mr. R. C. Austin, architect, 37 Old Queen Street, Westminster, S.W.

PENDLETON.—Aug. 31.—For erection of a bridge in the village of Pendleton, near Clitheroe. Mr. T. Rawcliffe, surveyor, Bradhurst, Aighton, near Whalley.

POWBURN.—Aug. 30.—For a dwelling-house at Powburn, near Alnwick. Mr. M. Temple Wilson, architect and surveyor, Alnwick.

ROCHDALE.—Aug. 28.—For erection of a retaining wall at Sparth, Manchester Road. Mr. S. S. Platt, borough surveyor, Town Hall, Rochdale.

ST. HELENS.—Aug. 28.—For erection of schools in St. Helens. Deposit 1*l*. 1*s*. Mr. Frank S. Biram, architect, Hardshaw Street, St. Helens, Lancs.

SCOTLAND.—Aug. 23.—For mason, carpenter, slater, plasterer, plumber and painter's work at higher-grade school, Turriff. Messrs. James Duncan & Son, architects, Turriff.

SCOTLAND.—Aug. 28.—For mason, carpenter, slater, plasterer, painter, plumber and heating work in connection with the parish church hall, Old Meldrum. Mr. James Cobban, architect, Haddo House.

SCOTLAND.—Aug. 29.—For additions to police buildings, Oban. Mr. Charles Macintyre, architect, Oban.

SCOTLAND.—Aug. 29.—For mason, carpenter, plumber, slater, plaster and painter's work, and for the iron beams required in buildings to be erected at 34 and 36 High Street, Grantown-on-Spey. Mr. John Wittet, architect, Elgin.

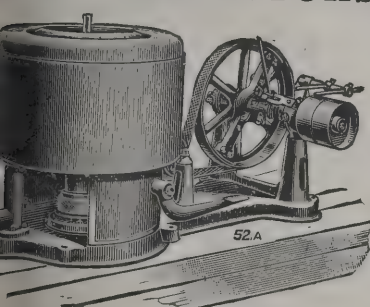
SHIPLEY.—Aug. 26.—For erection of a warehouse at Shipley, Yorks. Messrs. James Young & Co., architects, 62 Market Street, Bradford.

SLAITHWAITE.—Aug. 26.—For excavator, mason, carpenter and joiner, plumber and glazier, slater, patent glazier, steel and iron founder, concreter and painter's work required in the erection of sheds at Slaithwaite, Yorks. Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge.

SMALLTHORNE.—Sept. 14.—For extensions at Bradeley Council school, Smallthorne, Staffs. Additional accommodation provided about 468 places. Deposit 2*l*. 2*s*. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

SNAINTON.—Aug. 26.—For pulling-down existing buildings and building house and shop, with bakehouse, &c. Mr. David Petch, architect, 166 Prospect Road, Scarborough.

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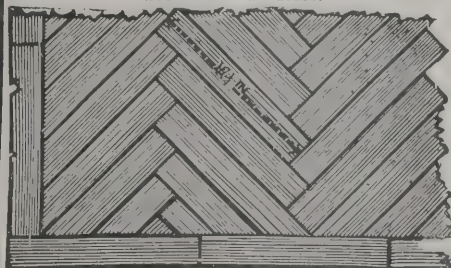


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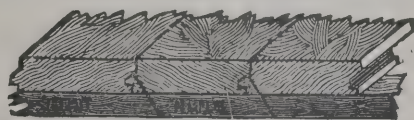
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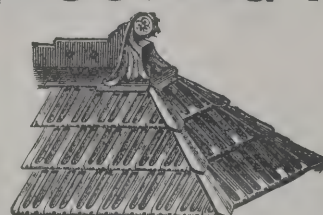
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**SOUTHERY.**—Sept. 6.—For erection of proposed new cloak-rooms and outbuildings at the Southery school. Deposit 2*l.* 2*s.* Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

**SOUTH SIDE.**—Aug. 26.—For taking-down ceiling and putting-up a boarded ceiling at Primitive Methodist chapel, South Side. Mr. R. C. Yole, secretary, South Side, Butterknowle.

**STAIRFOOT.**—Aug. 27.—For erection of Sunday school at Stairfoot, near Barnsley. Mr. Ernest W. Dyson, architect, 10 Regent Street, Barnsley.

**STAMFORD.**—For the erection of north-light galvanised ironwork shops, excavating and forming site for same, erection of office, stable and cottage near to Ryhall Road. Mr. J. T. Ward, architect, Stamford.

**STANLEY.**—Aug. 26.—For excavation and brickwork in connection with the widening of Houghal Burn bridge, near West Shield Row Colliery, Stanley. The Surveyor, Council Offices, Stanley, Durham.

**STANLEY.**—Aug. 29.—For erection of Primitive Methodist manse. Mr. Wm. Forster, architect, Stanley, Durham.

**SUNDERLAND.**—Sept. 4.—For erection of a new hospital for children at High Barnes. Deposit 1*l.* 1*s.* Mr. Thomas Robinson, secretary, Infirmary Offices, Fawcett Street, Sunderland.

**TANFIELD.**—Aug. 26.—For erection and completion of trap shed, storehouse, &c., at Tanfield hospital. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

**TIVERTON.**—Aug. 26.—For executing certain repairs at the workhouse. Mr. J. Follett Pugsey, clerk, Tiverton.

**UXBRIDGE.**—Sept. 4.—For erection of following blocks of buildings, for Joint Hospital Board, viz. hospital ward block, observation ward block, administrative block, and laundry and disinfectant block at their hospital, Kingston Lane, Hillingdon, Uxbridge, Middlesex, together with works of drainage, roadmaking, fencing, &c. Deposit 3*l.* 3*s.* Mr. William L. Eves, architect, Uxbridge, Middlesex.

**WALES.**—Aug. 24.—For pulling-down and re-erection of premises in Market Street, Pontypridd. Mr. A. L. Thomas, A.M.I.M.E., Church Street Chambers, Pontypridd.

**WALES.**—Aug. 24.—For equipment of cookery and laundry-rooms at Rhos Upper Standard school, Denbighshire. Mr. J. C. Davies, Education Offices, Ruthin.

**WALES.**—Aug. 26.—For erection of two additional wards at Porth cottage hospital. Mr. J. Rees, architect, Pentre.

**WALES.**—Aug. 26.—For building a heating chamber, &c., at Glanrhyd C.M. chapel, Llanwnda. The Chapel House.

**WALES.**—Aug. 27.—For alterations and additions to Penuel Baptist chapel, Cwmavon. Deposit 2*l.* 2*s.* Messrs. Evans & Jones, architects and surveyors, Trinity Place, Swansea.

**WALES.**—Aug. 27.—For erection of a Welsh C.M. chapel at Coedpenmaen, near Pontypridd. Mr. P. J. Jones, architect, 16 High Street, Tonyrefail.

**WALES.**—Aug. 28.—For enlargement of county school for girls at Hengoed, Glamorgan. The Glamorgan County Offices, Westgate Street.

**WALES.**—Aug. 28.—For rebuilding 293, 294 and 295 High Street, Penydarren. Mr. C. W. Davies, 112 High Street, Merthyr.

**WALES.**—Aug. 31.—For erection of a chapel, vestry and classrooms, Llwynypia. Mr. R. S. Griffiths, M.S.A., architect and surveyor, Tonypandy.

**WALES.**—Aug. 31.—For erection of offices at Maesteg. Deposit 1*l.* 1*s.* Mr. J. P. Gibbon, Mining Offices, Maesteg.

**WALES.**—Aug. 31.—The Council of University College of North Wales is prepared to receive the names of firms willing to tender for the proposed college buildings. Mr. J. E. Lloyd, M.A., secretary and registrar, University College of North Wales, Bangor.

**WALES.**—Sept. 3.—For erection of twelve or more houses at Quakers' Yard. Mr. William Dowdeswell, architect, Treharris.

**WALES.**—Sept. 6.—For erection of ninety-one cottages, more or less, at the option of the club, for the Ynysfaio No. 1 Building Club, Treherbert. Mr. J. Rees, architect, Pentre.

**WILTON.**—Aug. 29.—For restoration of Wilton Church, near Redcar. Mr. C. Hodgson Fowler, F.S.A., architect, The College, Durham.

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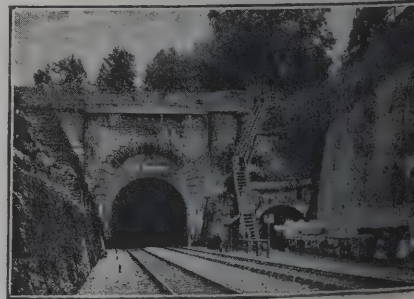
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For alterations and additions to Mount Alyn. Mr. J. W. ABRAHAM, architect, 80 Hanley Road, Stroud Green, N.	
Kirby . . . . .	£1,146 0 0
Grover & Son . . . . .	1,073 0 0
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## BIDDULPH.

For alterations and additions to Primitive Methodist school, Bradley Green. Messrs. ELIJAH JONES & JACKSON, architects, Hanley.	
Godwin . . . . .	£1,184 14 0
Cooke . . . . .	1,055 0 0
Moss . . . . .	999 0 0
Cornes & Sons . . . . .	990 0 0
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Ireland . . . . .	698 0 0
Ambrose . . . . .	599 7 6
POLLARD & Co., Taunton (accepted) . . . . .	585 2 11

## CARLISLE.

For erection of girls' secondary school. Messrs. GRAYSON & OULD, architects, Liverpool. Quantities by Mr. J. H. Harris, Liverpool.	
J. & R. Bell . . . . .	£11,708 4 6

## CLOWN RURAL.

For carrying-out sewerage works at Cresswell. THOMASON, Whitwell (accepted) . . . . .	£523 0 0
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## CAVERSHAM.

For erecting stables, cart sheds, masons' shed, &c., at depôt. Mr. A. J. SMITH, surveyor, Caversham.

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Stokes & Sons . . . . .	1,668 17 0
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Bell & Sons . . . . .	1,570 11 1
Robinson . . . . .	1,532 8 0
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For erection of English Congregational church at West End, Tredegar Road. Mr. H. WATERS, architect.

D. Morgan . . . . .	£2,252 13 10
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Wride . . . . .	2,200 0 0
Evans & Co. . . . .	2,183 0 0
VAUGHAN BROS., Tredegar (accepted) . . . . .	2,155 0 0
Architect's estimate . . . . .	2,125 18 0

## FLINT.

For carrying-out Holywell Street improvements. Mr. EVANS, surveyor.

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Lazenby	313	0	0
Golightly	302	9	6
WELLS, Ferryhill (accepted)	275	0	0

**GAINSBOROUGH.**

For extension of Market Buildings. Mr. S. W. PARKER, engineer.

Sprakes	£8,843	0	0
Williamson	8,450	0	0
Evens	8,300	0	0
Crave & Temperley	8,093	0	0
Dews & Co.	7,999	0	0
Moss & Sons	7,375	0	0
Elms	7,290	11	3
PUMFREY, Gainsborough (accepted)	6,690	0	0

**GRANGE-OVER-SANDS.**

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Stansbury & Co.	£828	10	6
Smith	792	9	11
Northern Quarries Co.	739	3	3
Ingham	711	1	6
Mitchell & Clarke	646	4	8
Brooke	640	8	9
South Bank Slag and Tar Macadam Co.	622	7	0
North of England Asphalt Co.	579	10	7
Hall	561	1	6
Tarmac, Ltd.	549	11	10
Shepherd	501	16	8
FRITH & PENDLETON, Barrow-in-Furness (accepted)	435	5	10

**HARROGATE.**

For street works near The Avenue, Starbeck. Mr. F. BAGSHAW, borough engineer.

Long	£306	15	8
Dickinson	233	17	0

**HARROW.**

For the erection of Baptist church, College Road. Messrs. McKILLIAM &amp; PROCTER, architects.

Battley, Sons & Holness	£5,583	£272
Thomas & Edge	5,550	268
Room & Co.	5,498	260
Kingerlee & Sons	5,481	271
Saunders	5,400	298
Ford & Walton	5,395	200
Courtney & Fairbairn	5,391	271
Jarvis & Sons	5,350	290
Peacock Bros.	5,349	269
Smith & Sons	5,285	285
Ansell	5,275	280
Chinchen & Co.	5,198	257
MATTOCK BROS., Wood Green (accepted)	4,979	247

**HOLMFIRTH.**

For carrying-out Contract No. 5 of sewerage scheme.

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Graham & Sons	2,750	0	0
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Dean & Co.	2,542	0	0
Graham & Co.	2,497	0	0
Dolman	2,385	5	2
TURNER, Holmfirth (accepted)	2,290	7	6

**HOUNSLOW.**

For improvements and repairs at Spring Grove infants' school and Heston schools. Mr. A. L. LANG, architect, Hounslow.

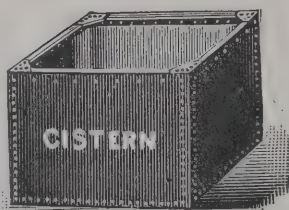
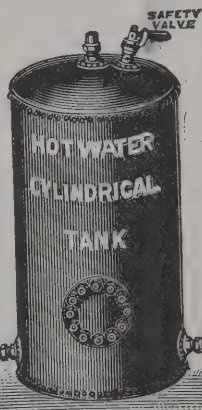
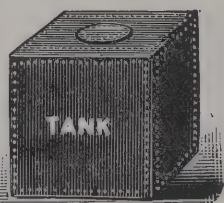
Drake	£264	1	3
Frost & Co.	248	0	0
Hanson	241	14	6
GRAY, Heston (accepted)	223	9	5

**HUTTON.**

For erecting country house, Byron Road. Mr. Hugo R. BIRD, architect, Brentwood.

Dowsing & Davis	£836	0	0
Burtwell	715	0	0
Jarvis	695	0	0
PARISH (accepted)	621	10	0

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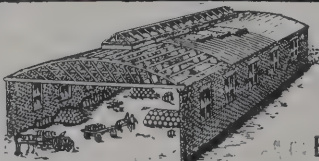
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HUDDERSFIELD.

erection of Higher Elementary school at Hillhouse.

Accepted tenders.

Brook, mason.  
Holland, joiner.  
Bould & Sons, plumber.  
Day, plasterer.  
Bower, slater.  
Booth, painter.

LLANDAFF.

additions to Penpentre. Mr. W. H. DASHWOOD CAPLE, architect, Cardiff.

Small	£500	0	0
Blacker Bros.	452	14	0
B. D. & W. Evans	442	0	0
Cox & Bards	419	0	0
Davies	416	0	0
W. H. Evans	409	0	0
King & Co.	395	3	4
Cox	394	0	0
MAGGS & Co., Cardiff (accepted)	386	12	0

erection of detached villa and construction of roads and sewers. Mr. W. H. DASHWOOD CAPLE, architect, Cardiff.

	House.	Roads, &c.
Shepton & Sons	£1,335	—
Evans	1,280	£360
Turner & Sons	1,262	375
Allan & Sons	1,237	387
Evans	1,172	300
Williams	1,145	307
ymonds & Co.	1,124	421
Davies	1,120	—
Maggs & Co.	1,102	313
W. T. Morgan	1,050	—
ye, Parkinson & Co., Swansea	982*	276
L. Morgan	—	313
Barnes, Chaplin & Co.	—	273
Lackay & Davies, Cardiff	—	273*

\* Accepted.

LONDON.

For erection of police-station at Wapping. Mr. J. DIXON BUTLER, surveyor. Quantities by Messrs. THURGOOD, SON & CHIDGEY.

Lovatt, Ltd.	£14,441	0	0
Clarke & Bracey	14,419	0	0
Holloway Bros.	14,348	0	0
Lascelles & Co.	14,320	0	0
Dove Bros.	14,302	0	0
Harris & Wardrop	14,188	0	0
F. & F. H. Higgs	14,168	0	0
Kilby & Gayford	14,044	0	0
Grover & Son	13,989	0	0
Patman & Fotheringham	13,953	0	0
Higgs & Hill	13,854	0	0
Lathey Bros.	13,850	0	0
Mowlem & Co.	13,790	0	0
Godson & Son	13,575	0	0
Ansell	13,460	0	0
Lawrance & Sons	13,440	0	0

For erection of St. Joseph's R.C. schools, girls' home, soup-kitchen, and refuge lavatory, Gun Street, White-chapel. Mr. W. P. RYAN, C.E., architect, 1 Whittington Avenue, Leadenhall Street, E.C.

Heeps	£9,886	0	0
Bellord.	9,007	17	7
Ketch	8,990	0	0
Newell & Lusty	8,432	13	7
Holloway Bros.	8,200	0	0
King & Sons	7,951	0	0
Williams	7,857	0	0
Roome & Co.	7,703	0	0
PATMAN & FOTHERINGHAM (accepted)	7,653	0	0

MAIDSTONE.

For rebuilding Nos. 16 and 17 High Street, Maidstone. Messrs. RUCK & SMITH, architects.

Wallis & Sons	£2,840	0	0
Barden & Head	2,795	0	0
Cox Bros.	2,767	0	0
Ansett & Son	2,723	0	0
Elmore & Son	2,700	0	0
Avard	2,673	0	0
CORBEN & Co. (accepted)	2,668	0	0

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**MARPLE.**

For the making-up of Possett Bridge Road, including sewer and surface-water drain and other incidental works.  
Mr. FRED H. BANCROFT, surveyor, Manchester.

Norgrove & Son . . . . .	£1,221	6	11
Bodin . . . . .	1,044	7	8
Edwards . . . . .	999	13	11
Wellemann Bros. . . . .	993	15	4
Dean & Co. . . . .	978	6	11
Randall . . . . .	945	9	4
Etheridge & Clarke . . . . .	932	14	5
Mitchell & Son . . . . .	921	3	4
Hutton & Co. . . . .	912	17	7
Worthington . . . . .	905	8	7
Bennison . . . . .	869	16	8
GOSLING & STAFFORD, Hazel Grove (accepted) . . . . .	847	18	0

**MOORTHORPE.**

For erecting hotel. Messrs. GARSIDE & PENNINGTON, architects, Pontefract and Castleford.

*Accepted tenders.*

F. H. & T. W. Moore, brick and woodwork . . . . .	£1,727	0	11
Walker & Co., plumber . . . . .	169	10	0
Shaw, plasterer . . . . .	124	15	0
Stewart Bros., slater . . . . .	101	0	0
Harrison, painter . . . . .	45	10	0

**NORTHAMPTON.**

For additions to True Form boot factory.

Cosford . . . . .	£3,999	0	0
Archer . . . . .	3,910	0	0
E. Green . . . . .	3,887	0	0
H. Green . . . . .	3,884	0	0
Beardsmore . . . . .	3,870	0	0
Heap . . . . .	3,854	0	0
Martin . . . . .	3,838	0	0
Higgs . . . . .	3,700	0	0
Higgins . . . . .	3,439	0	0
Chown . . . . .	3,420	0	0
HAWTIN (accepted) . . . . .	3,269	0	0

**NEWBURN-ON-TYNE.**

For the making-up private streets. Mr. THOMAS GREGORY surveyor.

Shannon . . . . .	£1,005	7
Reevel . . . . .	1,058	4
Hollings . . . . .	827	3
ROBSON, Newcastle (accepted) . . . . .	824	13

**ROMFORD.**

For laying stoneware pipe and concrete tube storm-water drains or sewers, with other works. Mr. HERBERT RIDGE, surveyor, Romford.

Hardy, Bate & Co. . . . .	£3,700	0
Pedrette . . . . .	3,462	0
Hewitt & Sons . . . . .	3,398	3
James & Co. . . . .	2,997	0
Burrill . . . . .	2,889	14
Bell & Sons . . . . .	2,422	0
Catley . . . . .	2,398	7
Jackson . . . . .	2,223	11
Parsons & Parsons . . . . .	2,186	6
Streeter & Co. . . . .	2,172	6
Fry Bros. . . . .	2,101	15
Free & Sons . . . . .	2,091	12
Jenner . . . . .	2,066	0
Manders . . . . .	2,050	17
Jackson . . . . .	1,999	0
Pedrette & Co. . . . .	1,989	16
Taylor . . . . .	1,924	1
WILSON, BORDER & Co., Romford (accepted) . . . . .	1,870	11

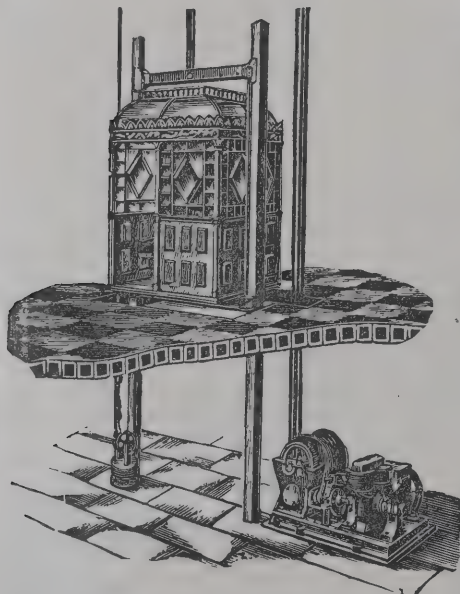
**SCOTLAND.**

For the erection of a new convalescent home at Edzell, for the Montrose Asylum and Infirmary Board.

*Accepted tenders.*

Baxter, mason . . . . .	
Jamieson & Caird, joiner . . . . .	
Scott, slater . . . . .	
Burness & Son, plasterer . . . . .	
Lamond & Son, plumber . . . . .	
The cost is not to exceed 2,500l.	

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TOOTING GRAVENEY.

or repairs to tar-paving, &c., at the Fountain hospital.			
Mr. W. T. HATCH, engineer-in-chief.			
Potter & Co.	£242	0	0
Woodham & Sons	235	0	0
Smart & Son	179	0	0
Grounds & Newton	170	0	0
Constable, Hart & Co., Ltd.	169	10	0
Chittenden & Simmons, Ltd.	131	18	0
WAINWRIGHT & Co., LTD., 173 Maida Vale, W.			
(accepted)	122	7	0

WAKEFIELD.

or erecting two houses and the formation of road at Flanshaw. Mr. ARNOLD S. NICHOLSON, architect, Wakefield.			
<i>Accepted tenders.</i>			
Bagnall Bros., Wakefield, excavator, brick-layer and mason.	£266	0	0
Chappell, Horbury, carpenter and joiner	154	6	0
Gillott, Wakefield, plumber and glazier	66	17	6
Sanderson, Ossett, plasterer	29	0	0
Sharp & Harper, Leeds, slater	26	15	0
Goodall, Lister & Goodall, Wakefield, painter	10	0	0

WHITEHAVEN.

or erecting mixed secondary school. Messrs. GRAYSON & OULD, architects, Liverpool. Quantities by Mr. J. H. HARRIS, Liverpool.			
Bradley	£14,572	0	0
Brown & Backhouse	12,699	0	0
Bragg	12,599	0	4
Moorhouse	12,570	6	4
Ferguson	12,498	17	2
Young	12,539	17	6
Hatch & Sons	12,186	0	0
Wilson & Co.	12,108	4	3
A. & T. H. Anderson.	11,963	16	5
HUGHES & STIRLING, Bootle, Liverpool			
(accepted).	10,416	11	8

WINCHESTER.

For reparations at the Guildhall, for the Corporation and St. John's Hospital Charity.			
Wise	£449	0	0
COSTAN, Winchester (accepted)	229	0	0

WORKINGTON.

For alterations and additions to buildings in Kelly Street. Messrs. W. G. SCOTT & Co., architects, Workington.			
<i>Accepted tenders.</i>			
Hyde, builder	£136	14	0
Lawson, plasterer	50	10	0
Douglas, joiner	49	17	6
Walker, plumber	21	0	0
Keenlside, painter	18	10	0
Lythgoe & Son, slater	6	0	0

For alterations in John Street and Jane Street, for the District Industrial and Provident Society. Messrs. W. G. SCOTT & Co., architects, Workington.			
---	--	--	--

<i>Accepted tenders.</i>			
Ferguson, Harrington, builder	£250	0	0
Steel, joiner	247	5	6
Walker, plumber	78	0	0
Lawson, plasterer	69	0	0
Keenlside, painter	59	15	0
Lythgoe & Son, slater.	18	18	0

WICKEN.

For erection of school and house. Mr. H. H. DUNN, county architect, Cambridge.			
Johnson	£2,078	0	0
Boon	2,068	0	0
Tebbitt	2,039	0	0
Cowell	1,945	0	0
CLARK & SONS, Cambridge (accepted)	1,852	3	9

WREXHAM.

For erection of Elementary school in Holt Road. DAVIES BROS., Hill Street (accepted)			
	£13,166	16	8

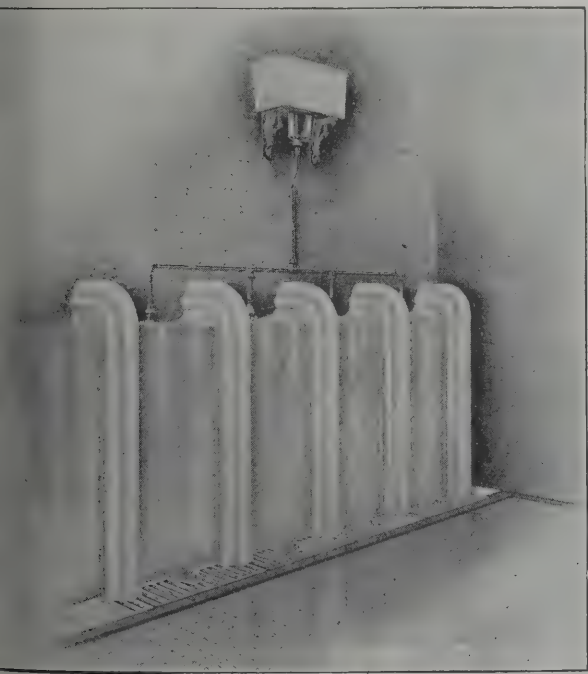


Fig. 1534. "THE SOLITO."

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LIVERPOOL: 21 Leeds St. HULL: Alfred Gelder, South Side, Queen's Dock. BIRMINGHAM: Edmund St. NEWCASTLE: 4 Northumberland St.



(Received too late for classification.)

**CLACTON-ON-SEA.**

For the erection of Messrs. E. J. Gilders & Co.'s office buildings in Station Road. Messrs. BAKER & WRIGHTSON, architects, 21 Liverpool Street, E.C., and Clacton-on-Sea.

Ellis & Co.	£2,150	0	0
Jones	2,085	0	0
Kenney	1,999	0	0
Chambers	1,989	0	0
Grimwood	1,987	0	0
Beaumont	1,920	0	0
Scales & Robins	1,895	0	0
Dobson & Son	1,885	0	0
Everett & Sons	1,868	0	0
Smith	1,868	0	0

As the two lowest tenders were equal, and some reductions were necessary, further tenders were obtained as follows:—

Everett & Sons	£1,545	0	0
SMITH, Clacton (accepted)	1,541	0	0

**TRADE NOTES.**

THE Lydney elementary schools have been ventilated on the Boyle natural system, under the direction of Mr. W. H. Medland, county architect, Gloucester.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, are supplying their patent Manchester grates, exhaust roof ventilators and special inlet ventilators to St. Michael's schools, Wakefield.

THE tower of the Congregational church, Westborne, Bournemouth, has just been completed. The whole of the Monk's Park stone used has been supplied by the Bath Stone Firms, Ltd. Mr. F. Stevens, of Bournemouth, is the architect, and Messrs. Jones & Seward the builders.

THE chapel, Upper Parkstone, Bournemouth, is nearly finished, Messrs. Lawson & Reynolds, of Bournemouth, being the architects, Messrs. Jones & Seward the builders, and Messrs. J. W. Mannell & Co. the masons. The whole of the Corsham Down stone was supplied and worked by the Bath Stone Firms, Ltd.

THE Excelsior Patent Stone Company have a stand at the exhibition of urban cottages at Garden City, Letchworth, Herts, facing the exit from the railway station. The company were awarded a diploma for their exhibits at the cheap cottages exhibition held in 1905. The floor of the stand is paved with their 12-inch by 12-inch octagon slabs with black Staffordshire quarries in the corners (a suitable paving for lobbies, entrance paths, porches, &c.), grooved stable paving slabs and channel and ordinary 2-inch thick paving slabs as supplied for sidewalks. The stand is edged with their kerbing and combined kerb and channel, which is largely used by county, rural and urban authorities. They are also exhibiting the "Whitbread" window sill of registered design, a moulded window head, and a mantlepiece set suitable for cottage work, besides copings, steps, &c. The exhibits are of particular interest to those requiring a strong, durable, inexpensive material of pleasing appearance. The stone resembles best blue York stone, the cost, however, being one-third less.

MR. CONSUL JEROME in his report on the trade of Mexico during last year says:—I have often drawn attention to the development of electricity in Mexico. In my report for 1899 I indicated the demand for electrical appliances—electric lamps, incandescent or arc lights, high and low tension cables for transmission lines, dynamos and motors, either steam or water driven—in fact, all kinds, and I can only repeat this. Many of the tramway systems are being altered from animal power to electric power, and it should be borne in mind that there is hardly a town of any importance in the country that has not got a tramway system. Factories, too, are largely using motors with direct connection, instead of the overhead system pulleys and belting for power transmission to machine tools. I have up to the present not seen a single British-made motor or dynamo in Mexico, and only a few of German manufacture; nearly all the electrical appliances used up to the present in this country are American. The expansion of the cities, notably the capital and Guadalajara, offers opportunities for building material, hardware, glass, sanitary goods and similar articles.

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### ILLUSTRATIONS.

UNITED KINGDOM PROVIDENT INSTITUTION, STRAND, W.C.—  
DETAIL OF ENTRANCE.

TOWN HALL, LEIGH.

WESTMINSTER CATHEDRAL—CHAPEL, SS. AUGUSTINE AND GREGORY.

NEW PREMISES FOR THE ANGLO-EGYPTIAN BANK, TANTAH.

### VARIETIES.

was announced on Monday that the Butts Spinning  
pany, Ltd., is to erect a new factory at Leigh, with  
capital of 100,000*l*.

THE Hampton District Council have decided to erect a  
destructor, and have accepted a tender for the work.  
application will be made to the Local Government  
for permission to borrow the money required.

THE town clerk of Bolton, Mr. S. Parker, has submitted  
awards of the umpire in the recent arbitrations as  
follows:—Mr. E. Deakin *v*. Bolton Corporation, 8,197*l*, the  
claim being 50,000*l*; Deakins, Ltd., *v*. Bolton Corporation,  
claim being 20,000*l*.

THE Home Secretary having declined to advise His  
Majesty to grant the application of the Urban Council at  
Sittingbourne to rename that town Milton Royal,  
Council are now seeking to adopt the appellation of  
Milton Regis. To this proposal the Home Office offers no  
objection.

THE City of London Corporation earned last year on its  
working-class dwellings a net profit of 123*l* 12*s*. 2*d*. The  
aggregated 5,965*l* 10*s*., and on the debit side of the  
account the principal items were:—Special repairs, 1,195*l*; interest  
on loan, 2,190*l*; rates and taxes, 1,590*l*; wages,

ACCORDING to the report upon the trade of the United  
Kingdom for last year, furnished by the British Commercial  
Commission, there is always a good demand for decorated ware,  
large quantities come from Germany. British houses  
trading for cheap, showy goods ought to be able to do an  
equal trade. To do a successful trade it is necessary to

send articles having the appearance of being better than  
they really are.

THE medical officer of health (Dr. J. F. J. Sykes) to the  
St. Pancras Borough Council reports that at the end of the  
last municipal year there were 538 underground dwellings  
in the borough registered as illegally occupied, and which  
had been ordered to be closed. Time was allowed for the  
occupants to find accommodation elsewhere, pending which  
the premises were subjected to strict supervision.

JUDGE SHERSTON BAKER and a jury spent some time at  
the Grimsby Palace Theatre on the 15th inst. experimenting  
with the fireproof curtain. When the curtain was being  
lowered after a charity performance some time ago the  
cables snapped, and the counterpoise weights, weighing  
half a ton, fell 40 feet upon the stage manager and killed  
him instantly. His widowed mother now claimed compen-  
sation. The jury, after their inspection of the mechanism,  
awarded her 150*l*., saying that such weights ought to have  
been cased in.

OPERATIONS at Rosyth naval base in connection with the  
sinking of the caisson are being prosecuted vigorously.  
The cylinder has reached a depth of 53 feet; it rests on a  
bed of sand, strong clay forming the strata immediately  
above. The contract depth to which the caisson was to be  
sunk was 40 feet, but it is intended now that the sea bottom  
will be penetrated to a distance of nearly 80 feet. In the  
district a rumour has gained considerable currency to the  
effect that offers for the construction of the docks will be  
accepted in October.

It has been definitely announced that, after considering  
various suggestions, the Admiralty have decided to build  
the new lock in Portsmouth Dockyard on the site chosen  
by their own engineers. The lock, which will be 850 feet  
long and 110 feet wide, will be cut through between the  
tidal basin and No. 3 basin, on the north side of the north  
and south locks and parallel with them. The cost of the  
work will be a million of money. The plans of the new  
lock are those which had been originally prepared by the  
Admiralty officials.

DR. REGINALD DUDFIELD, medical officer of health of  
Paddington, reports:—"In the absence of any standard of  
comparison, it is perhaps difficult to arrive at a definite

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conclusion, but the records of the past three years appear to justify the opinion that less smoke of all kinds is emitted from the 'commercial' chimneys in the borough. This is a gain, not only to the health of the residents and amenities of the district, but also to the consumers of fuel, as smoke represents waste. As regards the question of standards, experiments are about to be made by the local public health department with a view to utilising photography to record the actual emissions in comparison with empirical standards."

At the monthly meeting of Tamworth Rural District Council on Saturday it was reported that the Local Government Board had sanctioned the borrowing by the Council of 26,930*l.* and 1,600*l.*, being the Council's share of the estimated cost of the proposed sewage scheme, exclusive of the cost of the site of the joint disposal works and pumping station. The sewage disposal committee was empowered to accept tenders and enter into provisional contracts for the carrying out of part of the scheme at Hockley, Wilnecote, and also for the supply of sanitary pipes, manhole covers, frames, &c., for the whole scheme.

In a consular report just issued on the trade of Nagasaki for the year 1906 Mr. Consul Playfair says:—"I am informed on good authority that the Imperial Steel Works at Wakamatsu (near Shimonoseki) are about to submit to a series of tests before Lloyd's surveyor at Nagasaki the Siemens mild steel made by them, their object in so doing being to have their name added to the list of approved foreign firms who make steel to be used in the construction of ship or boiler material for vessels classed at Lloyd's. This they hope to accomplish by the end of 1907. Their success would seriously affect the export of steel and shipbuilding material from the United Kingdom, while it would also deprive a number of British steamers of much valuable freight."

The report of the proceedings of the Derwent Valley Water Board from March 14 to June 14 states that of the total estimated quantity of stone required for the two dams now in course of construction (1,200,000 tons) 661,082 tons had been obtained from the Bole Hill quarries up to June 13. The number of men employed at the quarries was 365 on June 13 as against 340 on March 14. For the Howden dam,

the report continues, it is expected that 250,000 cubic yds of excavation and 320,000 of masonry will be needed, 239,517 yards of excavation and 142,425 of masonry the figures of the work done to mid-June. The pump had slightly decreased, the daily average for the 13 months ended June 13 being about 687,000 gallons. The number of men employed at Howden on June 13 was the number on March 14 being 302. With regard to the Derwent dam, 262,651 yards of excavation and 147,033 of masonry have been finished of the 320,000 and 360,000 yards respectively, which form the full estimate. The daily average for pumping has been about 666,000 gallons. There were 356 men employed on these works on June 13, instead of the 330 employed on March 14.

### BUILDING AND BUILDERS.

MR. EDWARD YATES, builder, who died on April 26, sixty-eight, left estate of the gross value of 919,412*l.* which the net personalty has been sworn at 748,304*l.*

THE North-Eastern Railway are about to make an extension of the mineral yard at Newport, which is a main line between Thornaby and Middlesbrough, for accommodation of the increasing number of mineral trains. New bridges will have to be built over the Tees, and the cost of the new mineral line and deviation of the passenger line will entail an estimated cost of 70,000*l.*

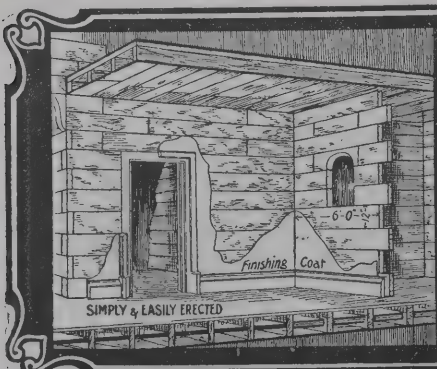
THE Treasury has appointed a committee to consider the working of the fair wages resolution of the House of Commons of 1891 as embodied in Government contracts, and to report whether any administrative changes are desirable in order to enable the objects of the resolution to be more effectually attained. The members of the committee are:—Sir G. H. Murray, Secretary to the Treasury, President; Mr. H. D. De La Bere, War Office; Mr. A. W. Fox, the Board of Trade; Mr. A. F. King, General Post Office; Mr. F. W. Black, Director of Contracts, Admiralty; Mr. R. Bailey, H.M. Stationery Office; and Mr. Westcott, H.M. Office of Works. Mr. J. J. Wills, of the Labour Department of the Board of Trade, will be secretary.

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THE directors of the Perth Infirmary have agreed to go on an extensive scheme of reconstruction, the cost of which will amount to about 20,000*l*. The plans, prepared by Mr. Mackay, architect, were under consideration at the meeting, and it was moved and agreed that they should be submitted to a meeting of subscribers to be held in October next, with the explanation that while the buildings would cost about 15,000*l*, the raising of a sum of 20,000*l* was absolutely necessary to complete the scheme. The alterations are to consist of a new boiler-house and a new home facing New Row. The present entrance to the infirmary is to be altered so as to give a better gradient to the institution. The wards are to be reconstructed and the whole of the interior arrangements of the insti-

REPORT on the trade of the Consular district of Tangier for the year 1906, by Mr. Consul H. E. White, has just been published by the Board of Trade. In the course of it he says: "It is a pity that British Portland cement does not sell in this market. Of the 41,455 cwts. of cement imported here in 1906 practically none came from the United Kingdom, and it was the same in the preceding year, 1905, 106,120 cwts. were imported. Considerable quantities of cement are required in connection with the harbour works in Tangier, and it will be the same at Larache, where similar works are about to be undertaken by the same German firm which has the contract for the Tangier works. Of the cement imported here in 1906, 2,511*l*. worth came from Belgium, 2,228*l*. from Germany, 1,865*l*. from France, and 1,000*l*. from Spain. The quantity imported in 1906 was less than in 1905, as there was a considerable stock over at the end of the year. Bricks and tiles are also important articles of trade at Tangier, in which the United Kingdom does not export any, nearly all coming from France and

the medical officer of health for Worcestershire in his report, in alluding to the water supply of the county, says he regrets that district councils do not possess compulsory powers for obtaining water similar to those possessed by the county council, and that the county council has with regard to acquiring land for sewage disposal powers; for until they can compulsorily obtain water—on equitable terms—many much-needed water

schemes cannot be carried out, and building consequently is delayed, for at the present day people will not attempt it unless they are satisfied that a plentiful supply of wholesome water can be obtained. If such an assurance was forthcoming in the Pershore district he felt convinced that building would go on in the same way that it did in many parts of the Evesham district, where waterworks have been carried out.

In the fourth annual report of the Metropolitan Water Board it is stated that arbitration proceedings and matters arising in relation to the transfer of the undertakings of the metropolitan water companies to the Board were finally closed during the year ending March last. The claims of the water companies, amounting to 50,939,198*l*, were settled for 30,662,323*l*. The expenses of the Court of Arbitration itself amounted to 21,016*l*, after deducting 4,221*l*. returned to the Board by Sir Edward Fry and Sir Hugh Owen. The total expenditure of the Board for legal costs and expenses attendant upon the arbitrations amounted to 254,756*l*. Stamp duty on the vesting of the metropolitan water companies' undertakings amounted to 214,707*l*, being the largest sum ever paid for conveyance duty. Through the various set-offs the net cost of the acquisition of the several undertakings was 31,149,005*l*. cash, exclusive of the debenture stocks and mortgage loans transferred from the companies to the Board under section 2 of the Act, which amounted in all to 11,624,948*l*.

THE annual statement of the cleansing department of Glasgow Corporation states:—Experiments have been made during the year with a number of preparations for the prevention of dust and mud on macadam roads, but in no case was the result such as to warrant their being persevered with. The large increase in the number of rubber-tyred vehicles will eventually compel some alteration in the method of forming the surface of the roads, as it is very doubtful if any of the so-called preventives will be effective on roads formed as they are now, as palliatives have only a passing effect, and the real cure will be found in a mixture of tar, or some other adhesive substance, with the material forming the surface layer of the road, and this will require to be done during the process of formation. The cost for wages, material, &c., for cleansing private streets and courts was 19,020*l*. 1*s*. 6*d*.

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**TRESTLE AS SCAFFOLDING.**

JUDGMENT was delivered at the Brighton County Court, in the case of Herbert Schooley, of Islingword Place, Brighton, plasterer, v. John T. Watkins, St. George's Road, Brighton, builder, which was heard last week. This was an application for arbitration under the Workmen's Compensation Act, 1897, and the evidence had shown that Schooley was standing on a trestle when it "kicked" and threw him, and a piece of skin was knocked off his little finger. This subsequently festered, and eventually Schooley had to go to the hospital with a bad arm.

His Honour Judge Scully, according to the *Sussex Daily News*, said the case had been a difficult one, because, in addition to the difficulty on the evidence as to the connection between the injuries and the accident, there were the legal difficulties which the Act presented. As to the injuries, he must accept the opinion of the doctor that the injuries were the result of the trestle accident, and not, as suggested by the defence, the result of a football accident in December last, and he found that the incapacity was due to the trestle accident on April 23, and that the incapacity was at present complete, and arose out of and in course of his employment by the respondent. As to the legal objection raised that Schooley had failed to give the respondent proper notice of his intention to apply under the Act, he (his Honour) found that Schooley did not give notice as soon as practicable after the accident, but the Act provided that the want of such notice did not debar the applicant, if the employer was not prejudiced in his defence by the want of such notice, and he found that the respondent was not prejudiced. He also found that Schooley was not guilty of wilful negligence, although he was, perhaps, a little careless.

As to the question of the height of the building applicant was working on, he held that it was right to measure the height from the lowest level of the ground where the building emerged from the ground as a visible structure, and, as in the present case, to measure, in case of an area below the level of the outside roadway, from the floor of the area. He found, therefore, that the building was more than 30 feet high. As to whether it could be held that Schooley was engaged upon scaffolding, he found that not only was

Schooley working on the trestle, but that the other man, Novis, was using the other trestle and plank in another room, one end of the plank being on the trestle and other on the window ledge. No more perplexing question was raised by this Act than that of what was scaffolding, but after consulting decided cases, and particularly the case of *O'Brien v. Dobie & Son*, he came to the conclusion that a plank supported by two trestles, whose sole object was to provide a standing place to work on, was scaffolding, and that Novis's arrangement of a trestle and plank was scaffolding, and that was enough for the purposes of his decision. If it were necessary to take into consideration whether a single trestle was scaffolding, he would have had some difficulty, as a trestle was not a safe and convenient support, and was not usually used for such a purpose, and he would be disposed to hold that a single trestle so used was not scaffolding. But it was not necessary for him to consider this, having decided that the structure Novis was working upon was scaffolding. He therefore awarded the applicant compensation at the rate of 14s. 5d. per week, being half the amount of his earnings at the time of the accident, as from May 7, with costs on Scale B.

**HOUSING OF NAVVIES.**

MEASURES are at last being taken to provide for the housing of the navvies employed on the Midland Railway extension from Water Orton to Kingsbury. The contractors are making inquiries to ascertain the accommodation available in the neighbouring places of Coleshill, Whitacre and C. Bromwich, but have not yet satisfied themselves that men cannot be housed without special provision. Assurance has been given, however, that whatever special measures may be found necessary will be taken and needful arrangements made within a few days. Meanwhile the contractors are preventing men sleeping in the open works or in the rude shelters contrived by some of the navvies as protection from the rain. A representative of the *Birmingham Daily Post* was informed by the contractor's chief official on the works of an aspect of the question hitherto presented. "Our fear is," he said, "that if we provide huts they will not be used by these men who

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is not good for us that men should sleep in the open line. We suffer from petty pilfering, and the men are unable to work well. I have seen men in the trenches unable to lift a shovel and clearly done up for want of food and sufficient food. But, in the first instance, we did not want to send these men off the works or refuse to let them lest they should be driven into Lord Norton's camp. Now we are keeping them outside our boundaries." There are 250 men of all kinds employed on the extension, and the bulk of these are satisfactorily lodged in huts. About fifty have to be provided for, and the contractors say they have already discovered people who would be glad to accommodate the best of the men. It is feared that there has been no difficulty in finding huts for men who are old employes of the firm. The difficulty is in relation to a particular type of man to be met among the navvies. Nomadic and Bohemian in habits, he prefers, like certain apostles of the simple life, to sleep in the open or to bivouac protected from wind and rain only by a few boards and lumps of turf. Many men, having tramped to a job, start work penniless, and the thing begun can only be kept going by daily subvention. The rent of satisfactory huts, it is feared, is as objectionable to these men as the cost of decent food. The contractors have, however, undertaken to do what may seem to be necessary to meet the difficulty. On the wider aspect the question of housing large bodies of men engaged on construction works is felt to be one in which special legislation might be useful. Reginald Farrar has submitted to the medical officer of the Local Government Board a report which ought to attract a great deal of public attention. The report relates to the extraordinary condition of affairs which existed during the large work of construction and navvying. I need not repeat it particularly (writes the London correspondent of the *Manchester Guardian*), because in the present state of the law there was nothing actually illegal in what happened. £20,000 was spent upon the work, and yet, although more than 1,600 navvies were employed, no measures were taken by the contractors for the housing or accommodation of the men. There were not even any shelters to which they could resort in wet weather, and for a considerable time they had to beg their drinking water from farmers

and cottagers or drink that which was pumped up from the neighbouring river for engine use. Some of the workmen built rough shelters of fir boughs and corrugated iron, and nicknamed them respectively "Firwood Avenue" and the "Hotel Cecil." But when one of the local journals published a letter from a magazine calling attention to the inadequate and insanitary nature of these structures, the contractors' manager ordered them to be burned down without taking any action to provide shelter for the evicted. Dr. Farrar acknowledges that when important works are in progress contractors generally provide accommodation for their workmen, but there is at present no legal obligation in the matter, and he was informed that smaller contractors, having tendered at "cutting" prices, are "apt to save in the hutting, and to provide inadequate accommodation or none." He therefore suggests that the Local Government Board should obtain some definite information on the subject of navvy life in general, with a view to consider whether it is desirable to acquire legislative powers in matters of this kind.

#### LABOUR LEGISLATION OF THE AUSTRALASIAN STATES.\*

LABOUR legislation in Australasia has been characterised by attempts to fix a minimum wage by statute, or by arbitration courts and wages boards; and as proposals are being made to adopt the same legislation here, I propose to discuss the circumstances under which the Australasian experiments are carried on and the economic possibilities of their success.

The arbitration courts originated in a desire to prevent strikes and the wages boards in a determination to prevent sweating, but their evolution has been on the same lines. The workmen have used them as a means of distributing national production favourably for the wage-earners. In the working out of this a national policy, known as the "New Protection," has been inaugurated, which, in its completeness, means:—(1) Protection against imports by tariff, (2) a settlement of wages by boards and courts, (3) a

\* A paper read by J. Ramsay MacDonald, M.P., before the British Association.

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fixing of prices by boards and courts, and, ultimately, (4) the securing to the home producer a first claim upon home-produced raw material, *e.g.* wool and hides. This is the logical and inevitable result of any attempt to solve labour problems by compulsory trade-unionism or by fixing a standard nominal wage by statutory decision.

The chief interest in these experiments lies in the attempt that is being made by them to secure a national standard wage, for the tendency of both courts and boards is to go beyond a minimum—strictly speaking. The New Zealand experiment proves, however, that where there is no agreement—and there can be none—as to what is an absolute standard, machinery created to settle a nominal standard from time to time will simply necessitate constant demands being made for an increase in wages. Such a thing is futile and must break down. A national standard wage is a chimera.

The New Zealand Arbitration Act has been more effective in organising the master than the workmen, and it has therefore raised prices and rents. This I found to be pretty generally admitted, and is borne out by statistics.

The Victorian Wages Boards affect only certain trades, and their influence upon prices is obscure. They seem to have improved the character of the work done. Nominally they only level up to recognised standards, but practically they try to do more, and the workers do not accept that limitation. Their effect upon sweating has been exaggerated, but they have been working under conditions which would yield to them a maximum beneficial result, *e.g.* small number of workpeople affected, a market on the rise, &c. The statistics supplied are not fully satisfactory, and no thoroughly scientific examination has yet been made on the spot regarding the actual effects of the boards. Coghlan's analysis of wages shows their effects to be only very moderate. My own inquiries led me to the conclusion that they could be applied with comparative ease under factory conditions, with some difficulty under home-work conditions and hardly at all under sweating conditions.

Even if we agree with what I can only regard as the altogether overdrawn praise given to Australasian labour legislation by some writers, we must remember, in considering how we can apply it to our own country, the industrial differences between us and these colonies. Par-

ticularly (1) the opportunities which a protective tariff to increase nominal wages without increasing the whole share of the national production; (2) the small indigenous population and the simple industrial constitution of the colonies which permit them to try many experiments before eluding for a long time what is finally to be failure; (3) the fact that the Australasian industrial problem is limited and simplified by the consideration that production is practically exclusively for the home market; (4) the opportunities of apparent success given to such colonies by the greater willingness of the colonial masters to act generously to the worker, *e.g.* courts and boards have been known to award the most extraordinary judgments of nominal wages which no judge or arbitrator would think of awarding here.

### BUILDING LABOURERS IN MONTREAL

An emigrant from the Brighton workhouse who went to Canada gives the following account of his first experience in Montreal:—"I turned up running about to be supplied by the Immigration Office and sought for a bricklayer's labourer, and got one with Messrs. B. J. Rexford, Ltd., contractors, St. James's Street, Montreal. I got 1 dol. 75 cents a day. That is the standing wage for unskilled labour all over Montreal and Canada generally. There are now about 300 on the job. We are erecting a 'sky-scraper' factory in St. Antoine; 300 hands there are not five English. They are all except a few niggers, four Scotch stonemasons, and four English bricklayers. All the rest are carpenters, Italian bricklayers, mortar-makers and carpenters and ironworkers' labourers. Oh, such a French, Canadian, &c. I have working with me one Canadian, two Italians, two niggers, and I am serving and cement to the Scotch and English masons and layers respectively. We start at 6.30 A.M. and leave at 5.30 P.M., with only thirty minutes for dinner, so that we work for 10½ hours right off the reel with only 15 minutes off. It's a pity I do not understand bricklaying. Bricklayers get 50 cents, or 2s. 1d., per hour, making 10s. 0d. per nine-hour day; stonemasons 40 cents, or 1s. 8d.

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or 15s. per nine-hour day; carpenters 30 cents, or 3d. per hour, or 11s. 3d. per day. I don't know what the workers get, i.e. the men who fix the iron pillars and ers. I earned last week for five days 9 dols. 60 cents, 8s. 6d., as I put in some overtime, but lost a day through being all day Friday. The firm keeps back two days' work with the new hands until they hold a week in hand."

### COST OF PATENTS.

The course of a printed reply to a question by Mr. G. N. Jones, M.P., secretary to the Amalgamated Society of Engineers, Mr. Lloyd-George says he is aware that of late the Patent Office fees have yielded a considerable sum, but at the present time, whilst the office expenses are rapidly increasing and new duties are being thrown on the office by the Patents and Designs Bill, he can give no undertaking to reduce them. He does not believe that it would be to the interest of poor inventors to substitute for the present fees those chargeable in the United States, which would benefit the comparatively small number of successful inventors at the expense of the much larger number of unsuccessful inventors, who can less afford to pay. Mr. Lloyd-George gives a tabulated statement showing the comparative cost of patents in the two countries. In the United States the preliminary and allowance fees amount to 7%, and the patent remains in force without further fee for seventeen years, while in the United Kingdom the fees amount to 5% to the end of the fourth year, at the expiration of which period a sum of 5% must be paid for renewal, and further renewal fees increasing by 1% annually to 14% at the end of the thirteenth year. Of British patents over 65 per cent. are allowed to expire at the end of the fourth year, presumably because the patented invention has not proved a success. On those therefore whose fees paid amount to 5% only, as compared with 7% in the United States. In regard to the additional 5% charged in the United Kingdom for patents renewed at the end of four years, it may safely be assumed that only such patents are renewed as have met with some measure of success, in which case the fee is a comparatively unimportant matter

to the patentee. Only 4 per cent. of the British patents remain in force for the full term of fourteen years.

### DUST PREVENTION TESTS.

THE judges' committee appointed by the Roads Improvement Association (Incorporated) to carry out the competitions for the best tar-spreading machine and the best preparation of tar for road purposes have made their awards as follows:—

Competition for the best tar-spreading machine:—First prize of 100 guineas and the Association's gold medal to Thomas Aitken, County Buildings, Cupar Fife, for "Aitken's patent pneumatic tar-spreaders"; second prize of 50 guineas and the Association's silver medal to Tarspra, Ltd., 20 Victoria Street, London, S.W., for their "700-gallon tarspra (patent) Thornycroft motor-van."

Competition for the best preparation of tar for road purposes:—First prize of the Ballymenagh Woollen Factory Company's 100-guinea trophy and the Association's gold medal to R. S. Clare & Co., Ltd., Stanhope Street, Liverpool, for "Clare's patent tar compo."

These tests were carried out on May 22, 23, 24 and 27 last on certain roads in Middlesex and Berkshire. Since these dates the roads have been kept under constant observation, and durability being an important consideration, it has not been possible to make the awards until the present time.

A full report of the trials is now in course of preparation. It is proposed to divide it into two sections—one, the judges' report on the respective merits of the various machines and preparations of tar entered for the competitions, and the other a full and comprehensive survey of the whole question of the use of tar for road purposes.

The cost of these trials was borne by the Royal Automobile Club and the Motor Union of Great Britain and Ireland. The judges' committee, in addition to members of the Council of the Roads Improvement Association and others, included eight leading engineers and road surveyors, appointed after consultation with the Incorporated Society of Municipal and County Engineers and the County Surveyors' Society.

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**DUST-PROOF ROADS.**

THE Local Government Board has communicated to the Lindfield (Sussex) Parish Council a decision upon tarring roads to lessen the dust nuisance caused mainly by motor traffic, which is certain to cause consternation throughout East Sussex. A short time since the East Sussex County Council notified the rural districts of its preparedness to tar-spray roads if the local councils would guarantee half the cost. Many councils accepted the offer, Lindfield being among the number. A long length of road was tarred, the half-cost being 25%. The Local Government Board has now written to say that it cannot see its way to sanction the half-cost being made a special charge upon the parish. If this decision is adhered to, the individual members of the Council will have to refund the money.

The decision of the Local Government Board is of considerable interest to Northamptonshire, and particularly to Towcester, where a point has arisen similar to that decided at Lindfield.

Rural district councils are empowered to delegate certain of their powers to parish councils, and the Towcester Rural District Council has adopted this course—a course which enables the cost of watering the roads of Towcester to be charged upon that parish. The introduction of the motor-car and the rapid development of traffic which followed early forced the Towcester parochial authorities to the conclusion that some more effective method than watering for dealing with the dust nuisance was necessary, for Towcester, on the main road between London and Coventry, felt the full force of the motor. The Towcester Council therefore applied to the Northamptonshire County Council to make a contribution towards the spraying of the main road with tar. The County Council agreed to pay one-third of the cost, at the same time intimating that the payment must be considered an allowance in lieu of watering as in urban districts. The remaining two-thirds became a separate charge on the parish of Towcester; but while the Towcester Sanitary Committee, which is practically the Towcester Parish Council, was perfectly willing to make a payment towards the cost of the tarring, the district auditor declined to sanction it on the ground that the Public Health Act of 1875 said nothing about road-making.

Following this the point was raised whether the might be considered as road maintenance, and the P. Council of Towcester unanimously requested the Towcester Rural District Council to allocate two-thirds of the cost to the parish of Towcester.

At the last meeting of the Northamptonshire County Council held six weeks ago, application was made by Towcester, through the roads committee, for an increased rate from the Council and for an order charging the remainder of the parish of Towcester. The Council was advised that neither the Towcester Parish Council nor the Rural District Council was a highway authority within the meaning of the Act with regard to main roads, and neither body could legally enter into an agreement to pay the extra cost consequent on the tarring. Ultimately the matter was referred to counsel in order that counsel's opinion might be taken.

**NEW CATALOGUES.**

WE have from time to time noticed the patent wire-mesh manufactured by Messrs. Pilkington Bros., Ltd., and which is of great importance in preventing the spread of fire. They have issued a new catalogue of their glass tiles and slates for roofing purposes. These can be intermingled with ordinary tiles, and great care has therefore been taken in faithfully representing the contours of glass panels, corrugated glass tiles, Roman glass tiles (single and double), and Broseley glass tiles. There are also flat glass slates, which correspond with the following sizes:—Duchess, small duchess, countess, viscountess, large ladies, doubles. We need not say how many occasions present themselves in practice for the entire or partial use of such a roof covering. The glass tiles can be obtained of various textures, and form most valuable additions to building materials.

At a meeting of the Portsmouth electric-light committee several tenders were accepted. That of Messrs. Acton & Co. amounting to 3,004*l.*, was accepted for steam, exhaust water-pipes, &c.; that of the British Thomson-Houston Company, amounting to 850*l.* 8*s.*, for the high-tension switchboard, and that of the British Electrical Transfers Company for six transformers at 66*l.* each.

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# THE Architect and Contract Reporter.

FRIDAY, AUGUST 30, 1907.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. business communications to the Managing Director,

P. A. GILBERT WOOD,

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Westminster has become one of the most important centres the professions of Architecture and Civil Engineering. Engagements have been made by Messrs. GILBERT WOOD & Co., Ltd., to establish Branch Offices in that district at OLD QUEEN STREET, S.W., Messrs. W. HAY & CO. becoming the representatives for all business purposes.

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## NOTICE TO ADVERTISERS.

In no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

View of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

## TENDERS, ETC.

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITION OPEN.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

## CONTRACTS OPEN.

ALDERSHOT.—Sept. 3.—For construction of an underground convenience in High Street, adjoining the county police station. Mr. F. C. Uren, surveyor, Municipal Buildings, Aldershot.

ALTON.—Sept. 5.—For erection of a petty sessional court at Alton, Hants. Deposit 2l. 2s. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

AMBLE.—Sept. 23.—For erecting County school to accommodate 220 scholars at Amble, Northumberland. Deposit 2l. 2s. Mr. C. Williams, secretary, Pearl Buildings, Newcastle-on-Tyne.

ANNFIELD PLAIN.—Sept. 5.—For erection and completion of house and shop at Annfield Plain, Durham. Mr. Thomas H. Murray, architect and surveyor, Consett.

BARNSELY.—Aug. 31.—For erection of twenty dwelling-houses and outbuildings off Jumble Lane. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

BEDFIELD.—Sept. 9.—For enlargement of Bedfield Voluntary school. Mr. Charles Ling, Bedfield, Framlingham, Suffolk.

BEVERLEY.—Sept. 4.—For alterations to Norwood House, Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

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BEXHILL.—For erection of town hall extension. Mr. Henry Ward, architect, 8 Bank Buildings, Hastings.

BIRMINGHAM.—Sept. 10.—For erection of telegraph stores. Deposit 1*l.* 1*s.* The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

BRADFORD.—Sept. 2.—For forming movable floor over swimming pond at the Leeds Road District Baths. The City Architect, Whitaker Buildings, Brewery Street, Bradford.

BURSLEM.—Aug. 31.—For rebuilding the coal stores wall at Longport Gasworks. Mr. Edward Jones, engineer and manager, the Gas Offices, Longport.

CHESTER.—Sept. 16.—For public elementary school for 600 boys and girls, to be erected in Love Street. Deposit 1*l.* Mr. H. Beswick, architect, Newgate Street, Chester.

CHISLEHURST.—Sept. 16.—For erection of Council school to accommodate 300 children in the Lower Borough, Chislehurst, Kent. Deposit 1*l.* 1*s.* Mr. Fras. W. Crook, secretary, Caxton House, Westminster, S.W.

COVENTRY.—Sept. 9.—For erection of buildings at Foleshill works, comprising boiler-house, 54 feet by 48 feet 6 inches by 17 feet high; chimney, 120 feet high; hydraulic power-house, 40 feet by 20 feet by 22 feet high; electric power-house, 45 feet by 24 feet by 22 feet high; exhaustor house, 45 feet by 32 feet by 22 feet high; underground liquor tank, 40 feet by 30 feet by 13 feet 6 inches deep, for the gas committee. Deposit 1*l.* 1*s.* Mr. Fletcher W. Stevenson, engineer and general manager, Gasworks, Coventry.

DORNEY.—Aug. 31.—For supply of materials and labour for the erection of stabling at the Manor Farm, Dorney, for the Slough U. D. C. Deposit 2*l.* The Town Surveyor's Office, 1 Mackenzie Street, Slough.

GOLCAR.—Sept. 4.—For erection of an eight-stall mistal at Drummer Lane Farm. Mr. Arthur Shaw, architect, Golcar, Yorks.

GRIMSBY.—Sept. 9.—For erection of a golf club pavilion on a site at Sea Road, Humberstone. Mr. Herbert C. Scaping, architect, Court Chambers, Grimsby.

HEYSHAM HARBOUR.—Sept. 7.—For erection of sawmill. Messrs. Harrison, Hall & Moore, architects, 73 Church Street, Lancaster.

HULL.—Aug. 31.—For building brick wall at back of St. Andrew's Dock branch premises, also corrugated iron roofing with skylight. The Manager, St. Andrew's Dock.

IRELAND.—Sept. 5.—For erection and completion of Crown post office at Monaghan, co. Monaghan. Deposit 1*l.* Messrs. W. H. Stephens & Sons, surveyors, 13 Donegal Square, N., Belfast.

IRELAND.—Sept. 7.—For structural additions and alterations, and also for sanitary plumbingwork and water supply, to the Manse, Milford, co. Donegal. Mr. T. Stewart, Milford.

IRELAND.—Sept. 10.—For enlargement and improvement of manse, Seskinore Presbyterian church, Omagh. Rev. W. J. M'Askie, B.A., Manse, Seskinore, Omagh.

IRELAND.—Sept. 25.—For building boot factory and warehouse, also shops and dwelling-houses, at Castle G. Corner and Waterloo Street, Londonderry. Mr. Patrick Elliott, architect, Exchange Buildings, Castle Street, Londonderry.

LANCASTER.—Sept. 3.—For alterations to shop on Woodville. Messrs. Austin & Paley, architects, Lancaster.

LEE-ON-THE-SOLENT.—Sept. 14.—For erection of a Court school. Deposit 2*l.* 2*s.* Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

LONDON.—Sept. 1.—For erection and completion of Bible Christian chapel to seat 1,050, together with a block of classrooms and other buildings at the corner of H. Road, South Tottenham, N. Deposit 3*l.* 3*s.* Mr. W. Bedd, Rees, architect, 3 Dumfries Place, Cardiff.

LONDON.—Sept. 4.—For alterations and additions to hot-water supply apparatus for certain blocks at the West Fever hospital, Seagrave Road, Fulham, S.W. Deposit 1*l.* Mr. W. T. Hatch, the Metropolitan Asylums Board, Embankment, London, E.C.

LONDON.—Sept. 5.—For general internal alterations, cleaning, painting, papering and repairs to be effected in 11 Amptill Square, and for exterior cleaning to front of 10 and exterior cleaning and painting to front of 11 Amptill Square.

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uare, N.W., for the St. Pancras Board of Guardians. Mr. Fred A. Millward, clerk, Town Hall, Pancras Road, N.W.

LONDON.—Sept. 12.—For erection of a day-room and rkshed at St. George's workhouse, Mint Street, S.E. posit 5/. Mr. Arthur J. Wade, architect, 104 Harvist ad, Kilburn, N.W.

MACCLESFIELD.—Sept. 3.—For erection of a laboratory at Macclesfield sewage works, Butley. The Borough Sur- vor, Town Hall, Macclesfield.

MANCHESTER.—Sept. 4.—For erection of an infants ool and for alterations and additions to existing Southall eet Municipal school, Cheetham. Deposit 2/ 2s. Educa- 1 Offices, Deansgate, Manchester.

MIDDLESBROUGH.—Sept. 5.—For extensions and altera- is to the Hugh Bell schools. Messrs. J. M. Bottomley, 1 & Wellburn, architects, 28 Albert Road, Middlesbrough.

NORTH SHIELDS.—Sept. 9.—For erection and completion the West End police station, Lawson Street. Deposit 2s. Mr. John F. Smillie, borough surveyor, Tynemouth.

PENDLETON.—Aug. 31.—For erection of a bridge in the age of Pendleton, near Clitheroe. Mr. T. Rawcliffe, veyor, Bradhurst, Aighton, near Whalley.

PORTHCAWL.—Sept. 2.—For erecting a public sanitary venience at John Street. Deposit 1/ 1s. Mr. R. W. es, surveyor, Council Offices, Porthcawl.

RICHMOND.—Sept. 6.—For construction of about 220 ds of 9-inch brick wall and about 385 yards of 9-inch urf wall, surmounted with wrought-iron railing, together 1 entrance gates, around the proposed recreation ground tting on North Sheen. Deposit 1/ 1s. Mr. J. H. erley, borough surveyor, Town Hall, Richmond, Surrey.

ST. THOMAS.—Sept. 11.—For construction of a block of mending rooms, caretaker's rooms and offices ad- ing at Buller Road, St. Thomas, Exeter. Messrs. key's Banking Company, Exeter.

SCOTLAND.—Sept. 2.—For mason, carpenter, slater, terer, plumber and painter and glazier's work of altera- s and additions to Cove public school, for the Nigg School rd. Mr. Geo. Bennett Mitchell, architect, 148 Union et, Aberdeen.

SCOTLAND.—Sept. 2.—For mason, joiner, slater, plumber, plasterer, smith and heatingwork of a school to be erected at Blackhall. Mr. John Watson, architect, 24 Castle Street, Edinburgh.

SCOTLAND.—Sept. 5.—For mason, carpenter, slater, plaster and painter's work of gamekeeper's cottage at Doonie Hall, Rothes. Mr. J. Grant Smith, Seafeld Estates Office, Elgin.

SCOTLAND.—Sept. 7.—For mason, joiner, slater, plasterer and plumber's work of proposed school and teacher's house at Rhunahaorine, for the Killean and Kilchenzie School Board. Mr. Neil Maccallum, clerk, Lochend House, Campbeltown.

SCUNTHORPE.—Sept. 19.—For erection of a higher ele- mentary school and pupil-teachers' centre at Scunthorpe, Lincs. Messrs. Scorer & Gamble, architects, Bank Street Chambers, Lincoln.

SMALLTHORNE.—Sept. 14.—For extensions at Bradeley Council school, Smallthorne, Staffs. Additional accom- modation provided about 468 places. Deposit 2/ 2s. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

SOUTHEND-ON-SEA.—Sept. 5.—For provision and erection of shelters on Southchurch Parade. Deposit 1/ 1s. Mr. E. J. Elford, borough engineer, Southend-on-Sea.

SOUTHERY.—Sept. 6.—For erection of proposed new cloak-rooms and outbuildings at the Southery school. Deposit 2/ 2s. Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

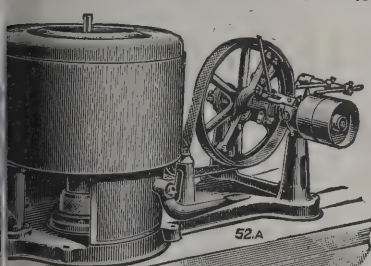
SUNDERLAND.—Sept. 4.—For erection of a new hospital for children at High Barnes. Deposit 1/ 1s. Mr. Thomas Robinson, secretary, Infirmary Offices, Fawcett Street, Sunderland.

SWALWELL.—Sept. 10.—For alteration of existing pre- mises and erection of new shop, warehouses, &c. at Market Lane. Deposit 1/ 1s. The Swalwell Co-operative Society.

TIVERTON.—Sept. 9.—For erection of a galvanised iron shed for their disinfecting cart at Tiverton and District hos- pital. Mr. J. Follett Pugsley, clerk, Tiverton.

UXBRIDGE.—Sept. 4.—For erection of following blocks of buildings, for Joint Hospital Board, viz. hospital ward

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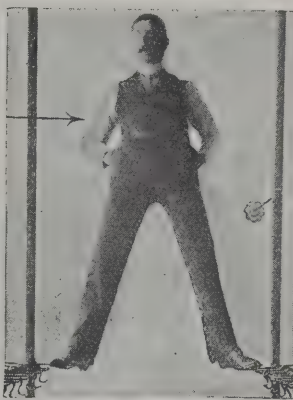
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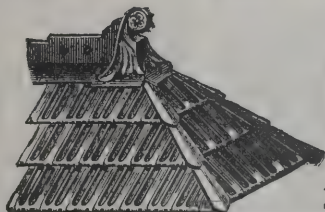
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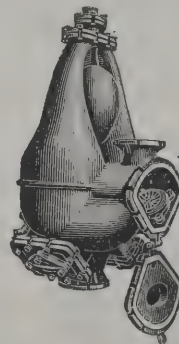
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WALES.—Aug. 31.—For erection of a chapel, vestry and classrooms, Llwynypia. Mr. R. S. Griffiths, M.S.A., architect and surveyor, Tonypandy.

WALES.—Aug. 31.—For erection of offices at Maesteg. Deposit 1*l*. 1*s*. Mr. J. P. Gibbon, Mining Offices, Maesteg.

WALES.—Aug. 31.—The Council of University College of North Wales is prepared to receive the names of firms willing to tender for the proposed college buildings. Mr. J. E. Lloyd, M.A., secretary and registrar, University College of North Wales, Bangor.

WALES.—Sept. 3.—For erection of twelve or more houses at Quakers' Yard. Mr. William Dowdeswell, architect, Treharris.

WALES.—Sept. 4.—For erection of fifty cottages at Kenfig Hill, near Pyle. Mr. Thomas Gibb, architect, Post Office Chambers, Port Talbot.

WALES.—Sept. 5.—For erection of a dwelling-house at Vaynor. Mr. R. Cound Jenkins, architect and surveyor, Cefn Coed.

WALES.—Sept. 6.—For erection of ninety-one cottages, more or less, at the option of the club, for the Ynysfaio No. 1 Building Club, Treherbert. Mr. J. Rees, architect, Pentre.

WALES.—Sept. 7.—For erection of a police-station at Whitchurch, near Cardiff. The Glamorgan County Council Offices, Westgate Street, Cardiff.

THE Board of Education have drawn the attention of the Sheffield education committee to the apparent need of providing additional accommodation in the district of Hillsborough and Malin Bridge. The matter was referred to the building sub-committee, who are recommending that an infant department, for the accommodation of 400 children, be erected on the unappropriated portion of the Malin Bridge school site, and that Messrs. Potter & Sandford be instructed to prepare plans.

## TENDERS.

### BRADWALL.

For erection of schoolroom, alterations, &c., at Reformatory.

Messrs. A. PRICE & SONS, architects, Sandbach.

Skeet . . . . .	£537
Edwards . . . . .	446
Dickenson & Roden . . . . .	445
Jackson, Ltd. . . . .	431
PICKSTOCK & ROYLE, Holmes Chapel (accepted) . . . . .	394

### CAERGWRLE.

For erection of store. Mr. C. D. RUTTER, architect, Wrexham.

Probert . . . . .	£871
Jones . . . . .	757
Woolley . . . . .	755
Davies Bros. . . . .	751
JONES & SON, Johnstown, Ruabon (accepted) . . . . .	750

### CHERTSEY.

For making-up Wheatash Road, Addlestone Moor.

Hebburn . . . . .	£542
Kavanagh . . . . .	348
Hoffmann . . . . .	342
Jackson . . . . .	318
Free & Son . . . . .	305
Eley . . . . .	298
Wheeler . . . . .	291
Franks . . . . .	289
KNIGHT & SON, Chertsey (accepted) . . . . .	254
Norris . . . . .	241

### CHESHAM.

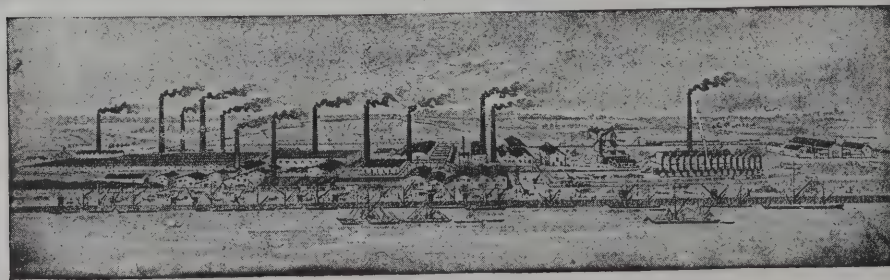
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Green & Co. . . . .	£998
Mead & Son . . . . .	990
Lee . . . . .	966
FREE & SON, Maidenhead (accepted) . . . . .	965

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ERITH.

er erection of police station. Mr. J. DIXON BUTLER, Surveyor to the Metropolitan Police. Quantities by Messrs. THURGOOD, SON & CHIDGEY, architects.

Graham & Co.	£9,919	0	0
Thomas & Edge	9,900	0	0
Lascelles & Co.	9,873	0	0
Harris & Wardrop	9,837	0	0
Holloway Bros.	9,793	0	0
Higgs & Hill	9,764	0	0
Kent	9,763	0	0
Grover & Son	9,759	0	0
Blay	9,661	0	0
Lovatt, Ltd.	9,388	11	0
Ansell	9,300	0	0
Mowlem & Co., Ltd.	9,266	0	0
F. & H. F. Higgs	9,144	0	0
Godson & Son	8,955	0	0

EPPING.

er (1) laying new system of drains with sanitary appliances; (2) sundry alterations at workhouse. Mr. H. TOOLEY, architect, Buckhurst Hill.

Contract 1.

Hyde & Co.	£1,050	0	0
Jennings	979	17	0
Glendinning	895	0	0
Stewart	870	0	10
Hubbard	799	15	0
Stevens & Sons	781	0	0
Cowlin & Sons	754	8	1
Foster & Son	699	0	0
Winch	691	0	0
Linn & Co.	675	0	0
Whiffen & Sons	650	15	0
French	650	0	0
Wood, Epping (accepted)	559	0	0

EPPING—continued.  
Contract 2.

Jennings	£286	7	0
Hyde & Co.	252	0	0
Glendinning	205	0	0
Stewart	194	16	11
W. & C. French	190	0	0
Linn & Co.	187	0	0
Hubbard	185	0	0
Foster & Son	180	0	0
Winch	180	0	0
Stevens & Sons	179	0	0
Wood (accepted)	170	0	0
Cowlin & Sons	167	4	1
Whiffen & Sons	152	14	0

Contract 3.

Jennings	431	7	6
Hyde & Co.	330	0	0
Stevens & Sons	298	0	0
Linn & Co.	285	0	0
Foster & Son	281	0	0
Stewart	277	5	3
Winch	272	0	0
Cowlin & Sons	270	2	4
Whiffen & Sons	260	1	0
Wood (accepted)	250	10	0
W. & C. French	240	0	0
Glendinning	220	0	0
Hubbard	197	0	0

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For various improvement works. Mr. G. NELSON, surveyor.

Shannon	£11,046	18	2
Dixon	9,300	11	11
Reavell	8,729	7	0
Thompson	8,121	3	10
Simpson	7,988	17	6
Coxon & Sons	7,885	19	1
McKinnon	7,878	19	5
Edgar	7,663	13	6
W. Robson	7,654	6	5
McLaren	7,519	4	6
J. J. ROBSON, Newcastle-on-Tyne (accepted)	7,455	17	7

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**HARWICH.**

For alterations at the Esplanade boys' school.

Roper . . . . .	£450	0	0
Beaumont, jun. . . . .	325	0	0
SAUNDERS, Dovercourt (accepted) . . . . .	315	0	0

**HULL.**For alterations and additions to the Blenkin Street school.  
Mr. J. H. HIRST, city architect, Hull.

Simpson & Son . . . . .	£804	8	9
Jackson & Son . . . . .	777	19	6
Goates . . . . .	740	0	0
Houlton & Son . . . . .	735	0	0
Harper . . . . .	728	12	0
Southern . . . . .	699	2	9
SINGLETON, Hull (accepted) . . . . .	659	15	8

**KENDAL.**For erection of the Carnegie library. Mr. T. FREDK.  
PENNINGTON, architect, Hounslow Heath, W.*Accepted tenders.*

Pennington, walling, mason and slater . . . . .	£2,850	0	0
E. & A. Nelson, carpenter and joiner . . . . .	1,080	0	0
Steel & Co., plasterer . . . . .	269	19	0
Parsons, plumber . . . . .	199	8	0
Brown, painter and glazier . . . . .	191	9	6

**MACCLESFIELD.**For erecting an infectious diseases hospital, Moss Lane.  
Mr. C. W. STUBBS, borough engineer, Macclesfield.  
Quantities by Mr. JABEZ WRIGHT.

Bradburn & Sons . . . . .	£1,582	0	0
Bull . . . . .	1,420	14	2
E. & A. Frith . . . . .	1,376	0	0
SIMPSON & SON, Macclesfield (accepted) . . . . .	1,216	15	0

**MORLEY.**For erection of warehouse at Deanfield Mills. Messrs.  
T. A. BUTTERY & S. B. BIRDS, architects, Morley.*Accepted tenders.*

Spensley, Morley, mason . . . . .	£700	14	11
Furness, Morley, joiner . . . . .	651	0	0
Iredale & Son, Birstall, plasterer . . . . .	96	8	10
Kellett, Morley, slater . . . . .	94	0	0
Stokes, Morley, plumber . . . . .	37	10	0

**NORFOLK.**For alterations and additions to Ingoldisthorpe school.  
Norfolk. Mr. HERBERT J. GREEN, architect and diocesan  
surveyor.

Chambers & Son . . . . .	£600	0
Riches . . . . .	586	9
Shanks, Chatteris and Hunstanton (accepted conditionally) . . . . .	533	0

For restoration of tower and new turret stair at Holt Church.  
Norfolk. Mr. HERBERT J. GREEN, architect and diocesan  
surveyor.

Baker & Co. . . . .	£961	4
Chapman . . . . .	823	0
Smith . . . . .	752	0
Shanks, Chatteris and Hunstanton (accepted conditionally) . . . . .	689	0

**NUNEATON.**For construction of surface-water drain, &c., Abbey Street.  
Mr. F. C. COOK, engineer, Nuneaton.

Barry . . . . .	£848	6
Brown . . . . .	768	14
Holloway . . . . .	737	0
Ball . . . . .	733	0
Harper . . . . .	715	18
Jewell . . . . .	696	7
Macdonald . . . . .	692	0
PALMER, Leicester (accepted) . . . . .	677	9

**PERTH.**For street works in Abbot Street, Craigie. Mr. ROBERT  
M'KILLOP, burgh surveyor.

A. & J. Faill . . . . .	£619	15
Fraser . . . . .	612	11
Dick . . . . .	538	9
W. Wilson . . . . .	522	4
Lothians Quarry Co. . . . .	531	16
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Leith, jun.	£479	1	10
J. Wilson & Co.	446	3	2
Martin & Macfarlane	425	0	7
Brannigan Bros. & Co.	420	6	2
Taylor Bros.	418	4	4
D. & R. Taylor	405	13	6

## PLYMOUTH.

for the reinstatement of the portion of the workhouse damaged by fire, for the Guardians. Messrs. THORNELY & ROOKE, architects, Plymouth.

Pearn Bros.	£4,150	0	0
Andrews	3,900	0	0
Trevelyan	3,803	0	0
Wakeham Bros.	3,789	0	0
Pethick Bros.	3,777	0	0
Stanbury	3,773	0	0
Laphorn & Co.	3,668	0	0
Finch	3,650	0	0
Paynter	3,521	0	0
Dockerell & Son	3,497	0	0
Smith & Son	3,459	0	0
Stevenson & Co.	3,360	0	0
Curpin	3,344	0	0
Lethbridge & Son	3,298	0	0
Matcham & Co.	3,246	0	0
Blake	3,169	0	0
ROBERTS, LTD., Plymouth (accepted)	3,098	0	0

## SOUTHEND-ON-SEA.

private street works. Mr. E. J. ELFORD, borough surveyor.

<i>Darnley Road.</i>			
Buxton & Jenner	£153	0	0
Iles	140	0	0
BOROUGH ENGINEER (accepted)	115	0	0
<i>Cliff Gardens.</i>			
Borough Engineer	925	0	0
Iles	920	0	0
Buxton & Jenner	916	5	3
PARSONS & PARSONS, Ilford (accepted)	864	0	11

## SOUTHEND-ON-SEA—continued.

<i>Cliff Road.</i>			
Iles	£1,270	0	0
Borough Engineer	1,256	0	0
Buxton & Jenner	1,253	18	0
PARSONS & PARSONS (accepted)	1,237	2	3

<i>Hillcrest Road.</i>			
Parsons & Parsons	287	9	4
Borough Engineer	287	0	0
Buxton & Jenner	284	17	3
ILES (accepted)	280	0	0

<i>Hainault Avenue.</i>			
Buxton & Jenner	1,169	0	0
Parsons & Parsons	1,159	0	0
Borough Engineer	1,158	0	0
ILES (accepted)	1,155	0	0

<i>Honiton Road.</i>			
Borough Engineer	625	0	0
Parsons & Parsons	594	10	3
Buxton & Jenner	591	8	8
ILES (accepted)	580	0	0

<i>Rayleigh Avenue.</i>			
Iles	765	0	0
Buxton & Jenner	754	11	11
Borough Engineer	745	0	0
PARSONS & PARSONS (accepted)	739	5	11

<i>Southview Drive.</i>			
Buxton & Jenner	830	6	6
Parsons & Parsons	822	11	6
Borough Engineer	820	0	0
ILES (accepted)	820	0	0

<i>Palmerston Road.</i>			
Parsons & Parsons	86	12	2
Iles	78	0	0
Buxton & Jenner	76	3	3
BOROUGH ENGINEER (accepted)	71	0	0

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**SWINDON.**

For alterations and additions at the White Hart inn, Stratton Cross Roads, near Swindon, for Messrs. T. & J. Arkell. Messrs. DREW & SONS, architects, Swindon.

Looker	£258	0	0
Chick, Carden & Co., Ltd.	235	0	0
Spackman & Co.	213	0	0
TYDEMAN BROS., Swindon (accepted)	205	0	0

**SURREY.**

For erection of London and South-Western Railway service orphanage. Mr. W. E. TREVENNA, architect, South Farnborough.

HUGHES, Wokingham (accepted)	£19,129	0	0
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**TAMWORTH.**

For laying about 2,600 yards of pipe sewers in various roads in the parish of Wilnecote, with manholes and other incidental works. Mr. HENRY J. CLARSON, engineer, Tamworth.

Trentham	£1,513	0	0
Mason	1,228	11	6
Wilmott	1,189	10	8
Lock, Andrew & Price	1,142	4	8
Palmer	1,125	10	0
Musson	1,060	10	0
Smith & Co.	993	4	6
Dean & Son	935	8	6
Bennett	921	0	0
Brebner & Co.	905	16	6
Mitchell & Son	868	2	6
Holmes	791	7	0
PRICE, Wilnecote, Tamworth (accepted)	746	18	8

**WHITLEY BAY.**

For extension of marine promenade, Whitley Bay. Mr. JOHN MOORE, surveyor.

Thompson Bros.	£1,919	15	6
Simpson	1,393	3	2
Millar	1,235	16	11
GRAY, Whitley (accepted)	1,200	4	9

**YARDLEY.**

For erection of school in Church Road.

WHITEHOUSE & SON, Birmingham (accepted) £13,973 0

**WALKLEY.**

For alterations at Council school. Mr. H. L. PATERSON architect.

J. & H. WHEEN (accepted) £2,130 0

**WIMBORNE.**

For additions to Victoria cottage hospital. Mr. WAUGH JOHN FLETCHER, architect.

Smith	£314	5	
Norman Bros.	272	14	
COBB, West Borough, Wimborne (accepted)	255	14	

**TRADE NOTES.**

We have received from the Carron Company their new list of Gas-heated Steam Radiators. The blocks are well reproduced and sizes and prices are plainly given. The Carron Company will be pleased to forward a copy to any architect, builder, or contractor on application.

MESSRS. LIPTON, LTD, have placed a contract with Messrs. Farnham, Ltd., of Caxton House, Westminster, to treat the whole of the extensive frontage of their City Road premises by the Farnham patent sand-blast process, which will restore the stone and brickwork to their original tone. The process being entirely a dry one, this result is accomplished without the slightest injury to the fabric.

The Bexhill patent casement window was lately described in connection with the Building Exhibition. We have now to announce that Messrs. Campbell, Smith & Co., Ltd., have secured the sole license for its sale and manufacture. They will be pleased to send the full specifications and details of joinery on receipt of order for the fittings, and quote for the complete window if desired. Any further information will be sent by post following receipt of inquiries. Working models can be seen at their premises, 25 Newman Street, W.

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# ELECTRIC NOTES.

At a meeting of the Dundee tramway committee last week contracts were allocated for the tramway extension to Downfield. For the construction of the roadway the tender of Mr. David Horsburgh, Dundee, was accepted; for tie bars, that of Messrs. Bayliss, Jones & Bayliss; that for rails, of Messrs. MacLellan & Co., Glasgow; and for points and crossings, that of the Hadfield Company, Ltd. For the overhead and electrical equipment, the contracts were allocated as follows:—The Forest City Electrical Company; the British Insulated and Helsby Company, Ltd.; the Alloa Iron Company; and the British Insulated Cables Company.

At West Hartlepool on the 19th inst. the General Electric Tramway Company, Ltd., were summoned for causing an annoyance by using four cars that clattered. Mr. Matthew Harrison, who defended, asked the town clerk to agree to an adjournment to enable the company to put the cars right. The town clerk consented, but intimated that even though the cars were put right, he must, if the Corporation thought it, come there at the end of that period. He suggested that the cars should be taken off the line altogether, and that the whole stock should be lubricated twice daily, instead of once.

A LOCAL GOVERNMENT BOARD inquiry was held at Coventry on the 15th inst. by Mr. H. S. Bidwell into an application of the Corporation to borrow a further sum of 7,000*l.* for the purposes of their electricity undertaking. It was stated the amount formed part of a larger scheme, the present plant being insufficient to meet the demands for electric energy. It transpired, too, that in one month last winter the department had applications for about 3,000 horse-power motors. There was no opposition to the application.

The control of the Puebla Tramway Light and Power Company has been acquired by a London syndicate headed by Sir Weetman Pearson, of S. Pearson & Son. The transaction involves the consolidation of the interests of the Anglo-American Electric Company with those of the Puebla Tramway Light and Power Company, all the properties of the former company, including its developed water-power plant near the city of Puebla, having been conveyed to the

latter company. Sir Weetman Pearson has been elected president, and Dr. F. S. Pearson will remain on the board of directors for some time.

# VARIETIES.

An agitation has been started in East Anglia to remove growing ivy from churches, on the ground that it not only hides much beautiful architecture, but endangers the stability of the structure.

THE Solihull District Council have accepted an offer from Mr. J. Silcock to give expert advice upon the proposed Shirley sewage scheme, the estimated cost of which is 38,000*l.*, at a fee of 100 guineas and travelling expenses.

A START will soon be made with the erection of the buildings for next year's International Exhibition in Edinburgh, but there will be deviations from the original plans. The chief alteration affects the concert hall, which is to be removed from the other buildings, and thus avoid any noisy interruption of the music. It was intended originally to erect the concert hall immediately in front of the centre of the main industrial-hall building. The plan now shows the buildings in the form of a quadrangle.

A DEPARTURE from the usual procedure was taken last week by the Oldham Medical Officer of Health, who summoned the firemen at Gallway Mill, as well as the firm of James Greaves, Ltd., who own it. The offence was the emission of black smoke, and the firemen were charged with using the mill's furnace when it was not in a condition to consume the smoke. Against Thomas Walsh, an assistant fireman, it was alleged that at the time the observations were taken he was under the influence of drink. Each of the firemen were fined 10*s.* and costs and the firm was fined 3*l.* and costs.

THE great chimney-stack at Par, St. Austell, Cornwall, was on the 23rd inst. "thrown" by Mr. William Larkins, the Bow steeplejack. The chimney was 275 feet high and was composed of a million bricks. It is calculated that the structure weighed 3,000 tons, and it stood on a granite foundation. The stack had been in use forty-four years, but had been disused for the past twenty-five years. It was originally constructed for smelting silver lead. Mr. Larkins

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thinned the base of the walls to the extent of a brick and a half, and then cut half-way round to the depth of 3 feet. The stack adjoined the main road. The work had been abandoned by a London firm which commenced operations by taking off 60 feet of bricks from the top of the stack.

THE British Consul for Mexico in his report on trade during last year states:—"Contractors for the erection of factories should find Mexico a fair field for profitable action; the policy of the country is to manufacture in Mexico itself as much as possible that Mexicans require. There is a considerable amount of industrial development quietly going on." Most of the plumbers or "sanitary engineers" in Mexico are British, but on their subscribing to certain conditions many have joined the Plumbers' Federation of the United States. Among these conditions is one which binds them to purchase only in the United States. The result is that while Mexico is an ample field for that class of goods, British made sanitary appliances are very seldom seen.

PREPARATIONS are being rapidly pushed forward for the huge Machinery and Engineering Exhibition at Olympia, which throws open its doors on September 19 next. The ironwork which frames the glass sides of the huge building has been repainted, and in order to avoid the necessity of building scaffolding, the management engaged a number of seafaring men who have carried out the dangerous work with rapidity, despite the fact that their foothold was of the flimsiest character. It is expected that the cleaning and repainting of the interior will be completed within a week, by which time several tons of paint will have been consumed.

At an inquest held in London on the 23rd inst. regarding the death of a plasterer who was killed by falling from a scaffolding, it was proved that no guard was provided for the workmen engaged thereon, although on the morning of the accident attention had been called to the omission. A Home Office inspector said that if he had seen the scaffold before the accident he certainly should have advised the use of a guard-pole. This accident was only one of dozens that happened, and which would be obviated by the compulsory use of guard-poles. The jury returned a verdict of "Accidental death," and added as a rider that in their opinion a guard-pole should have been used, and that they approved of legislation making the use of such precautions compulsory.

THE Bromsgrove Board of Guardians on Tuesday considered a letter received from the Bodmin Board in reference to the Workmen's Compensation Act. The letter pointed out that the action of the insurance companies in refusing to accept premiums in the case of elderly and other workmen would inevitably lead to a greater number of unemployed and a consequent increase in the cost of outdoor relief. They recommended that Boards of Guardians should urge an amendment of the Act, whereby by contracting out or otherwise the difficulties which had arisen in some cases should be obviated, and asked the Board to adopt a resolution on the subject. A resolution to this effect was adopted.

### CO-OPERATIVE HOUSING AT THE CRYSTAL PALACE.

FOR nineteen years co-operators have held an annual festival at the Crystal Palace, and that which closed on Tuesday last was one of the most successful yet organised. The proceedings commenced on the 21st inst. with the opening of a great exhibition in the north nave, with a section specially devoted to housing, and as the movement developed it is becoming increasingly clear that, in addition to the usual advantages of co-operation in encouraging thrift and business capacity, it has two special advantages which react on each other, viz. the encouragement of social life and recognition of social duties, on the one hand, and the facilities it offers for site-planning on the other; that is to say, the planning in detail of a given site, usually of some acres, providing for the different types of houses to be built on it, the gardens allotted to them, and any common land which may be required for recreation or other purposes for it is obvious that a society which obtains its land by the acre and aims at the greatest advantage of its tenants, will be both better able and more willing than the ordinary builder to devote part of this land to their common purposes, and to commission an expert to plan out the whole to the best advantage.

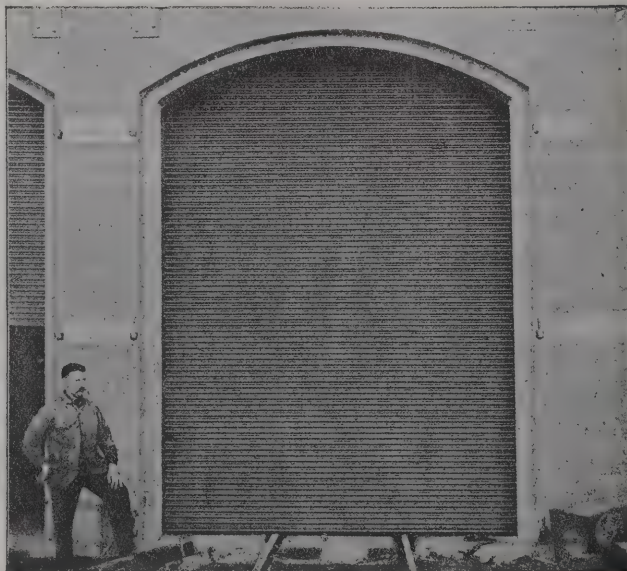
In this connection special reference may be made to the Tenant Co-operators, Ltd., the Ealing Tenants, Ltd., the Sevenoaks Tenants, Ltd., the Hampstead Tenants, Ltd., and the Garden City Tenants, Ltd. These societies were for the

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CHANCEL.

part well represented at the exhibition, and there is  
n to believe that they are meeting a fresh want in con-  
on with the housing problem.

the Hampstead Tenants, Ltd., had on view a large  
red plan of the proposed Garden City at Hampstead;  
the Sevenoaks Tenants, Ltd., showed some capital  
of cottages, as well as a very fine model.

prominent position was occupied by the General  
ers, Ltd. (Co-operative Society), who showed some  
class artistic joinery, including some serviceable  
ers made for the living-rooms in Garden City houses.  
aturday last was the great day, when many thousands  
operators from London and the provinces assembled,  
the attractive programme was carried out in a very  
actory manner; nor should mention be omitted of the  
fruit, flower and vegetable show, or the concluding  
ay of fireworks, for which the Crystal Palace is famous.

## LARGE SALE OF WELSH LAND.

FTER the present boom in the manufacturing trades in  
ountry has subsided, as it may be expected to do when  
eneral cyclic movement which is admitted to govern  
matters has performed its task, investors will look  
for other channels in which to successfully employ  
capital. Some sign of this approaching change of  
ions is heralded by the recovery on the Stock  
nge only during the last few days, and we shall  
bly soon have the company promoter's advertisements  
ling the newspapers with invitations to the unwary.  
new opening one of the best securities should be the  
n and close on to our rising towns, and when a buyer  
dgment and discretion there is little doubt that large

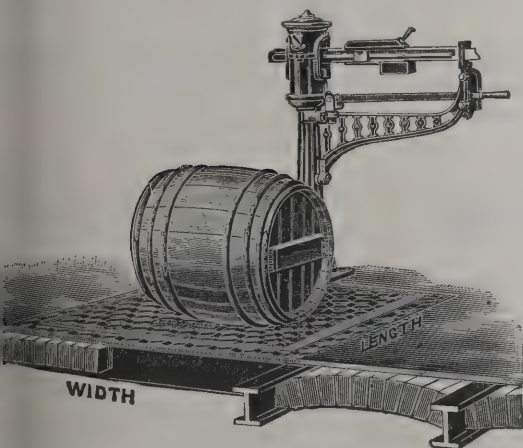
ultimate profits are obtainable in this direction. In and  
about London itself expert knowledge is essential  
before investing in land, and it is very difficult to obtain  
really reliable advice on the subject. Successful  
adventures generally fall to the lot of those who  
have the best understanding of the local signs of  
growth, and in this manner many large fortunes  
have been made in quite recent years. The sale of the  
Middleton Evans estates at Llandrindod Wells next Tuesday,  
by Messrs. Knight, Frank & Rutley, is likely to show how  
far in this way outside investors are likely to compete with  
local capitalists, because the development of the Welsh  
Highland Spa has in a sense up to the present been retarded  
by these lands having been unavailable for building, and  
now that they are at last on the market great interest has  
been aroused on all sides. The growth of Llandrindod has  
been exceptional in recent years, the motor-car and in-  
creased railway facilities having largely contributed thereto.  
A greatly accelerated development is now certain to take  
place, and investors familiar with the subject agree that the  
increase of population and rating values in other towns,  
having the attraction of mineral springs for the use of  
visitors, is a fair indication that such districts must always  
yield satisfactory profits to buyers of land who are lucky  
enough to "cut in" at the right moment. The great in-  
crease in population and rateable value of inland watering-  
places, such as Buxton, Cheltenham, Harrogate and Tun-  
bridge Wells, affords strong evidence in this respect, whilst  
the recent developments in seaside towns, such as Newquay,  
Cromer, Bexhill and Hove, have shown hugely increased  
value, in some cases land bought in recent years at agri-  
cultural value having advanced to 2,500% per acre.

THE London and North-Western Railway Co. have  
provided three new corridor saloon trains for the special  
service run between Euston and Liverpool in connection  
with American traffic. Each train consists of three ordi-  
nary saloons, two dining saloons, one kitchen-car and two  
brake-vans, and will accommodate in the ordinary saloons  
100 passengers—52 first-class, 24 second and 24 third-class.  
The dining-cars will accommodate 102 passengers—51 first-  
class, 24 second and 27 third. Access to the train is by  
wide vestibules at the ends of each of the coaches.



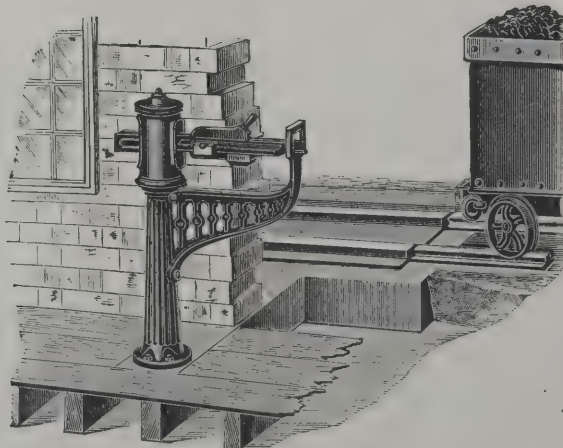
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**KENTISH ROADS.**

THE report of Mr. H. P. Maybury, county surveyor for Kent, states that the maintenance and repair of the rural main roads within the urban districts of Bexley, Chislehurst, Cheriton, Footscray, Wrotham, Whitstable and Dover have cost during the past year 76,291*l.* 10*s.* 2*d.* In many of the Home Counties costs have gone up from 50 per cent. to 60 per cent. in three years, and are still increasing, and at least 10,000*l.* per annum of the expenditure in Kent is now due to motor-car traffic.

As in the year preceding, 107 traction-engines were licensed for use in the county, and, in addition, day permits have been issued and engines licensed for agricultural purposes to the number of 137. This traffic is most damaging to the roads, whilst the fees accruing therefrom are ridiculously small. Upon payment of half a crown an engine may traverse the whole county, doing damage to the extent of hundreds of pounds. For 120 such occasions during the year under review the gross receipts were 15*l.* Thus, for the benefit of a comparatively few people owning these appliances, the whole of the ratepayers of the county have to find large sums of money year after year to make good the damage caused.

Up to March 31 last 3,099 motor-cars had been registered in the county, being an increase of 643 in the account year. Of this number 71 are registered as heavy motors, under the "Heavy Motor Car Order, 1904." In the county of London some 25,000 motors are registered, and the fees, together with Exchequer contributions, go into the coffers of the London County Council, whilst the ratepayers, particularly those in the Home Counties, maintain the roads upon which these vehicles are largely used. Prior to the passing of the Local Government Act of 1888 half the cost of main road maintenance was provided out of Imperial funds. Since that time the cost of upkeep has almost doubled, whilst the Exchequer contribution has not materially increased. The demand is for better and dustless roads, and, with additional Imperial aid, this can be accomplished. Local material, which was sufficient for repairs in pre-motor days, is no longer suitable, granite—with no greater covering area per ton—having to be procured at double the cost. Again, the Legislature has put upon us the provision and erection of motor-car signals

without providing us with a grant in aid of cost of such work. During the account year we purchased 99,500 gallons of oil, which was used in treating the main roads through populous places, all such work being an entirely new charge upon the county department. Some 53 miles of surface directly maintained by your Council was tar-painted at a cost of upwards of 4,000*l.* in addition to which contributions have been made for similar work undertaken in urban districts, where the councils are the retaining authorities. It may be that this tar-painting work is a preservative to the road, and the surveyor hopes they may derive some benefit from it. As a dust-laying material properly applied is most effective, and will be so used in future. The residents in rural districts suffer more from the dust nuisance than do those in urban areas, because much greater speed is attained by motors in the former, whilst in the latter street watering is almost general. The high speed traffic has a prejudicial effect upon the road surfaces, and as at least 60 per cent. of the cars are fitted with armoured tyres much greater damage is caused than formerly. The steel studs and bands minimise the risks of side-slip, of punctures and wear of tyres, but of course the expense of the roads. Extra strength and extra material are required in the material used for repairs, and this must be of the best possible quality. The motorist should be required to pay the cost of this extra expenditure by an increased license charge, the monies to be derived therefrom to be applied to road improvement and dust laying, and it is hoped that, having regard to possible early legislation hereon, the Council will see that a good case is presented from the ratepayers' point of view. The incident of the charge upon all commercial mechanical traction should at the same time receive consideration, and should be met with in any Government measure to be introduced.

**IRON ORE SUPPLIES.**

A PAPER was read by Mr. Bennett H. Brough, Assoc. R. F.G.S., F.I.C., before the British Association, in which he said:—

Of all the problems with which the practical geologist has to deal, none is of greater importance at the present time than the discovery of fresh sources of iron ore supply. Every inhabitant of the United Kingdom, of the United

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es and of Germany requires annually about a quarter of on of the iron, of which the world last year produced 00,000 tons, the result of the smelting of over 120,000,000 of ore. Year by year the production and consumption are easing, and many of the deposits of the richer ores are giving signs of depletion. The question of ascertaining the demand for the vast supplies of iron ore that will be future be needed will be met calls therefore for very serious consideration, and a few statistical notes may be ul as a contribution to a discussion of the subject.

During the past half-century the development of the iron stry has been remarkable. In 1854 Mr. J. K. Blackwell ved that the world's production of pig-iron did not ed 6,000,000 tons, of which the United Kingdom produced er cent, France and the United States each 12½ per , and Germany 6.6 per cent. In 1905 the world's pro- ion had attained the enormous total of 56,000,000 tons, hich the United States produced 42.7 per cent., any and Luxemburg 20 per cent, the United Kingdom per cent., and France 5.5 per cent.

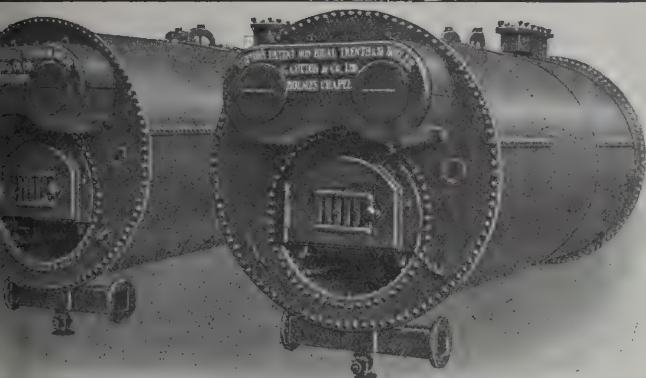
n Great Britain the principal iron-ore producing districts Cleveland, in North Yorkshire, which in 1905 yielded er cent. of the total output of the kingdom; Lincoln- (14.8 per cent.), Northamptonshire (13.9 per cent.) and estershire (4.7 per cent.), together yielding 33.4 per cent. e total output; Cumberland (8.6 per cent.) and North ashire (2.7 per cent.), Staffordshire (6.1 per cent.) and land (5.7 per cent.). The Cleveland iron ore occurs in foot bed in the Middle Lias, and contains about 30 per of iron. It is worked by underground mining. In olnshire, Northamptonshire and Leicestershire the n iron-ore beds form part of the Inferior Oolite, contain about 33 per cent. of iron, the works being ly open-cast. In Cumberland and North Lan- ire the red hæmatite occurs in irregular masses in oniferous limestone. It contains more than 50 per of iron, and is worked by underground mining. The stone in Staffordshire and in Scotland is mostly obtained mines that also produce coal.

uch, in brief, are the home deposits from which the sh supply of 14,590,703 tons of iron ore, valued at ,184/, was obtained in 1905. Even that enormous ut did not meet the consumption, and 7,344,786 tons

were imported. Of that amount 78.5 per cent. was brought from Spain, 5.4 per cent. from Norway, 4.2 per cent. from Greece, 4.0 per cent. from Algeria, 2.6 per cent. from France, 2.6 per cent. from Sweden, 1.5 per cent. from Russia and smaller quantities from Turkey, Germany, islands in the Pacific, Belgium, Newfoundland, India, Australia, Italy (Elba), Persia, Portugal and other countries. In fact, the world is being ransacked for fresh iron-ore fields to supply ores for the British blast furnaces. The port at which most of the ore was delivered was Middlesbrough (1,789,639 tons), then followed Glasgow with 1,042,179 tons, and then Cardiff with 875,462 tons.

While it is probable that the British iron-ore fields will be exhausted in a century or two, the outlook in other countries is similar. This is borne out by data relative to the available iron ore supplies of the world which have been collected by Torneböhm for the Swedish Parliament, and, although largely conjectural, these figures are of great interest.

The outlook for the British industry is not altogether a depressing one, for whilst the rich ores of Bilbao and Elba are becoming scarce there are still vast quantities of ore available in the North of Scandinavia, in the South of Spain, in Algeria, Canada, Cuba, Brazil, Venezuela, Chili, India, China (notably in the Shansi district), Australia and South Africa. The high cost of carriage is, of course, an important factor; but the great economies which have and will be effected in transport will reduce this item. The future of the home demand is likely to be affected by the development of the basic open-hearth process of steel-making which enables phosphoric ores to be utilised. In the course of time such phosphoric ores will doubtless occupy a very prominent place in the manufacture of high-class steel. The development of magnetic concentration and of the briquetting of pulverulent ores for furnace use will render possible greater utilisation of poorer ores, while the development of the electric furnace will doubtless render it possible to utilise black sands and other titaniferous iron ores which, although met with in abundance, cannot at present be treated profitably in the blast-furnace. There need therefore be no immediate anxiety regarding the supply of the more impure iron ores, the application of which cannot fail rapidly to increase.



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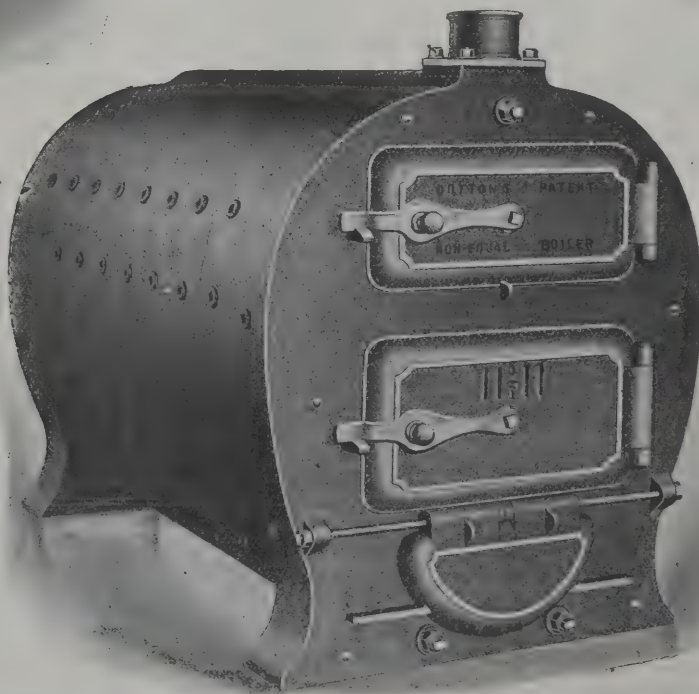
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## DISINFECTION OF SCHOOLS.\*

THAT there is urgent need for the daily disinfection of schools must be admitted by all intelligent observers who are acquainted with the histories of the infectious diseases common to school children. It is universally conceded that preventive medicine is the most important form of medical science, and must inevitably become the medicine of the future. The application of sanitary science to problems of disease has already borne rich fruit. Typhus fever has practically disappeared from these realms. Smallpox, under efficient vaccination rapidly disappears from all countries. Malaria is going, and now that the bacterial cause of Malta fever has been located it will no doubt rapidly decrease. The group of infectious diseases incident to childhood, however, has not fallen at a rate commensurate with the great advances of sanitation. This group consists of diphtheria, scarlet fever, measles and whooping-cough. Tuberculosis in school children still stands at a level much too high. All pathologists are agreed that each of these diseases is caused by a specific germ. The diphtheria bacillus and the tubercle bacillus have been isolated, studied and definitely referred to their respective diseases. Although the germs of scarlet fever, measles and whooping-cough have not yet been isolated, it is universally held that the analogies between the various stages of these maladies and the corresponding stages of those infections in which the micro-organism has been identified are so complete, that the conclusion that they are produced by germs is inevitable. If this be so, it will be admitted on all hands that the one intelligent method of preventing these diseases is the timely destruction of the causal agent.

Evidence is accumulating to show that schools play an important part in the spread of infection. The medical officer of health for the Hitchin urban district stated in a recent report that the evidence is almost conclusive that schools are the chief agents in the dissemination of infectious diseases. Dr. B. K. Goldsmith, assistant medical officer of health for Manchester, in a report on the influence of school life on the spread of scarlet fever, says:—

\* A paper by J. T. Ainslie Walker, F.C.S., read at the International Congress on School Hygiene.

"We cannot fail to be struck with the sudden rise in number of cases when the schools reopen after the summer and Christmas holidays." In the same report this observer further states that:—"We know that other diseases, ophthalmia, ringworm and scabies are frequently contracted at school. It is of course essential that the work of educating the children of the nation should continue, but it is no less essential that they should be protected as far as possible." The medical officer of Chorley is of opinion that:—"The principal method of propagating infection through the attendance of children at school while in first stage of the disease. Measles is decidedly infectious before the rash appears and when the symptoms differ little from those of an ordinary cold. The practice adopted by the Council of giving prizes for regular attendance at school, and not allowing for absences due to sickness, undoubtedly resulted in children being sent to school who unfit themselves or coming from houses in which there was a case of infectious disease."

It must be clear to all unbiassed minds that in the cases in which the specific germ is known, such as diphtheria, tuberculosis, &c., the destruction of this germ wherever it is found, should be the primary object of every preventive measure; and further, that in cases in which the specific germ has not yet been isolated but in which various pus cocci appear as the causes of purulent affections of throat, nose and ear in sequelae of measles, scarlet fever, &c., that the destruction of these germs should be as carefully secured.

Now it is amply proven that the floors of schoolrooms are covered with dust containing pus cocci, tubercle bacilli and at times diphtheria bacilli. The dry sweeping of floors is useless in that dust is by this process merely whirled into the air to alight later on the floor and on the furniture. When we remember that the inhalation of dust is the most potent factor in the production of pulmonary tuberculosis, the necessity of spraying floors with a liquid disinfectant before sweeping, and of rubbing all furniture, wall surfaces, &c., with a wet cloth wrung out of an efficient disinfectant will be evident. In the course of his presidential address at the opening of the Medical Congress at Exeter, Dr. Henry Davey added the weight of authoritative endorsement to this argument. Dealing with the question

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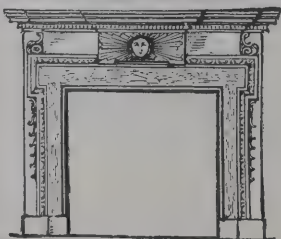
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the enormous mortality from consumption, the President declared that "the only way to actually prevent the disease is by a perfect system of school hygiene, physical and mental, and by a careful system of disinfection and sanitation." Dr. Davey's pronouncement is, of course, equally applicable to diphtheria, and most probably to scarlet fever, measles and other diseases which lend themselves with peculiar readiness to dissemination through school intercourse. The infection of whooping-cough is conveyed by the pluttering of infected mucus during the paroxysm of the infected child's throat into the faces of other children or the atmosphere surrounding them. Disinfection of the floors and furniture in the manner described and the atmosphere and walls by a spray are obviously methods where this disease has appeared at school. Apart from the immediate benefit secured by thorough disinfection of schools in the matter of the prevention of infectious disease, the educational value of a routine system of spraying and disinfection to the children who should participate in it would be very considerable. Managers of schools, teachers and the children themselves should all be taught the principles of disinfection if the tide of infectious disease is to be materially stemmed. Bacteria which produce disease are found in the hair, on the skin, in the clothing of children, in the dust and atmosphere of the schoolroom; they are invisible—nevertheless they pass directly or indirectly from child to child. A school boy should be led intelligently to understand all the nature of disinfection and the imperative need of thorough disinfection, which latter he should witness practically carried out in his classroom. Such methods of education can produce that lasting influence on the boy's mind that will secure intelligent disinfection of his home in after life.

The need of school disinfection has already been recognised abroad and in certain quarters at home. In Queensland recently a deputation to the Secretary for Education drew attention to the positive danger of the conveyance of infection not only by tuberculosis, but other diseases of manufacture—such as scarlet fever and diphtheria—the use of slates imperfectly cleaned and disinfected. It was pointed out that it was the common custom for children to clean their slates by spitting on them, and as the

mouth frequently harboured pathogenic organisms, especially the bacillus of diphtheria, there was a real danger of the direct spread of this disease from a case so mild as probably not to be recognised except on special bacteriological examination. Inasmuch as it was considered almost impossible to prevent such carriage of infection, it was suggested that such slates should be washed each day after use in a solution of a disinfectant. In America the practice of disinfecting the floors of schoolrooms has become part of the daily routine. In this connection the committee on disinfection of the American Public Health Association, in reviewing the work of the year 1904, state that remarkable results have followed the use of disinfectants when sprayed daily on the floors of schoolrooms—infectious colds and other dust-borne diseases being considerably lessened among the scholars.

Dr. Leslie Mackenzie, writing on the subject of school-cleansing, states:—"As the cleansing of a school should be periodic and systematic, it is well to know of a single method that will at once cleanse and disinfect. Formerly, when infectious disease broke out in a school, a pound or two of sulphur was burnt in a basin standing in water, the windows, chimneys and other crevices having been first stuffed up. The place remained closed for a day or two, and was then supposed to be disinfected. This primitive method is still followed in many places, and probably it still satisfies many people. I prefer the simpler, quicker and more effective method of spraying the walls, floors, desks and furnishings with a spray-pump. This is the quickest method of allaying the dust; it can in a few minutes saturate floor, desk, dado, &c., with a disinfectant of any strength, and I know of no better preliminary to effective cleansing. When a serious outbreak of disease occurs the spraying must proceed to profuse wetting of all dust-covered surfaces."

The Moseley medical officer of health not only recognises the danger of infection in schools but has demonstrated the efficacy of the disinfection of floors as a preventive measure. In a recent report referring to the absence of any single case of infectious disease, he says:—"It is several years since a similar state of things prevailed, and the fact is attributed to the new system of disinfecting the schools from top to bottom every week with Cyllin spray."


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For Index of Advertisers, see page x.

THURSDAY, SEPTEMBER 5.

TWO GREAT EVENTS, 1837-1907.

1837

Was the year in which the late Queen Victoria commenced her  
**GLORIOUS REIGN.**

To commemorate the 70th Anniversary of this happy event, we have in

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This is an unique opportunity for the securing of sites suitable for the erection of bungalows, houses, shops, hotels, &c. Mersea Island is fully described in "The Building Trade," April 24, 1907.

Arrangements will be made for the conveyance of intending purchasers by motor and rail from London, Clacton, Colchester, and other places; also by ferry from Brightlingsea to East Mersea, thence by motor to Queen's Estate. Luncheon will be served in the Marquee before Sale.

Luncheon at 2.30 p.m. Sale commences at 3.30 p.m.

Free Conveyances.

Plans and Particulars will be ready after the 24th August, and may be obtained from the Vendors' Solicitors, Messrs. Elwes, Turner and Hawkins, 3 High Street, Colchester; Mr. J. J. Edwards, The Queen's Mersea Estate Offices, 90-91 Queen Street, Queen Victoria Street, London, E.C.; the Mersea Brick and Iron Company, Ltd., Sea View Road, West Mersea, Essex; or of the Auctioneer, Barfield Road, West Mersea.

THURSDAY, SEPTEMBER 5.

Car leaves the Offices of the Company 9.15 sharp; Red Lion, High Street, Colchester, 1 p.m.



Dr. F. T. Bond has no hesitation in accounting for the unquestionable influence of schools in diffusing the infection of diphtheria, and possibly some other forms of infection. He says:—"The effect of the dry sweeping of floors is to raise a cloud of fine dust, which, even if it has been precipitated before the children enter the rooms, must settle on the forms and desks, to be easily dislodged and lifted again into the atmosphere of the room by every movement of the children, and especially by the stamping with which it is their custom to accentuate their march in and out of them," and proceeds to recommend the application of disinfectants to the floors.

The following school authorities have adopted routine disinfection of their schools:—Nottingham, Durham, Middlesex, Leeds, Birmingham, Willesden, Dundee, West Ham, East Riding Yorks, &c.

Despite the pessimistic and fatalistic views entertained concerning the stamping out of measles, scarlet fever, &c., I affirm that these conditions are preventable, and that by proper isolation and disinfection they can be controlled. It is well known that in the history of an epidemic of infectious disease, as the causal microbe passes from patient to patient it acquires a more and more exalted toxicity. Let it be ceded that in a certain instance the bacterial cause cannot be wholly destroyed, and that individual cases of the particular disease occur; in such circumstances much benefit will accrue to the community if an epidemic can be prevented. If in the past discredit has been wrongfully thrown on this most important department of practical preventive medicine, it was by reason of lack of thoroughness in the application of the disinfectants selected or by the use of inefficient preparations. With the introduction of the Rideal-Walker method of test, which provides a ready means of controlling the efficiency of disinfectants, and the many excellent spraying machines which are now to be had at moderate prices, it is to be hoped that some real progress may now be made along the lines indicated.

It must be obvious to all intelligent minds that in attempting to control any of these diseases it is necessary, at the earliest possible moment, to resort to the use of suitable and efficient disinfectants. It is, therefore, of the first importance that all school teachers, managers and parents should be thoroughly educated in the methods of

recognising the initial symptoms and main clinical features of such infections and in the application of efficient infectants.

Apart from the necessity of disinfection in the interest of the children themselves there is another aspect of question which may perhaps have a more stimulating effect in the desired direction.

Writing in the *Educational News* of July 19 on the subject of the Workmen's Compensation Act, 1906, as it applies to school teachers, Mr. T. A. Organ, a recognised authority on educational law, says, in reference to infectious diseases, that while it is his opinion that the Act does not cover the case yet, in view of the fact that the House of Lords recently supported the decision of a county court judge who awarded compensation for death from infectious disease, the county court judge having found as a fact that the disease and consequent death was caused by the accidental alighting of a bacillus on a part of the deceased's person, which offered harbour in which the bacillus grew and multiplied, he "can conceive how a case could be shown which would have for its object the obtaining of compensation for a teacher who 'caught' scarlet fever from one of his scholars."

There seems reason to hope, therefore, that school authorities may at length be impelled by motives of interest to the systematic disinfection of their premises will indeed be a striking commentary on their sense of public duty if legislation should step in and provide the direct means of introducing a reform demanded no less by humanity than by common cleanliness and decency.

### TRADES TRAINING SCHOOLS.

The schools in Great Titchfield Street, of which Mr. Phillips Fletcher is director, have again proved themselves deserving of the attention of workmen. The joint committee consists of members of the Worshipful Companies of Carpenters, Joiners, Painter-stainers, Plasterers, Tilers and Bricklayers and Wheelwrights. The judging committee comprised among the members Mr. T. E. Collett, Frampton, R.A., Mr. R. Blomfield, A.R.A., Mr. Gossett, John, A.R.A., Mr. Banister Fletcher, Mr. S. Stevens, He

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T. Rider, Mr. G. J. Newson. The following reports suggest the character of the work executed by the students:—

**Carpenters.**—The judges consider that the work in this of anything, more creditable than last year. A good average is shown, and some very excellent work is exhibited.

**Joiners.**—The attendances of the students appear to be at the same as usual, but the judges regret that there are so many unfinished exhibits. They understand, however, that this is due to the fact that many students found work in the provinces after joining the class.

**Handrailing.**—The judges are pleased with the exhibits, the quality of the work being of an excellent character.

**Masons.**—The simpler forms of masonry have been completed this year, and the judges are glad to find that so many young students are taking advantage of this class.

**Painters.**—The judges consider that the specimens of work well maintain the traditional excellence of this class.

**Plasterers.**—The judges are glad to find that as the work goes on, they have had considerable difficulty in making their awards, and they wish to express their appreciation of the work exhibited.

**Plumbers.**—The judges considered last year that the water mark of excellence in this class had been reached, and they are astonished to find that the work this year is of a higher character than heretofore. The best principles of plumbing have been followed out, and the designs of the pipework show that sound theory, as well as practical practice, forms part of the training of this class.

**Smiths.**—The judges regret that much work has not been completed, and trust that next year more will be placed before them, and also that some of the work commenced this season will be completed.

**Stone-carvers.**—The judges are pleased to find that the work in this class is still satisfactory, and they hope that it will continue to maintain its standard of excellence.

**Life Class.**—Messrs. George Frampton, Reginald Blomfield, Goscombe John and Banister Fletcher wish to express their appreciation of the very marked improvement in this class, and they appreciate the enormous advance that has been made.

**Tilers and Bricklayers.**—The judges are glad to find that

the work is quite up to the usual standard, the knowledge of technique and skill displayed being most meritorious.

**Wood-carving.**—The judges are very pleased to find so much excellent work exhibited; they would, however, suggest that more models be added to the collection for the use of the student, and they have requested Mr. Blomfield to make some suggestions with regard to such models. They would also like to remind the students of the necessity of studying the suitability of the design and the material they are working.

The photographic illustrations in the report confirm the opinion of the judges. As the average fees are only 5s. a term for adults and 3s. for apprentices, the advantages of the schools are attainable without inconvenience by all workmen.

#### ADMINISTRATION OF LONDON.

THE report of the engineer of the City of London (Mr. Frank Sumner) for 1906 is a belated document, for the items almost appear as if they were ancient history. For instance, it is stated that on May 5, 1905, the Corporation, in consequence of complaints having been made of the manner in which trenches were opened and reinstated in the public ways, decided to issue new regulations to all bodies, companies and persons excavating trenches. These regulations now provide that the concrete shall be splayed off on either side of the trench clear of the excavation made for the same, so as to form a key over the opening and thus prevent the pavement from afterwards subsiding. The regulation also provides that the concrete is to be at least the full thickness of the existing concrete beneath the pavement even when the concrete is 12 inches or more in thickness. Questions having arisen as to this method of repairing over trenches, fresh plans and sections showing the method in which the Corporation varied their requirements were prepared and served upon all the public bodies and companies.

Concerning the demolition of buildings, it is said that during the year applications have been received for permission to erect hoardings for the demolition of buildings at various sites within the City. Great difficulty is experienced in seeing that the by-laws are carried out in their entirety,

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but every effort is being made to enforce them, particularly with regard to the usage of a plentiful supply of water, and also close boarding the whole of the site.

Architects will be glad to learn as exemplifying a liberal interpretation of the building regulations that it was decided not to offer any objection to the construction of oriel windows in front of the premises No. 7 Wood Street and No. 51 Fetter Lane; the erection of balconies in front of the premises Nos. 110 and 111 Fleet Street and No. 60 Fenchurch Street; or to the erection of an iron and glass awning over the public way in front of Blackfriars station of the District Railway.

The quantity of water used during the year for washing streets and courts was 60,730,990 gallons. Frequently the streets are not sufficiently wet for squeegeeing, but are in a greasy or pasty condition. Mud scrapers were then formerly used, but this practice is now almost discontinued on main streets, it being found a more effectual remedy to water the surface of the carriageway by water vans and to squeegee immediately afterwards. This system has proved an inestimable boon to the motor traffic, but of course it is quite impossible with the enormous traffic and the great area of street surface to cleanse in this way more than the main thoroughfares.

### UNADOPTED ROADS.

In his report to the Handsworth Urban District Council on the work in the surveyor's department, Mr. H. Richardson talks plainly about the large number of roads which have been partly formed as private speculations, and which combined are about fourteen miles in length. According to him a large proportion of these roads are of no use to the general public as thoroughfares, but have simply been made to suit the purposes of the landowner and to "make frontage." The Council have no legal power to require the streets to be laid out on useful lines, so that every separate little estate when taken in hand by some speculating builder, syndicate, or company is developed in a selfish way, and entirely without regard to the connecting up of thoroughfares. The result is a labyrinth of roads "leading to nowhere." "It is doubtful," adds the surveyor, "whether some of these persons would trouble to make any street at all

if it were lawful to build the houses in one solid mass slums. After the roads have been laid out, the land let on lease, buildings erected and tenants enticed into the roads the landowners can walk away with their ground rent secure in their pockets; and even though they leave roads unmade, unpaved and unlighted, they have no further responsibility in the matter so far as the Council is concerned, as the cost must fall on the owners of the houses. 'Why don't the Council do something?' The first reply must be another question—'What can they do?' People who have but that little knowledge which is dangerous to reply glibly enough, 'Take the roads over,' or 'Send notices to make them.' The first course, viz. to take over the roads or some of them would be illegal because under section 152 of the Public Health Act 1875, it is only when a road is properly completed that the Council are empowered to declare it to be a highway repairable by the inhabitants at large. The second course, viz. to take proceedings for the making of the roads, is one which is being carried out by the Council as rapidly as finances will admit." The surveyor makes the further remark that only those who have had the work to do can appreciate the mass of information which has to be gathered together with reference to the various properties in a road before the statutory notices can be served, but the great difficulty is the finding of the money for the carrying out of the work. This has to come out of the current rates. The Council at the present time have on hand eight roads of various parts of the district, the completion of which will cost 7,355*l*. In the surveyor's opinion it is grossly unwise to keep taking large sums out of the rates for the purpose of carrying out the neglected duties of these properties. This, of course, would not matter if the roads were repaid during the same year in which it is expended but it is often over twelve months before some of the money is recovered.

The Mullingar Rural District Council invite the submission before September 18 of plans, estimates and specification for a main drainage system for the town of Mullingar. A premium of 50*l*. will be awarded to the successful competitor.

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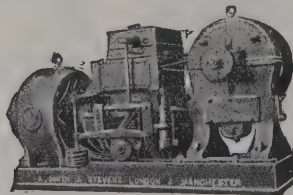
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## CONTRACTS FOR CHAIRS.

ERS were recently solicited from twenty of the leading manufacturing firms in High Wycombe, Buckinghamshire, for the supply of 30,000 chairs for the War Office for the use of soldiers' quarters, but to general surprise none of the tenders were entertained. Mr. J. O'Grady, M.P., the organiser of the National Amalgamated Furnishing Trades Association, has been approached on the subject, and he has written to the local association, saying:—"I have been interviewing Mr. Acland, M.P., secretary to Mr. Asquith, the War Minister, on the matter, and the position is—'the employers have taken our advice to come to an agreement among themselves not to undercut each other by offering prices. Tenders from twenty firms have been received, all at the same prices, for the chairs required for the War Office. The authorities see in this a 'ring,' and, in order to avoid a precedent against 'rings' of employers, the War Office have stopped the contracts being issued.'" A meeting has since been held at Wycombe, where the local association has decided to send the following resolution to the Prime Minister and Mr. Arnold Herbert, M.P. for South Essex:—"That this meeting strongly disagrees with the action of the Government in withholding these contracts in consequence of a movement to stop the sweating system, not only with the men but also the masters, and urges that the tenders be reconsidered and given out at once."

## ELECTRIC ENERGY IN FACTORIES.

regulations for the generation and transformation, as well as the distribution and use of electrical energy on all premises under the Factory Act, and at all pressures above 100 volts continuous and 65 volts alternating, will soon be issued from the Home Office. They are intended to cope with the dangers which may arise from lower pressure than has been recognised. The official memorandum on the subject says:—

"At many points it has been thought to be more expedient, in view of the rapid development of electrical engineering, to indicate broadly the dangers to be avoided and the nature of the precautions required than to define particular means

of securing the necessary safety. It appears often to be thought that where the supply of electrical energy is at low pressure there is no danger of shock, or rather that there is no danger to life from a shock at such pressure. It has, however, been abundantly proved that this is not the case. Fatal cases of shock at low pressures are by no means of rare occurrence. Accidents from shock may occur by a person making contact simultaneously with two live conductors at different pressures, but more usually by merely touching one conductor whilst being in contact with the ground. A mere momentary contact with a conductor at low pressure, even when standing on damp ground, may not produce a serious shock, but a person who happens to grasp the conductor may be quite unable to release his hold and the shock is prolonged until assistance comes. In such circumstances it may take only a few seconds for the shock to prove fatal. The dividing line between the conditions which will render the shock merely trifling and those which will render it fatal is so narrow that it becomes necessary to provide, so far as is practicable, that no shock shall be received at all."

## FUTURE SUPPLY OF IRON ORES.\*

THERE is only too good reason to fear that the chief iron ores are comparatively limited in depth, for most of them have been formed by water containing oxygen and carbonic acid in solution, which has percolated downward from the surface. Ores thus formed are therefore restricted to the comparatively limited depths to which water can carry down these gases. On the theory, however, that these ores are primary segregations from deep-seated igneous rocks there need be no limit to their depth. They would rather tend to increase in size downward, while maintaining, or even improving, in the richness of their metallic contents. For these bodies may be regarded as fragments of the metallic barysphere which have broken away from it and revolve around it like satellites floating in the rocky crust. On this conception these ore bodies would be of as great

\* From the address by Professor J. W. Gregory, D.Sc., to the Geological Section of the British Association.

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interest to the student of the earth's structure as their existence would be reassuring to the ironmaster, haunted as he is by constant predictions of an iron famine at no distant date. It is no doubt true that many of the richest, most accessible, most cheaply mined and most easily smelted iron ores have been exhausted. The black-band ironstone and the clay iron ores of the coalfields, which gave the British iron industry its early supremacy, now yield but a small proportion of the ores smelted in our furnaces. The Mesozoic beds of the English Midlands and of Yorkshire still supply large quantities of ore. Nevertheless the British iron industry is becoming increasingly dependent on foreign ores. So it would be pleasant to find that the Scandinavian iron mines are not subject to the usual limits in depth. I fear the typical iron deposits of Middle Sweden and of Gellivara will follow the general rule; but Kiruna may be an exception, and its ores may continue far downward along the surface of its sheet of porphyrite. The uncertainty in this case lies in the extent of the subsequent enrichment and enlargement of the bed. If most of the ore is due to secondary deposition, then it may be restricted to the comparatively shallow depths at which this process can act, and though that limit will be of no practical effect for a century or more to come, the ore deposit may be shallow as compared with gold mines.

The geological evidence may convince us that all the economically important iron ores are limited to shallower depths than lodes of gold, copper and tin, but this conclusion shall not enroll me among the pessimists as to the future of the iron supply. Twenty years ago a paper on the gold supplies of the world was read to the Association at the request of the Section of Economics. About the time that the report was issued there were sixty-eight mining companies, with a nominal capital of 73,000,000*l.*, at work upon the Rand. Nevertheless the author, accepting the view that "the future of South African gold-mining depends upon quartz veins," concluded:—"There is as yet no evidence that the yield will be sufficient in amount to materially influence the world's production. As regards India, the prospect is still less hopeful."

That quotation may be excused, as it is not only a warning of the danger of negative predictions, but of the unfortunate consequences that happen when geologists are

unduly influenced in geological questions by the opinion of those who are not geologists. In economic geology in theoretical geology, we should have greater confidence in the value of geological evidence. Negative predictions are especially rash in regard to iron, it being the most abundant and widely distributed of all the metals. A geologist, who knows the amount of iron in most boulders, finds it difficult to realise the possibility of an iron famine. He can hardly picture to himself some ironmaster complaining of "iron, iron everywhere, and a ton to smelt." There are reserves of low grade refractory materials which the fastidious ironmaster can now use, since competition restricts him to ores of exceptional richness and purity. When the latter fail, an unlimited quantity could be made available by concentration processes. The vast quantities of iron ores suitable for present methods of smelting in Australia, Africa and India show that the practical question is that of supplying existing iron-working localities, and not of the universal failure of iron ores.

#### MERSEA ESTATES.

For many years Essex as a field for residence has been the victim of prejudice. It might be supposed that people have imagined the dreariness of the east of London because it is intensified if anyone would venture across the boundary separating Middlesex from Essex. Happily there is a reaction, and Essex is fast becoming a favourite region for Londoners who seek picturesqueness and repose. One part which should have been long ago utilised by investors and builders is Mersea Island, which must have afforded inspiration to Mr. W. W. Jacobs, for his favourite characters are racy of the soil. On Thursday next another portion of the Queen's estate will be sold by auction by Mr. J. Gardner, of West Mersea; and anyone who is in quest of a site or sites in the balmy air, and not fifty miles from London, will do well to attend. It will be evident that the position is without exaggeration.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

## TENDERS, ETC.

\* \* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

LONDON.—The Rugby Football Union offer premiums of 25l., 15l. and 10l. for the best designs for two stands to be erected on their ground at Twickenham. Further particulars from Secretary, Rugby Football Union, 35 Surrey Street, Strand, London, W.C. Deposit, returnable, of 10s. for particulars.

## CONTRACTS OPEN.

AMBLE.—Sept. 23.—For erecting County school to accommodate 220 scholars at Amble, Northumberland. Deposit 2l. 2s. Mr. C. Williams, secretary, Pearl Buildings, Newcastle-on-Tyne.

BEDFIELD.—Sept. 9.—For enlargement of Bedford Voluntary school. Mr. Charles Ling, Bedford, Framlingham, Suffolk.

BIRMINGHAM.—Sept. 10.—For erection of telegraph stores. Deposit 1l. 1s. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

BURLEY-IN-WHARFDALE.—Sept. 14.—For erection of coal store and cowhouse at the Scalebar Park. The Clerk of Works, Scalebar Park, Burley-in Wharfedale.

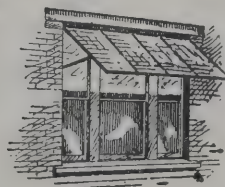
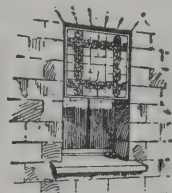
CHESTER.—Sept. 16.—For public elementary school for 600 boys and girls, to be erected in Love Street. Deposit 1l. Mr. H. Beswick, architect, Newgate Street, Chester.

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CHISLEHURST.—Sept. 16.—For erection of Council school to accommodate 300 children in the Lower Borough, Chislehurst, Kent. Deposit 1*l*. 1*s*. Mr. Fras. W. Crook, secretary, Caxton House, Westminster, S.W.

COVENTRY.—Sept. 9.—For erection of buildings at Foleshill works, comprising boiler-house, 54 feet by 48 feet 6 inches by 17 feet high; chimney, 120 feet high; hydraulic power-house, 40 feet by 20 feet by 22 feet high; electric power-house, 45 feet by 24 feet by 22 feet high; exhaust house, 45 feet by 32 feet by 22 feet high; underground liquor tank, 40 feet by 30 feet by 13 feet 6 inches deep, for the gas committee. Deposit 1*l*. 1*s*. Mr. Fletcher W. Stevenson, engineer and general manager, Gasworks, Coventry.

DARLINGTON.—Sept. 18.—For extension of parcels office, &c., Bank Top station, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

DIPTON.—Sept. 7.—For erection and completion of two houses and shop. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

DISS.—Sept. 30.—For erection of a secondary school at Diss, Norfolk. Deposit 2*l*. 2*s*. Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C.

EDINBURGH.—Sept. 7.—For erection of the machinery hall at Saughton Park, for the Scottish National Exhibition, Edinburgh, 1908. Deposit 1*l*. 1*s*. Mr. James D. Gibson, surveyor, 60 Frederick Street.

FERRYHILL.—Sept. 17.—For alterations and additions to the Council school at Chilton Buildings, near Ferryhill, Durham. Mr. C. A. Clayton Greene, architect and surveyor, 18 Norfolk Street, Sunderland.

GRASSINGTON.—Sept. 9.—For masons' work of a house. Mr. Thos. Verity, Grassington.

GRIMSBY.—Sept. 9.—For erection of a golf club pavilion on a site at Sea Road, Humberstone. Mr. Herbert C. Scaping, architect, Court Chambers, Grimsby.

GUILDFORD.—Sept. 16.—For erection of a technical institute at Guildford, Surrey. Deposit 5*l*. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

HEYSHAM HARBOUR.—Sept. 7.—For erection of sawmills. Messrs. Harrison, Hall & Moore, architects, 73 Church Street, Lancaster.

HOUNSLOW.—Sept. 24.—For erection of new schools. Hounslow Heath, for the Heston and Isleworth Urban District education committee. Deposit 2*l*. 2*s*. Mr. Lancelot-Lang, architect, Council House, Hounslow.

HUDDERSFIELD.—Sept. 14.—For erection of additional lavatory accommodation at the technical college, Queen Street South. Mr. K. F. Campbell, M.I.C.E., borough engineer and surveyor, 1 Peel Street, Huddersfield.

HUDDERSFIELD.—Sept. 12.—For any or all of works required in erection of a warehouse in Lord Street. Messrs. John Kirk & Sons, architects, John William Street, Huddersfield.

HULL.—Sept. 18.—For erection of accumulator house and clock tower, Albert Dock, Hull, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

ILLOGAN.—Sept. 21.—For erection of Wesleyan Methodist church at Illogan Highway, near Redruth. Mr. Samson Hill, architect, Green Lane, Redruth.

IRELAND.—Sept. 7.—For structural additions and alterations, and also for sanitary plumbingwork and water supply, to the Manse, Milford, co. Donegal. Mr. T. Stewart Milford.

IRELAND.—Sept. 10.—For enlargement and improvement of manse, Seskinore Presbyterian church, Omagh. Rev. W. J. M'Askie, B.A., Manse, Seskinore, Omagh.

IRELAND.—Sept. 25.—For building boot factory and warehouse, also shops and dwelling-houses, at Castle Gate Corner and Waterloo Street, Londonderry. Mr. Patrick Elliott, architect, Exchange Buildings, Castle Street, Londonderry.

LEE-ON-THE-SOLENT.—Sept. 14.—For erection of a County school. Deposit 2*l*. 2*s*. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

LONDON.—Sept. 12.—For erection of a day-room and workshop at St. George's workhouse, Mint Street, Strand. Deposit 5*l*. Mr. Arthur J. Wade, architect, 104 Harley Road, Kilburn, N.W.

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LONDON.—Sept. 17.—For erection of a mechanics' workshop at the Royal Mint. Deposit 1*l*. 1*s*. Mr. J. B. Estcott, M.V.O., H.M. Office of Works, &c., Storey's te, S.W.

LONDON.—Sept. 18.—For construction of an underground convenience for women on the island at the Elephant heady, Southwark. Deposit 2*l*. Mr. A. Harrison, M.I.C.E., rough engineer, Town Hall, Walworth Road.

MIDDLESBROUGH.—Sept. 11.—For additions to infirmary workhouse. Messrs. R. Lofthouse & Sons, architects, Albert Road, Middlesbrough.

NORTH SHIELDS.—Sept. 9.—For erection and completion the West End police station, Lawson Street. Deposit 2*s*. Mr. John F. Smillie, borough surveyor, Tynemouth.

OAKMERE.—Sept. 23.—For alterations and additions to county police station at Oakmere, Cheshire. Deposit Mr. H. Beswick, county architect, Chester.

OTLEY.—Sept. 16.—For mason, joiner, plumber and nter's work required for alterations at workhouse at wall. Mr. J. H. Wall, Guardians' architect, Manor are, Otley, Yorks.

ST. THOMAS.—Sept. 11.—For construction of a block of e-mending rooms, caretaker's rooms and offices ading at Buller Road, St. Thomas, Exeter. Messrs. ckey's Banking Company, Exeter.

SAFFRON WALDEN.—Sept. 7.—For erection of the brickk for a bridge at Great Sampford. Mr. Henry Smith, veyor, Saffron Walden.

SCOTLAND.—Sept. 7.—For mason, joiner, slater, plasterer plumber's work of proposed school and teacher's house Rhunaharine, for the Killan and Kilchenzie School rd. Mr. Neil Maccallum, clerk, Lochend House, pbeltown.

SCUNTHORPE.—Sept. 19.—For erection of a higher eleatary school and pupil-teachers' centre at Scunthorpe, cs. Messrs. Scorer & Gamble, architects, Bank Street mbers, Lincoln.

SETTLE.—Sept. 9.—For taking-down and rebuilding eral rods of fence wall in Cammock Lane, for the Rural ncil. Mr. W. A. Stuart, highway surveyor, Town Hall, le.

SMALLTHORNE.—Sept. 14.—For extensions at Bradeley Council school, Smallthorne, Staffs. Additional accomodation provided about 468 places. Deposit 2*l*. 2*s*. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

SOUTHERY.—Sept. 6.—For erection of proposed new cloak-rooms and outbuildings at the Southery school. Deposit 2*l*. 2*s*. Mr. H. J. Green, architect, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

SWALWELL.—Sept. 10.—For alteration of existing premisses and erection of new shop, warehouses, &c. at Market Lane. Deposit 1*l*. 1*s*. The Swalwell Co-operative Society.

TIVERTON.—Sept. 9.—For erection of a galvanised iron shed for their disinfecting cart at Tiverton and District hospital. Mr. J. Follett Pugsley, clerk, Tiverton.

WAKEFIELD.—Sept. 14.—For builder, joiner, slater, plumber, plasterer and painter's work at \*new school at Swinton, and alterations and additions to \*Crow Lane Provided school, Golcar; asphaltting at \*Thrybergh new school and \*Brinsworth new school; builder, joiner, slater and plumber's work in conversion of offices, &c., at \*Halton Provided school, Templenewsam; builder, joiner, plasterer and painter's work in alterations and repairs to Main Street Provided school, Burley. Note.—A deposit of 1*l*. is required in each of the cases marked \*. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

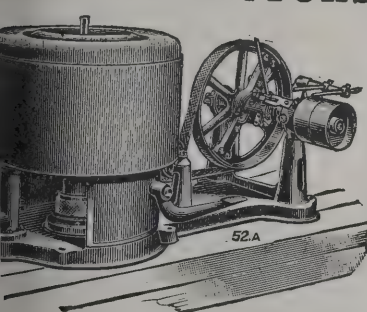
WAKEFIELD.—Sept. 16.—For erection of divisional headquarters for the West Riding Constabulary. Deposit 1*l*. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

WALES.—Sept. 6.—For erection of ninety-one cottages, more or less, at the option of the club, for the Ynysfaio No. 1 Building Club, Treherbert. Mr. J. Rees, architect, Pentre.

WALES.—Sept. 7.—For erection of a police-station at Whitchurch, near Cardiff. The Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—Sept. 7.—For alterations and additions at the Mumbles police station, Glamorgan. Mr. T. Mansel Franklen, clerk, Glamorgan County Council offices, Westgate Street, Cardiff.

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WALES.—Sept. 7.—For erection of two villas at Pontyclun. Messrs. W. H. & A. Eastmond, Pontyclun.

WALES.—Sept. 11.—For erection of ten semi-detached villas at Port Talbot. Mr. Thomas Gibb, M.S.A., architect, Post Office Chambers, Port Talbot.

WALES.—Sept. 11.—For carrying-out additions and alterations to Bargoed (Girls') Council school, Glamorgan. Mr. T. Mansel Franklen, clerk, Glamorgan County Offices, Westgate Street, Cardiff.

WALES.—Sept. 11.—For erection of 30 (or more) houses at Crynant. Mr. J. Cook Rees, architect, Neath.

WALES.—Sept. 19.—For building a house, motor-garage, &c., at Park Road, Cardigan. Mr. L. Lewis, architect and surveyor, Cardigan and Fishguard.

WARWICK.—Sept. 16.—For erection of laundry, boiler-house, mortuary, &c., for the Coventry and Warwickshire hospital committee. Deposit 2*l.* 2*s.* Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C., and Mr. Herbert W. Chattaway, architect, Trinity Churchyard, Coventry.

WATFORD.—Sept. 25.—For erection and completion of a County Council school for 960 children. Deposit 2*l.* 2*s.* Mr. W. H. Syme, architect, 4 High Street, Watford, Hertfordshire.

WEDMORE.—Sept. 14.—For improvements, alterations and repairs at the Wedmore Council school, Somerset. Messrs. Price & Jane, architects, Weston-super-Mare.

WORSBROUGH BRIDGE.—Sept. 9.—For excavator and bricklayer and plumber and gasfitter's work required in connection with erection of a proposed corrugated iron institute. Mr. Arthur Whitaker, architect, Worsbrough Bridge, Barnsley, Yorks.

WORTHING.—Sept. 12.—For additions to cottage at the Corporation Yard, High Street. The Borough Surveyor, Municipal Offices, Liverpool Road, Worthing.

THE tower of Hendon parish church is reported to be in a bad condition. Opportunity will be taken to enlarge the church at the same time as the tower is strengthened. Mr. Temple Moore is the architect.

## TENDERS.

## BOURNEMOUTH.

For erection of church of St. Augustin, Bournemouth.

first portion of work, including chancel, chapel, vestry, transepts and three bays of nave. Mr. GEO. H. FELLOW PRYNNE, F.R.I.B.A., architect, 6 Queen Anne's Gate, Westminster. Quantities by Mr. R. HENRY HALE, F.R.I.B.A., 6 Queen Anne's Gate, Westminster.

J. & C. Bowyer . . . . .	£8,962 0
Trask & Sons . . . . .	8,565 16
Miller & Sons . . . . .	8,390 16
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For works at school. Messrs. LACEY & UPCHER, architects, Norwich.

Rayner . . . . .	£305 0
Morriss . . . . .	298 8
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Hipperson . . . . .	269 0
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REDGRAVE, Bergh Apton (accepted) . . . . .	183 18

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**DRAX.**

erection of school.	Mr. H. B. THORP, architect, Goole.		
Craven & Umpleby		£3,959	0 0
Greenwood		3,947	0 0
Picard		3,936	0 0
Jews & Co.		3,899	0 0
Hill & Son		3,677	0 0
Jackson & Dunberline		3,589	10 0
Kelsey		3,560	0 0
WALKER, Goole (accepted)		3,408	0 0

**DURHAM.**

sewerwork.	Mr. JOHN T. PEGGE, city surveyor.		
irth & Co.		£373	10 0
CARRICK, Durham (accepted)		274	14 4
anners.		295	0 0

**HALESOWEN.**

road works and laying of 9-inch sewer. Mr. W. WHITWORTH, surveyor, Halesowen.

*Road.*

rentham		£1,191	2 6
larke		961	0 0
urrall & Sons		816	15 0
astle & Sons		790	15 6
eredith		794	0 0
ooper		748	1 4
ate		712	0 0
arris & Son		679	10 0
rumpton		650	12 6
TAYLOR, Blackheath, Birmingham (accepted)		603	7 6

*Sewer.*

rentham		144	0 0
eredith		103	15 0
larke		100	0 0
urrall & Lewis		98	0 0
ooper		95	3 0
arris & Son		88	8 6
astle & Sons		79	13 8
CRUMPTON, Halesowen (accepted)		74	2 6

**HEYSHAM.**

For various works in Marlborough Road.	Mr. HENRY MILLER, surveyor.		
Johnson		£554	18 5
Frith & Pendleton		505	12 1
Hinchcliffe & Co.		499	0 0
JACKSON, Heysham (accepted).		483	10 0

**HOLT.**

For restoration of tower, &c., at Holt Church.	Mr. HERBERT J. GREEN, architect, Norwich.		
Baker & Co.		£961	4 0
Chapman		823	0 0
Smith		752	0 0
Shanks, Chatteris and Hunstanton (provisionally accepted)		689	0 0

**HUNSTANTON.**

For erection of convalescent home for Addenbrooke's Hospital, Norfolk.	Mr. JOHN MORLEY, architect, Cambridge.		
CLARK & SONS (accepted)		£1,945	0 0

**INGOLDISTHORPE.**

For alterations and additions to schools.	Mr. HERBERT J. GREEN, architect, Norwich.		
Chambers & Son		£600	0 0
Riches		586	9 0
Shanks, Chatteris and Hunstanton (provisionally accepted)		533	0 0

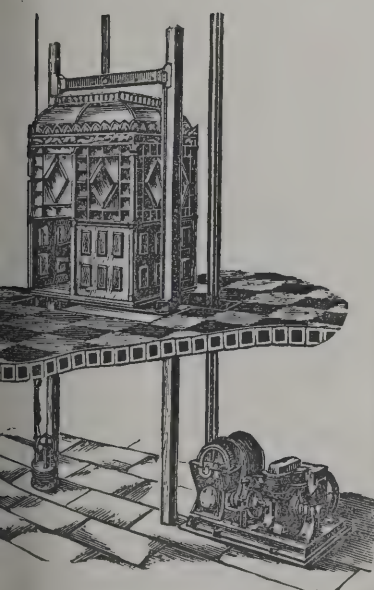
**KEITH.**

For additions to Grammar school.	Mr. D. J. CORRIGALL, architect, Keith.		
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*Accepted tenders.*

Stewart, mason		£893	0 0
Cormack, carpenter.		804	0 0
Lyon & Sons, plumber		380	0 0
Aberdeen Electrical Engineering Company, heating		265	0 0
Rust, plasterer		180	0 0
A. & R. Wright, slater		92	10 0
McConnachie, painter and glazier		89	15 4

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**KENILWORTH.**

For works of drainage and sewage disposal at the kennels,  
Rouncil Lane. Mr. SHOLTO DOUGLAS, engineer.  
Smith & Sons . . . . . £415 0 0  
Smith & Son . . . . . 351 0 0

**KNARESBOROUGH.**

For the construction of 4,620 yards of main sewer at Pannal.  
Mr. W. LUPTON, surveyor.

Nettleton . . . . .	£2,774	0	0
Wagham . . . . .	2,700	0	0
Graham & Co. . . . .	2,550	0	0
Egam & Co. . . . .	2,510	0	0
Dean & Co. . . . .	2,424	0	0
Long . . . . .	2,400	0	0
Dickenson . . . . .	2,300	0	0
Naylor & Son . . . . .	2,240	0	0
Annakin . . . . .	2,149	0	0
Dickenson . . . . .	2,016	0	0
Matthews . . . . .	2,050	0	0
Wood, Leeds (accepted) . . . . .	1,965	0	0

**LEVEN.**

For new premises for the Leven Reform Co-operative  
Society. Mr. WILLIAM DOW, architect, Kirkcaldy.

*Accepted tenders.*

Smith & Sons, mason . . . . .	£6,077	0	0
Wishart & Son, joiner . . . . .	1,673	2	3
P. & W. MacLellan & Co., iron and steel . . . . .	880	2	11
Grant, plasterer . . . . .	669	0	2
Allan & Sons, tilework . . . . .	623	0	0
Haxton & Co., glazier . . . . .	435	4	10
Hutchison & Sons, plumber . . . . .	391	0	0
National Gas Engine Company, gas-engine and suction plant . . . . .	273	3	0
Melville, dynamo and electric light . . . . .	194	10	4
Cant, slater . . . . .	133	0	4
Meldrum & Son, asphalter . . . . .	120	6	2
Barnet & Morton, stair railings and grates . . . . .	121	12	1

**KNOWLE.**

For erection of house. Messrs. HICKTON & FARMER, architects, Walsall.

Mason . . . . .	£3,335	0
Hopkins . . . . .	3,300	0
Elvins . . . . .	3,190	0
Briley . . . . .	3,138	0
Wistance . . . . .	3,125	0
KENDRICK & SON (accepted) . . . . .	3,100	0

**LLANDRINDOD WELLS.**

For sewerage works. Messrs. BERRINGTON, SON & MARRIOTT, engineers, Westminster and Wolverhampton.

*Contracts Nos. 1 to 5.—Excavation, construction of tanks, filters, manholes, &c.*

Davies . . . . .	£2,201	9
CASTLE & Co., Margate (accepted) . . . . .	1,304	13

*Contract No. 6.—Stoneware pipes, channels, &c.*

Ellis & Sons . . . . .	304	6
Doulton & Co. . . . .	283	7
Mansfield . . . . .	266	18
Radnorshire Coal and Lime Co. . . . .	266	15
Hall & Boardman . . . . .	262	16
Stiff . . . . .	261	5
Wyndham & Phillips . . . . .	236	0
Whitehead & Poole . . . . .	235	16
Norton & Co. . . . .	229	16
Nott & Co. . . . .	226	7

WEAVER, PRICE & SON, Llandrindod (accepted) . . . . . 223 11

*Contract No. 7.—Portland cement.*

Norton & Co. . . . .	421	7
Associated Portland Cement Manufacturers . . . . .	417	15
Ellis & Sons . . . . .	342	14
Greaves, Bull & Lakin . . . . .	342	0
Radnorshire Coal and Lime Co. . . . .	335	1
Stiff . . . . .	321	6
Ketley Brick Co. . . . .	321	6
WEAVER, PRICE & SON, Llandrindod (accepted) . . . . .	310	11
Kaye & Co. . . . .	308	5
Brown . . . . .	298	6

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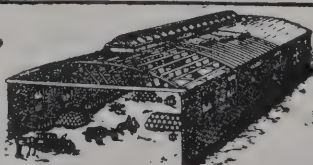
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**BUILDERS OF THE  
BELFAST ROOF.**

**ESTIMATES FREE.****THURSDAY, SEPTEMBER 12.****TWO GREAT EVENTS, 1837-1907.**

1837

Was the year in which the late Queen Victoria commenced her  
GLORIOUS REIGN.

To commemorate the 70th Anniversary of her  
happy event, we have in

1907

Commenced to lay out a Building Estate in the  
glorious Island of Mersea, and named it

**THE QUEEN'S ESTATE,  
WEST MERSEA, ESSEX.**

THE Estate is situated in the best portion of the Island, is well wooded, and enjoys a good frontage to the main roads. The Island is at the confluence of the Colne and Blackwater, and enjoys the reputation of the healthiest portion of the East Coast. It has a south-east aspect, and enjoys a maximum amount of sunshine, ably situated for fishing, boating, shooting, and other sports. It is 40 miles by road from London, 18 miles from Clacton, and 8 miles from Colchester, and affords a rendezvous for motorists, cyclists, and others. The excellent service of G.E.R. motor buses from Colchester, North Station, and also a service of motors and horse-drawn carriages from Colchester High Street. The Island has been described as

**"THE RIVIERA OF ESSEX."**

Instructions have been given by the Proprietor

**MR. J. H. GARDNER**

To OFFER for PUBLIC SALE, on Thursday, September 12, 1907, in a Marquee upon the Island, The First Portion of the Queen's Estate.

**200 FREEHOLD PLOTS**, about 150 of which have frontage to the Sea, to Empress Avenue, and the remainder have important frontages to the main road. This is a unique opportunity for the securing of suitable sites for the erection of bungalows, houses, shops, &c. Mersea Island is fully described in "The Building Estate," published April 24, 1907.

Arrangements will be made for the conveyance of purchasers by motor and rail from London, Clacton, Colchester, and other places; also by ferry from Brightlingsea, Mersea, thence by motor to Queen's Estate. Luncheon will be served in the Marquee before Sale.

Luncheon at 2.30 p.m. Sale commences at 3.30 p.m.

Free Conveyances. Plans and Particulars will be ready after the 24th and may be obtained from the Vendors' Solicitors, Messrs. Turner and Hawkins, 8 High Street, Colchester. J. J. Edwards, The Queen's Mersea Estate Offices, 90-91 Street, Queen Victoria Street, London, E.C.1; the Mersea and Iron Company, Ltd., Sea View Road, West Mersea, or of the Auctioneer, Barfield Road, West Mersea.

**THURSDAY, SEPTEMBER 12.**

Car leaves the Offices of the Company 9.15 a.m. Red Lion, High Street, Colchester, 1 p.m.



LLANDRINDOD WELLS—continued.

Contract No. 8.—Staffordshire blue and brindled bricks.

Swindell & Collis	158	13	1
Hamblet's Blue Brick Co.	154	2	7
Wood & Son	152	17	8
Ketley Brick Co.	144	10	0
Radnorshire Coal and Lime Co.	134	19	1
Weaver, Price & Son	133	12	9
Hall & Boardman	130	15	6
BLOCKLEY, Wellington (accepted)	123	16	0

Contract No. 11.—Cast-iron pipes, &c.

Nott & Co.	278	12	7
Jordans	261	7	10
LEES & SON, Gomersall (accepted)	258	16	0

LONDON COLNEY.

For building orphanage at All Saints Convent, near St. Albans. Mr. ERNEST WILLMOTT, architect. Quantities by Messrs. YOUNG & BROWN.

Benfield & Loxley	£10,984	0	0
Holloway Bros.	10,200	0	0
Monk	10,000	0	0
Lawrance & Sons	9,841	0	0
Roberts	9,787	0	0
Wagstaffe & Sons	9,662	0	0
Johnson & Co.	9,646	0	0
Miskin & Sons	9,550	0	0
Fairhead & Son	9,167	0	0
Lawrence & Son	8,972	0	0
MATTOCK & SONS, 165 Gray's Inn Road, W.C. (accepted)	8,971	0	0

MALTON.

For works in connection with the water supply of Settrington village.

Accepted tenders.

Ritchie & Co., cast-iron pipes	£469	14	5
Read, fitting pipes and plumber	240	0	0
Hodgson, mason, bricklayer and cementer	238	9	6
Kitching, excavator	53	10	5

MISKIN.

For private street works in Arthur Street. Mr. W. G. THOMAS, surveyor.

Sutherland	£849	6	0
John	779	7	8
Jones	685	4	4
Evans & Murry	667	10	6
DEBB, Abercynon (accepted)	656	6	2

SALINE, [N.B.

For enlargement of public school. Mr. JOHN HOUSTON, architect, Dunfermline.

Accepted tenders.

Anderson, masonwork.			
Edward, joiner.			
Kean, slater			
Ure, plasterer.			
Walls, painter.			
Rolland & Co., plumber.			
Lowe & Son, heating.			
Donald & Donald, ventilating.			

SHEFFIELD.

For erection of classrooms to Bethel Primitive Methodist chapel, Carbroom. Mr. H. L. PATERSON, architect, Sheffield.

Turton	£566	0	0
Charlesworth	545	5	6
Vasey & Son	539	0	0
Ward	537	18	9
White & Son	535	0	0
Wheen	532	10	0
Roper & Sons	527	12	0
Portass	524	8	0
Weston	514	7	6
Marlow & Sons	513	0	0
Bradbury	505	0	0
ROBERTSON, Sheffield (accepted)	500	0	0

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Mortimer St., London, W.

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## TOTNES.

For erection of a male and female infirmary of eighty beds, male and female receiving wards, porter's lodge, nurses' apartments and other work at workhouse. Mr. W. F. TOLLITT, architect, Totnes.

Elliss & Son	£9,987	17	6
Westcott, Austin & White	8,960	0	0
Parker Bros.	8,825	0	0
Wakeham Bros.	8,785	0	0
Badcock	8,755	11	0
Pollard & Co.	8,685	0	0
Roberts	8,630	0	0
Stacey	8,515	0	0
Yeo & Son	8,290	0	0
Bryer	8,200	0	0
Marshall	8,187	0	0
Pollard	8,085	0	0
Matcham & Co.	8,060	0	0
Coles	7,890	0	0
Blake	7,825	0	0
Preece	7,565	0	0
Bennett	7,482	0	0
Brook	7,200	0	0
Narracott	7,164	7	0
Pethick Bros.	6,977	0	0
Rowse & Co., Upper Tooting (accepted)	6,900	0	0

## TURRIFF.

For works at Higher-grade school. Messrs. DUNCAN & SON, architects, Turriff.

## Accepted tenders.

Robb, mason	£1,181	17	7
Skene, carpenter	984	15	0
Duthie & Sons, plumber	445	15	0
Clark, plasterer	98	0	0
Gillespie, slater	89	13	0
Watson, painter	58	10	0

## TANCREDESTONE.

For erection of a farmhouse. Mr. HUGH THOMAS, architect, Haverfordwest.

Morgans	£565	0	0
Evans	498	0	0
William	490	0	0
DAVIES & FRANCIS, Cardiff (accepted)	470	0	0

## UXBRIDGE.

For the construction of sewers and other works in Harfield Road and High Street. Mr. WILLIAM L. EVES, surveyor, Uxbridge.

Free & Sons	£1,537	17	0
Watson, jun.	1,281	0	0
Redhouse & Son	1,242	1	0
Bell & Sons	1,213	0	0
Swaker	1,186	0	0
Rayner	1,024	16	0
OSENTON, Staines (accepted)	989	6	0

## WALKLEY.

For conversion of school into a boys and girls' school. Mr. H. L. PATERSON, architect, Sheffield.

White & Sons	£2,460	0	0
Roper & Sons	2,419	10	0
Turton	2,416	0	0
O'Neill & Son	2,360	0	0
Wise & Sons	2,342	9	0
Charlesworth	2,287	15	0
Dawson & Jones	2,242	0	0
Eshelby & Son	2,235	0	0
Vasey & Son	2,171	15	0
Bradbury	2,140	0	0
J. & H. WHEEN, Sheffield (accepted, subject to approval)	2,130	0	0

## WREXHAM.

For erection of the Alexandra schools. Messrs. FREDK. WILLEY & J. G. BURRELL, joint architects, Durham.

DAVIES BROS., Wrexham (accepted)	£13,166	16	8
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Are manufactured chiefly of Stourbridge Fireclay, making them absolutely **Fireproof and Sound-proof**, and **Exceptionally Light in Weight**. **Fibrous Ceilings** made of same material.

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[2]

In BRASS, BRONZE, and other Alloys



WEALDSTONE.

For erection of a police station and petty sessional court.  
Mr. J. DIXON BUTLER, surveyor to the Metropolitan  
Police. Quantities by Messrs. THURGOOD, SON &  
CHIDGEY.

Brown . . . . .	£9,797	0	0
Haynes . . . . .	9,380	0	0
Waterman . . . . .	9,047	0	0
Rackham . . . . .	8,980	0	0
Potterton . . . . .	8,822	0	0
Holloway Bros. . . . .	8,808	0	0
Higgs & Hill . . . . .	8,522	0	0
Lathey Bros. . . . .	8,447	0	0
Fassnidge & Son . . . . .	8,373	0	0
Fairhead & Son . . . . .	8,344	0	0
Grover & Son . . . . .	8,262	0	0
Lovatt . . . . .	8,255	0	0
Godson & Son . . . . .	8,077	0	0

WOLSTANTON.

For erecting fire-station and rate collector's office. Mr.  
W. F. SLATER, architect, Burslem.  
WARDLE, Longport (accepted) . . . . . 648 0 0

THE sum of 265*l.* per acre for vacant land in the  
hills of Central Wales is the average result of Messrs.  
Knight, Frank & Rutley's sale at Llandrindod Wells on  
Tuesday, when the Middleton Evans Estates were offered  
before a crowded assembly in the Victoria Hall. In addition  
to local buyers, many attended from London, Swansea,  
Cardiff, &c. The whole property, which includes the Pump  
House Hotel, was first offered in one lot, and ultimately  
withdrawn at 105,000*l.* The available building land was  
then put up in lots, prices for which yielded the above-  
mentioned result. Notwithstanding the growth of Llan-  
drindod Wells in recent years, the present accommodation  
is far short of the requirements of the place in the season,  
and as several of the lots not sold under the hammer were  
disposed of during the afternoon, there is little doubt that  
those remaining will be speedily dispersed, and that a great  
development will shortly take place in the addition of new  
public and private buildings to meet local wants.

TRADE NOTES.

REIGATE Grammar School has been ventilated on the  
"Boyle" natural system, under the direction of Messrs.  
Baker & Penfold, architects, Reigate.

THE directors of the Bath Stone Firms, Ltd., have  
declared an interim dividend for the first half of the year at  
the rate of 8 per cent. per annum, which is the same as in  
the corresponding half of last year.

WE are informed that Mr. Benjamin A. Tapp, who for  
the past twenty-years has represented Messrs. Geo. Vint &  
Bros., has decided in consequence of that firm retiring from  
business to continue his connection with the stone trade as  
a quarry agent supplying Yorkshire or West of England  
stone. Mr. Tapp's temporary address will be Elm Villa,  
Whitton Road, Twickenham, S.W.

MESSRS. THOMAS CRAPPER & SON, the well-known  
sanitary engineers and specialists, of Marlborough Works,  
Marlborough Road, Chelsea, S.W., inform us that they are  
removing into more commodious premises on October 1,  
and their address from that date will be 120 King's Road,  
Chelsea, S.W.

THE new clock of the Ilkley new town hall, made and  
fixed by Messrs. Wm. Potts & Sons, Ltd., Leeds and New-  
castle-on-Tyne, from Lord Grimthorpe's designs, was  
formally set going on Saturday last. Other clocks by the  
firm are in use at Ilkley, viz. in the parish church, the  
Congregational church and the large clock at the Joint  
Railway station, and many other large clocks in this  
district. Their police courts tower clock, Sunderland, is  
now in action.

THE Kahn system of reinforcement of the Trussed  
Concrete Steel Co., Ltd., is advancing in favour with archi-  
tects and engineers. Among the works executed during  
the last two months are the following, which show the  
adaptability of the ingenious trussed bars:—Storehouse,  
Great Malvern; two retaining walls, Tottenham; lintels,  
Dublin; extension of Swanscombe Pier, Swanscombe;  
five-storey office block, Lloyd's Avenue; foundation raft,  
Purfleet; lintels, Newcastle Emlyn; office block, H.M. Land  
Commission, Dublin; flour mill, Brixham; engine founda-  
tion, Glasgow; coal hopper, Blackburn Gas Co., Blackburn;

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MONK'S PARK

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MANCHESTER  
TRAFFORD PARK.



office block, Erith; office block, Leeds; floor, warehouse, Birmingham; roof of store, Forth defences; floors, manual instruction schools, Cardiff; foundations, Edmonton; reservoir, Beaminster; roof of culvert, Manchester; tank, Trinity College, Hitchin; new depot, Telegraph Stores, H.M. Office of Works, Birmingham; floors of printing works, York; viaduct, Kilton; floor of building, Jersey; warehouse, Watling Street; winter garden, Savoy, Strand; coal pocket 300 feet long.

ENGLAND is remarkable for the variety of building materials with which it is enriched. One which with such a climate as ours is essential is wanting. We refer to asphalt. Attempts have been made to produce substitutes to which the name is applied, but for once nature is superior to ingenuity. Even abroad the supply is extremely limited. Messrs. Thomas Faldo & Co., Ltd., as the sole concessionaires for Great Britain and North America of the Seyssel Mine, known as Les Mines de Bourbonges à Lovagny Bassin de Seyssel (Haute Savoie), France, are in a position to employ the most satisfactory variety. Since 1851 they have applied it to almost every variety of structure—bridges, hospitals, municipal buildings, prisons, theatres, warehouses, piers, flats, factories, breweries, colleges, banks, &c. They have issued a brochure which contains useful information about the material and its applications, which being derived from long and varied experience is worth remembering.

MESSRS. E. H. SHORLAND & BROTHER, warming and ventilating engineers, of Manchester, have found from practical experience that where inlet ventilators have been fixed for a length of time the interiors frequently become very dusty. This firm have therefore introduced a new ventilator, which they describe as Shorland's No. 221 design latest patent hygienic inlet ventilating panel. This inlet ventilator is made so that by one movement only the front can be removed, thus allowing for the whole of the interior of the ventilator being cleaned at any time from the inside of the room where it is fixed. The advantage of this easy and expeditious method of cleaning will at once be apparent. There is no necessity to go outside the building to remove the air grating in the outer wall to gain access to the inside of the ventilator. Further particulars may be had from the patentees.

### VARIETIES.

THE dock management committee, sitting at Boston, decided to recommend the Boston Town Council to erect a new coal hoist at the dock, with the necessary additions to the power station, and a new boiler, engine and turntable, at an estimated cost of 7,500*l*.

THE committee of the Moravian Church, Fetter Lane, E.C., have secured a site in Priory Lane, Hornsey, on which to erect a church for the convenience of its North London members. Plans have been approved for a building which will accommodate over 350 persons, and will cost about 5,000*l*.

At Hamilton Dean of Guild Court, a petition was presented by Hamilton Baptist Church for the erection of a church and halls at the corner of Kemp Street and the new street recently opened by the Town Council. The plans showed a building capable of seating 590 persons, with a large hall having accommodation for 462 and a lesser hall seated for 133. The estimated cost of the new building is about 5,000*l*. The plans were passed.

THE Rochdale electricity committee have decided to apply to the Local Government Board for sanction to borrow 22,175*l* for electric-lighting purposes. The Corporation also contemplate spending about 25,000*l* on providing new baths. New slipper and swimming baths at Castleton are to cost 10,900*l*, an additional plunge bath at Smith Street will cost over 8,000*l*, and about 5,600*l* will be spent on slipper baths at Lower Place.

THE Lord Mayor of Liverpool has received a letter from Mr. F. G. Parsons, National Amalgamated Society of Operative House and Ship Painters and Decorators, Liverpool, No. 1 Branch, with reference to painting work being done by labourers at the generating station, Highfield Street, and also at Lambeth Road car shed. Regarding this complaint Mr. Morrissey has given notice of motion that it be an "instruction to all heads of departments that none but competent artisans be employed in painting and other work of a skilled nature, as the employment of labourers upon this kind of work is detrimental to the interests of the ratepayers, leading to scamped work and inefficiency of the public service."

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# ILLUSTRATIONS.

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FEDERAL SERIES.—SOUTHWARK: NORTH SIDE OF CHANCEL, SHOWING TRIFORMUM.

MAJOR J. E. STEWART, R.E., Local Government Board  
ector, held an inquiry at the town hall, Warrington, on  
ay, into the application of the Corporation for sanction  
row 40,140*l.* for street widenings and improvements,  
071*l.*, the sum required in connection with the pro-  
boiler-plant extensions at the electricity works.

RE special sub-committee of the Scarborough Harbour  
missioners, appointed to consider details with regard  
e harbour improvement scheme, have approved the  
and specification produced by Mr. I. D. Howkins, the  
eer, for the widening of the West Pier and the deepen-  
f the harbour, and these were approved by the sub-  
ittee, who had been given power to act. The engineer  
nstructed to advertise for tenders for carrying out the  
at once. The scheme is estimated to cost between  
0*l.* and 15,000*l.*

RE Bolton waterworks committee have confirmed the  
tion passed on July 31 accepting the following  
rs:—Messrs. John Best & Sons, Ltd., Edinburgh, for  
onstruction of the Delph reservoir (Contract No. 1);  
s. Glenfield & Kennedy, Ltd., for supply and fixing  
shaft, lining and standpipe, footbridge, sluice valves,  
Contract No. 2), required in connection with the pro-  
Delph reservoir; Staveley Coal and Iron Company,  
for supply of cast-iron pipes (Contract No. 3), required  
nection with the proposed Delph reservoir.

RE large majority of the trade union organisations of  
any are affiliated to the General Commission of  
Democratic Trade Unions at Berlin. In a recent

number of the organ of this central body statistics are  
given showing the remarkable growth of this group of  
unions between December 31, 1905, and the same date in  
1906. On the former date the total membership amounted  
to just under 1½ million, at the end of 1906 it was over  
1¾ million. There was thus an increase of over a quarter  
of a million. The membership on December 31, 1905, of  
those connected with the building trades was 307,878. On  
the same date in 1906 it was 382,567.

AN old pit-shaft has been discovered at Bilston under  
3 Crown Street. For some time past water has percolated  
into the cellar. The nuisance became so serious that work-  
men were called in to ascertain where the water came from.  
The floor of the cellar was removed, and the men then  
found the dome of a pit shaft a few inches below the floor.  
On removing the dome it was ascertained that the shaft  
contained from 40 to 45 yards of water. It is now thought  
that the water rose occasionally so high as to force its  
way into the cellar. The shaft is two yards wide. It is  
now being made secure. It is remarkable that a house  
should have been erected over a pit shaft, and that no one  
now living should have known anything about it.

THE Local Government Board have refused to sanction  
the purchase by the Salford Board of Guardians of the pro-  
posed site on the Crescent on which to erect offices. At  
the inquiry held by an inspector of the Board there was  
considerable opposition to the proposal. The Local Board,  
in their letter to the guardians, state that they consider  
the price for the site excessive. They further deprecate  
the building of new offices on the Elms site, as was advo-  
cated by the opposition, because of insufficient area, or the  
remodelling of the present offices in Eccles New Road for  
the same reason. The Board are, however, of opinion that  
new offices are required.

A REMARKABLE accident happened on the Manchester  
Ship Canal on Saturday. The great swing-bridge crossing  
the canal at Trafford Road was being turned to enable a  
vessel to pass along the waterway when something went  
wrong with the rollers, and after moving a few yards the  
bridge came to a standstill. Engineers were soon on the  
spot, and it was found that the faulty rollers would have to  
be replaced, and the traffic across the canal was necessarily

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stopped and had to be diverted. The bridge is 205 feet long and weighs 1,800 tons. It has a span of 75 feet, is 30 feet deep, 50 feet wide and is the largest of its kind on the canal.

A SCHEME of dock extension is being drawn up for the port of Havre in order to obviate the delays in dealing with cargoes which have been customary for years past. The new works already in hand include the construction of a communicating channel between the Bassin Ballot and the Canal de Tancarville, which should be finished in 1909, according to an official report just issued. It is also intended to render the Bassin dock accessible to large cargo steamers and to provide an additional quay space of about  $1\frac{1}{2}$  mile. There is a great want of quay space for the regular lines frequenting the port, and the scheme now outlined includes the construction of a dry dock capable of receiving the largest steamers that are likely to be built. For these extensions the bed of the Seine to the south of the Eure dock will in all probability be utilised. The expense of these extensions is estimated at 2,500,000*fr.*

An influential Glasgow firm has acquired the right of working the Balephetrish marble quarry in Tisee, and four German experts have arrived on the island for the purpose of making arrangements with respect to plant and other matters of detail. Actual excavation will shortly commence, and employment will be given to a considerable number of local workpeople. The predominant rock on the island is gneiss, but masses of primitive limestone are abundant. The limestone has been long and favourably known for the fine, flesh-coloured marble into which it can be cut for ornamental architecture. Although somewhat harder than many foreign marbles, it possesses a rare beauty which for many years commended it to public patronage. The Duke of Argyll is sole proprietor of Tisee.

A SPECIAL meeting of the Salford District Council was held last week to consider the position created by the refusal of the Local Government Board to sanction the proposed sewerage scheme estimated to cost 75,000*l.* The Board pointed out that the proposed site for the purification works was unsuitable, that the works would be inadequate to deal with the sewerage of the district, and that the

scheme could not be carried out at the estimated cost. This a letter was sent in reply, practically adhering to the suggested scheme, and asking that the Board should send a deputation on the subject. After a long and animated discussion it was decided to approve and confirm the letter sent by the clerk.

REPORTING to the Washington Bureau of Manufactures with regard to lime "béton," Mr. R. P. Seely (United States Consul at Marseilles) says that this has been in longer and more general use in France than cement. It was a first-class material when made of ordinary quicklime, and since hydraulic lime has been used it is better. A good lime béton can be obtained by mixing mortar and stones, gravel or cinders, mortar and good-sized stones making the best composition. But one-half of the houses in Marseilles have been built with this material, and thousands of the older buildings of hundreds years old are held together by ordinary mortar. Walls built of quicklime béton must be laid up slowly with hydraulic lime béton they can be erected as fast as masons can work. The solidity of lime béton construction is shown by the sea-walls and docks in Marseilles. The masonry of this kind can be seen both above and below sea water, the most difficult test to which building material can be subjected.

In the Vacation Court, High Court of Justice, Mr. Justice Pickford had again before him the motion of Moss's Estate, Ltd., v. Williams. Mr. Bramwell Davis, K.C., for the plaintiffs, stated that the motion was for an injunction to restrain the defendant from excavating sand near a pit, or for excavating at the side of the plaintiffs' property in Summer Hill Road, Birmingham. The evidence was a conflicting nature. There were affidavits by two experts on either side who were surveyors. The defendant's experts said that this could not be done. The question was whether the defendant was to be allowed to excavate on excavating at the risk of the plaintiffs' buildings coming down. Defendant's counsel said he was prepared to enter an undertaking not to excavate within 15 feet of the plaintiffs' boundary wall till the trial of the action.



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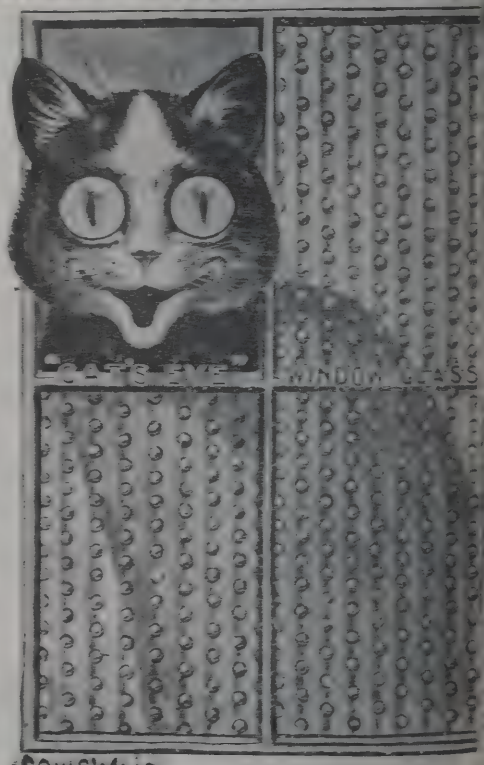
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EDWARD J. DOBBS  
Patentee and Proprietor



newell Davis accepted this offer. Upon a mutual understanding being given to the above effect, the matter stood till the trial of the action or further order.

For the man who is desirous of journeying from London to Doncaster for the whole of the race week special arrangements have been made by the Great Central Railway Company giving him not only to accomplish the journey in comfort at a very cheap fare. On Monday, September 9, a special motor car express will leave Marylebone at 1.15 P.M. fares, first class, 28s.; third class, 14s. On Wednesday Friday you may journey to Doncaster and back for 33s. 6d. first class and 18s. 6d. third class, including table d'hôte luncheon and dinner *en route*. The trains are timed to leave Marylebone on St. Leger Day at 8.40 A.M., and Cup Day at 10.15 A.M. Cheap excursion tickets are also available by the same trains—27s. first class and 13s. 6d. third class. For the convenience of passengers and to avoid the crowd at Doncaster station these trains will arrive at and depart from the new Bridge station, from which place electric cars run direct to the course. In this outing the railway company provides everything to contribute to the enjoyment and comfort of the visitor from London.

A SHORT distance to the west of Old Stakeford a ford hitherto constituted the only means of crossing the River Wansbeck, near North Seaton station, on the Northern Railway. As the ford in question is of dangerous character, especially during the prevalence of floods and storms, the highway authorities wisely decided to substitute a bridge, thus obviating all risk to the public and affording in a far more convenient manner for the conduct of traffic. The new structure was designed by Messrs. D. & Sons, civil engineers, of Newcastle-on-Tyne, and the operations were commenced in June last by the contractors, Messrs. Brims & Co., also of Newcastle-on-Tyne. The bridge has the total length of 264 feet between the piers, and comprises six girder spans 44 feet 4 inches centre to centre of the piers by 20 feet 4 inches wide. The piers are formed by driving Hennebique ferro-concrete down to solid rock, the piles being cased in Mouchel cylinders of ferro-concrete and the internal spaces filled with similar material. The abutments will also be constructed in ferro-concrete. According to contract conditions the bridge will be tested by a dead load of 1 cwt.

per square foot and the moving load of a 30-ton steam-roller, or of two 15-ton steam-rollers. It is stated that the adoption of ferro-concrete has resulted in a saving of 5,000*l.* to the ratepayers, the contract price being 7,000*l.*, as compared with 12,000*l.*, the estimated cost of a steel bridge.

A SPECIAL committee of the Birkenhead Town Council have issued a report upon the question of the payment of a minimum wage of 24s. a week to able-bodied Corporation employes, and whether such rate would be detrimental to the interests of employes who are over the age of forty, or who are below the standard of mental or physical strength. From the returns laid before them, the committee found that there were a considerable number of men in the employ of the Corporation paid less than 24s. a week who were not performing able-bodied work, and some of whom were not capable of performing such work. The majority were engaged in street scavenging. A number of them were old men and had been for several years in the employ of the Corporation. The special committee did not think it desirable in the interest of the men themselves to fix a minimum wage of 24s. a week for those men, or for any of the men who were engaged on a class of work which the committee did not consider to be able-bodied work. If a minimum rate of 24s. a week were paid by the Corporation for that class of labour the heads of the departments would no doubt feel obliged to look out for more capable men to replace a number of those at present employed, and the old and physically deficient men would consequently suffer. In answering specifically the terms of the reference, the committee considered that it would be desirable to adopt a minimum rate of wage of 24s. a week for the payment of the men who were able-bodied and performed able-bodied labour. From the returns furnished about 210 to 220 would be affected, and the increased annual cost of wages would be about 1,160*l.*, but it was contemplated that the increase might be reduced by 25 per cent. Further, the special committee did not consider that the minimum wage would be detrimental to the interests of the employes who were over the age of 40, or who were incapable of able-bodied work, if the wages of those labourers were not raised to the minimum of 24s. a week.

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For Index of Advertisers, see page x.



### THE SAFE OF THE FUTURE.

THE American Consul at Chemnitz, Mr. Thomas H. Norton, says that the confidence of German manufacturers of safes in the resistance of their wares against ordinary safe-blowing operations has been rudely shaken by the recent achievements of a single unaided robber in Dresden and other cities. The details of his last operation are as follows:—In an hotel a room was secured which was situated immediately above the office of a moneychanger. At night a hole was pierced in the ceiling of this office. By the use of a drill and saw a circular piece of the flooring was easily raised. Beneath lay a thick layer of cement. A small orifice was made in this, and an umbrella pushed down into the space below. The umbrella was attached firmly from above, and when opened received without noise all the fragments of cement which were dislodged as the hole was enlarged so as to allow of the easy passage of a person. By means of a rope ladder the descent was readily made into the office below. Curtains were drawn, and with heavy blankets a tent was constructed around the safe, so thick that no ray of light could pass through. Next the robber brought down two cylinders of compressed oxygen and an acetylene generator charged with calcium carbide and water. With these he was able to produce a blowpipe flame of such intensity that steel fuses in it like lead in an ordinary gas jet. It required but a brief space of time to melt away so much of the door that all the contents of the safe were accessible. They were carried to the room above. At an early hour the robber left his lodgings and disappeared without trace.

It is evident, says the Consul, from this experience, that the builders of safes must provide for new contingencies in their construction. The simple, light acetylene generators now in widespread use, and the equally simple oxygen generators, charged with water and sodium peroxide, or the heavier cylinders of compressed oxygen, place at the service of the intelligent "crook" the possibilities of opening the strongest safes in existence rapidly and noiselessly, provided the operator can be screened from observation. Some large safes are so disposed that they are under frequent observation by watchmen looking through the windows. Usually this observation is confined to the doors of bank vaults or

the like, although in the case of the globular safes it practically extends to all exposed sides. In the greater majority of cases existing safes would offer next to no difficulty to a skilful cracksmen if able to work without being seen. It is evident that owners will be forced henceforth to adopt measures as will reduce to a minimum all possibilities of access to free-standing, movable safes, or the hidden safes embedded in cement or masonry. Manufacturers of safes will, on the contrary, be impelled to fight the scientific burglar with his own weapons. In somewhat the same fashion by which time locks prevent the opening of a safe during certain hours, it will be comparatively easy to introduce into safe construction chemico-mechanical devices which, during a limited time, would render it either fatal or physically impossible to remain in the vicinity of a safe or vault where the walls or door tampered with to an extent as to allow access to the interior. By the use of a very simple form of apparatus containing potassium cyanide and sulphuric acid a robber would expose himself to the deadly fumes of prussic acid. Less dangerous, though with possibilities of accidents to those regulating a safe, would be the employment of substances which, by crippling a safe blower or forcing him to an instantaneous retreat. The volatilisation of a few drops of ethyl-dichloroacetate would cause such profuse and persistent weeping that one in the immediate neighbourhood would be temporarily blinded if he persisted in remaining. The blowing of a tube of liquid ammonia would render immediate withdrawal imperative under peril of suffocation. Several similar compounds are at the service of construction. Eventually the daring burglar, with sufficient scientific training, might venture to face the unknown dangers of a safe well provided with more or less effective neutralising agents for the concealed possibilities of defence; but, certainly for some time, at slight expense, effective protection can be devised against the attack of the scientific cracksmen with his portable oxy-acetylene blowpipe.

THE Bonhill School Board have agreed to enlarge the Vale of Leven Academy at an estimated expenditure of 5,000*l.*, also an enlargement of Jamestown school at an outlay of 2,000*l.*

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### DE LAITTE GAS.

history of artificial light, although dating from the earliest stages of man's existence, can be divided into very many chapters, giving one to each of the following methods: candles, oil lamps, gas lighting, electric lighting and acetylene-gas lighting. Leaving out the first of these, which has long been relegated to the position of a decorative agent, undoubtedly the greatest advance was made when coal gas was successfully applied as an illuminant, rendering oil lamps obsolete; for although the discovery of electric lighting, with its wonderful possibilities, long turned into actualities, was an epoch-marking event, the difference in the amount of light secured was not startling as in the earlier revolution.

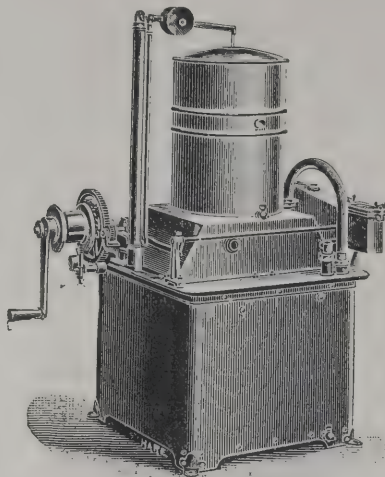
These two methods—gas and electric lighting—are still competitors, and both have their proper sphere of usefulness. In fact, where towns exist one or both of them will always be found, but in scattered districts and isolated buildings, except in cases where their size and the means of the transport permit of a complete electrical installation, there still remains the necessity for an easily-managed, self-contained form of lighting.

The relaxation of the Board of Trade regulations concerning the manufacture and storage of carbide of calcium produced acetylene gas from a scientific toy to a practical illuminant, but in the latest successful attempt to provide a satisfactory light it is remarkable that oil, so long discarded, should again be utilised, providing a gas in all essential respects equal to coal gas, with the advantage that it is obtained at small expense, in a simple manner from a plant which can be installed in the smallest dwelling-house or the best building, or can be distributed from a central plant to villages or small towns either for house or street lighting.

Many attempts have been made during the past few years to overcome the initial difficulties and objections to the use of oil gas as a lighting medium. In the "De Laitte" machine these have been solved by scientific knowledge aided by mechanical accuracy, as the following description will show.

The accompanying illustration shows a complete "De Laitte" gas plant, 2½ feet by 2½ feet by 4 feet high, driven

by a suspended weight, and supplying 30 lights. The gas is obtained by the evaporation of petrol admitted to the carburetter in small constant quantities to a much larger body of air, which by means of a drum is sucked in in the correct proportions, one gallon of petrol giving 800 to 1,000 cubic feet of gas. Owing to the high percentage of oxygen the gas has absolute combustion, free from carbonic oxide and sulphuretted hydrogen, and is therefore non-poisonous, and does not leave a deposit when burned to blacken



ceilings, picture-frames, &c., and above all, is not injurious to animal or plant life.

The gas produced in the carburetter is put under pressure by the drum and driven into the gasholder, which acts as a pressure regulator, and when full automatically causes the supply of petrol and making of gas to cease. Not only does it act thus, but so controls the supply that sufficient petrol only is admitted to make the amount of gas necessary for the number of burners in use, be they one or fifty. When no lights are required no gas is being

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For Index of Advertisers, see page x.



made, but when one is operated sufficient gas is formed and increases with each light required.

The gas is carried from the plant through ordinary gas-piping, and gives the best results when used in connection with incandescent mantles. The machine is automatic in working, and requires no skilled labour, it being necessary only to see that it is sufficiently charged with petrol, and the weight that operates the machine is wound up at regular intervals, regulated by the number of lights in use. In larger installations the power may be obtained by means of water, hot air, or electric motors.

One of the most important features of this system is the absence of any danger from explosion, as stated by Professor Vivian B. Lewes, F.I.C., F.C.S., in a lengthy report on the "De Laitte" machine, in which he also emphasises many other good points, showing its suitability for providing light for private houses and other buildings and places.

This system has already been adopted by the Midland Railway Company at Hathern station, the Caledonian Railway at Bishopston station, and is installed in a number of mansions throughout the United Kingdom, and judging by the testimonials received from the users is giving every satisfaction.

### ACCOMMODATION OF NAVVIES.

WHEN railways began, employment was obtainable by multitudes of men in the construction of cuttings or embankments. At first the labourers who had been engaged in the drainage of fens, reclamation of land and other works in Lincolnshire and Cambridgeshire met the demand, but as new lines were promoted men from most parts of the country were engaged. They were supposed to be paid liberal wages, but few people cared about the treatment they received, although the stories told about "tally shops," discounts, bills, &c., should have made the authorities less indifferent. It was taken as a matter of course that under such circumstances the navvies could not differ from cattle.

The report of Dr. Reginald Farrar to the Local Government Board on "The Accommodation of Navvies Engaged in the Construction of the Brooklands Motor-Racing Track" shows that the old neglect can prevail within a few miles of

the Metropolis. The number of men employed when Farrar visited the works was at least 1,600. There was provision whatever for the housing or accommodation of the men, and no shelters where they could resort in the weather. About 500 navvies travelled by train to the works but those who could not find beds in public-houses had to sleep in sheds, cow-houses, straw yards, or in the open air. It is needless to enlarge on the danger of such a state of things. What is perhaps of more importance is the prevention of similar evils in the future. According to Dr. Farrar:—

It is estimated that the navvies form in England, Scotland and Wales a nomadic class of 100,000 men, women and children. They move about from one piece of work to another, a distinct class or tribe; separated by habit and circumstances from the rest of the community, and in some respects often outside the action of ordinary sanitary laws. In 1846 a Select Committee of the House of Commons issued a Report on the Condition of Labour employed in the construction of Railways and other Public Works. This Report contained, among other recommendations, the following:—

"Your Committee is of opinion that, previous to the collection of a body of these workpeople at any spot, sufficient lodging for them should be ascertained to exist. When the neighbourhood cannot adequately supply it, the company should be required to provide it. Your Committee adverts with pleasure to the evidence they have received from gentlemen largely engaged in executing great public works, to show that comfortable arrangements for lodging the men are directly and indirectly amply remunerative for the additional expense they may at first entail."

It was also recommended:—"That the railway companies constructing any works should be required to make periodical returns to a public authority of various particulars embracing the most important points affecting the well-being of the men; these might comprehend the number of men, the progress of instruction, the cessation of labour on Sunday, the accidents and other details," and that work in progress should from time to time be officially inspected by a competent officer appointed by such authority.

Other suggestions of this committee dealt with the provision of constables, liability for accidents, regularity

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ment of wages, regulation of "tommy-shops," provision of relief and medical attendance to the sick and mended, &c.

I am informed by the Secretary of the Board of Trade, except in so far as they are covered by the Truck Act and Employers' Liability Act, no legislative effect has been given to the recommendations of this committee. The Board of Trade have no jurisdiction over navvies and no control over railways until a line is complete and ready for section prior to being declared open for traffic.

An extract from Dr. Copeman's report on the sanitary circumstances of the Langport Rural District (No. 230) may be introduced here:—

"It seems just that companies, corporations and contractors who, for the purposes of their undertakings, bring large numbers of workmen to reside temporarily in a rural district, the resources of which, if adequate for the normal population, are not equal to deal with the influx, should provide housing accommodation for their workpeople and means of isolation in cases of infectious disease break-out among them—a danger to which these assemblages of people of nomadic habits are especially liable. In the Derwent Valley Water Act, 1899, a clause (section 64) requiring such provision to be made by the Water Board or by contractors, was inserted by Parliament on the instance of the Derbyshire County Council."

Apart from special local intervention of the kind to which Dr. Copeman alludes, there appears to be no legal obligation on contractors to provide accommodation for their workmen. When important works are in progress, they tend to last over a considerable time, and especially if the workmen are at a considerable distance from centres of population, the contractors generally, in their own interests and in order to secure workmen, provide accommodation, and this is often excellent (e.g. the Tidworth Settlement on Salisbury Plain); but I am informed that smaller contractors, who have tendered at "cutting prices," are apt to save in "hutting" and to provide inadequate accommodation or none at all.

One difficulty arises from the fact of "subbing." A contractor, after doing two or three days' work, draw a "sub" for the work done, and rest for a few days till the amount drawn has been expended (usually in

drink). Thus it not seldom happens that a contractor must have 100 men on his books in order to secure that 50 shall be always at work, and the housing difficulty is intensified. "Subbing" is necessary at the commencement of work, as many of the navvies will probably have tramped long distances to the work and arrive penniless, but the evil might be minimised if the contractors refused to "sub" after the first fortnight, and in any case refused to "sub" the full amount earned.

The Navy Mission, which was founded in 1877, has done excellent work in providing religious instruction and education for the class; and, as their efforts are cordially supported by many of the leading firms of contractors, the influence of the Society has doubtless operated in the direction of securing improved material conditions for navvies. I think it would be a good thing if the Board were to obtain some definite information on the subject of navy life in general, with a view to considering the question whether it is desirable to acquire legislative powers in respect of this class.

In the first instance I would suggest that any contractor employing more than a certain number of men on any works might be put under the obligation to inform beforehand the sanitary authority of the district concerned as to the commencement of such works and of their close. The sanitary authority should be under the obligation to notify the Local Government Board, and thus a current register of constructional works might be formed and kept up to date.

Such a register would facilitate inspection and supervision of these works, both by local sanitary authorities and from time to time by the central authority, and would thus tend to secure the provision of adequate accommodation for the workmen. It would also tend to prevent the spread of small-pox at times when the disease is prevalent. The Board have a considerable amount of evidence to show that small-pox outbreaks have on several occasions originated among navvies. Not only are these men, owing to their migratory habits, apt to carry infection from place to place, and in particular from one common lodging-house to another, but they are, as a class, specially averse to vaccination or re-vaccination, partly, no doubt, owing to the interference with work which the operation entails.

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It appears to be the opinion of those who have studied the question from a general standpoint that some system of central supervision or inspection is desirable.

### SCOTTISH EXHIBITION, 1908.

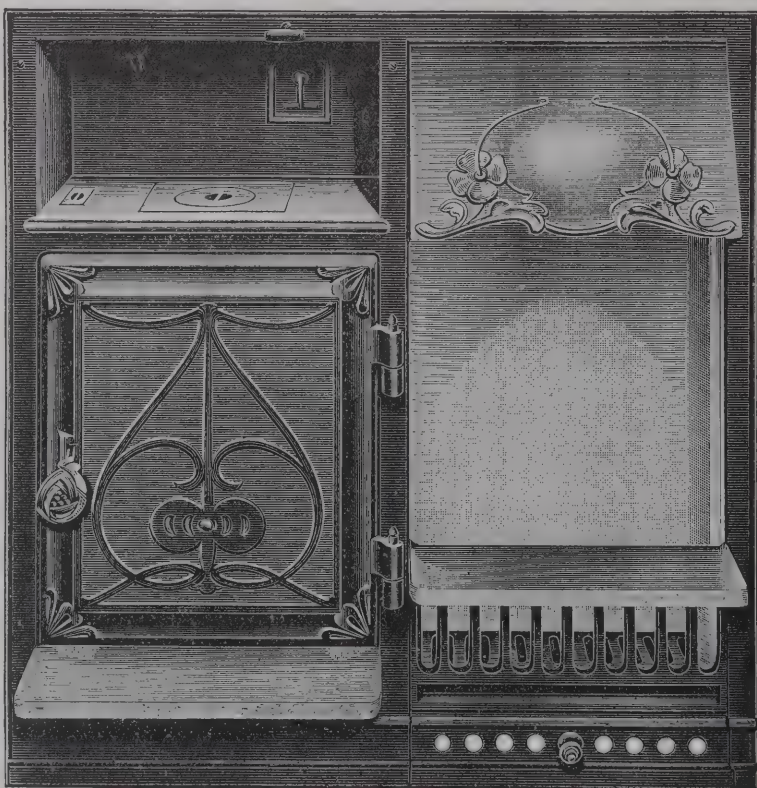
THE buildings committee have recommended the acceptance of the tender by Mr. Alexander Calder, Edinburgh, for the erection of the industrial hall, subject to the satisfactory fulfilment of certain conditions. The hall will be constructed of wood and plaster with an iron and glass roof and the tender that has been provisionally accepted is less expensive than the architect's estimate. The original intention was that the industrial hall should be placed at the Balgreen Road entrance, but it has now been decided to place it at the west side of the quadrangle, where it will stand on more elevated ground, and consequently have a more dignified appearance. Another advantage in placing this great building at the west of the exhibition grounds is that it will there form a shelter from the prevailing winds, and thus shelter the bandstand and promenade area. Although the original design of the building has been somewhat altered, its general appearance will differ but slightly from the view exhibited in the Synod Hall after the competitive plans were judged.

The original plans showed the concert hall, with its large dome, in front of the industrial hall. The concert hall has now been separated from the industrial hall, and will be erected at the east end of the grounds, where it will be near the main entrance from Balgreen Road, and will thus be more convenient for people leaving the evening concerts than if retained near the industrial hall in the altered position of the latter. To compensate for the architectural feature that has been taken from the industrial hall by the separation of the two buildings, the architect has introduced two towers and a dome into the central design of the industrial hall. Each of the four sides of the building will be treated ornamentally. Some idea of its size may be given by stating that it is about half as large again as the industrial hall at the Dublin Exhibition. It will have a floor area of 100,000 square feet, while the area of the

industrial hall at the Dublin Exhibition is only 60,000 square feet. Notwithstanding the great size of the building, spaces for which applications have already been made occupy more than half of the total available area. Specifications for the machinery hall have been prepared, and executive will shortly advertise for tenders. They then take in hand the fine arts hall and after that concert hall.

### ARCHITECTURAL WOODWORK.

AMONG the works recently carried out by Messrs. Good Lamb & Heighway, Ltd., of Manchester, are the following:—New isolation hospital, Preston; head office Preston Savings Bank; complete fitting and furnishing of the Hotel de Ville, Leeds; the Royal London Friendly Society's new premises, Deansgate, Manchester; Pioneer Assurance Company's offices, Liverpool; Mersey Dock and Harbour Board new offices, Liverpool, complete furnishing, carpentry, &c. The following contracts are in hand:—Great Central Railway Company's new dining-rooms and refreshment-rooms at Sheffield station; the whole of the rooms in the Piccadilly Hotel basement, which contains grill-room and several of the large entertaining-rooms; whole of the ground-floor entrances, restaurants, &c.; whole of the first and second floors, which contain the best bedrooms, sitting-rooms and dining-rooms—contract includes, besides the interior joinery, fibrous plaster decorations, furnishing, electric-light fittings, &c. the whole of the joinery work for the winter garden at Waldorf Hotel; the whole of the parquetry work at Morning Post buildings; the interior fitting of Messrs. Vickers, Sons & Maxim's new offices, Sheffield (the whole of this work is being executed in mahogany, including the finishing to all the offices, corridors, &c. amounting to many thousands of pounds); Carnegie Library, Accrington, interior fittings; Carnegie Library, Eccles, interior fittings; new offices, Edinburgh; Assurance Company, Newcastle-on-Tyne; draperies and furnishing of the Empire Theatre, Sunderland, the King's Theatre, Southsea, and Empire Theatre, Birmingham.



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# THE Architect and Contract Reporter.

FRIDAY, SEPTEMBER 13, 1907.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. Business communications to the Managing Director,  
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Entered in the United States of America as second-class matter. Agents for America, The International News Co., 5 Bream's Buildings, Chancery Lane, London, England, and New York.

Westminster has become one of the most important centres of the professions of Architecture and Civil Engineering. Arrangements have been made by Messrs. GILBERT WOOD & CO., Ltd., to establish Branch Offices in that district at 10 OLD QUEEN STREET, S.W., Messrs. W. HAY DING & CO. becoming the representatives for all business purposes.

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## NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

One of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

## TENDERS, ETC.

\* \* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITION OPEN.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000*l*. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

## CONTRACTS OPEN.

AMBLE.—Sept. 23.—For erecting County school to accommodate 220 scholars at Amble, Northumberland. Deposit 2*l*. 2s. Mr. C. Williams, secretary, Pearl Buildings, Newcastle-on-Tyne.

BARNSELY.—Sept. 16.—For alteration of and additions to premises, Church Street. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

BARNSELY.—Sept. 16.—For erection of three one-storey shops, with a ladies' lavatory and cloak-room attached, in Eldon Street. Mr. J. Henry Taylor, M.I.C.E., borough surveyor, Manor House Offices, Barnsley.

BARNSELY.—Sept. 17.—For works required in additions to motor garage, May Day Green. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BIRMINGHAM.—Sept. 27.—For erection of accommodation for able-bodied inmates at Birmingham workhouse. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

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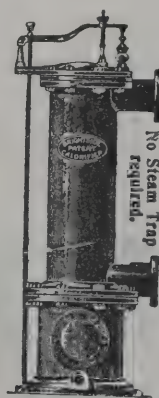
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**BIRDWELL.**—Sept. 16.—For the whole or any portion of works required in erection of two houses on Sheffield Road, Birdwell, Yorks. Mr. Arthur Whitaker, architect, Worsborough Bridge, Barnsley.

**BIRSTALL.**—For enlargement of St. Patrick's schools, Birstall, Yorks. Mr. E. Simpson, architect, 12 Cunliffe Terrace, Manningham, Bradford.

**BISHOP AUCKLAND.**—Sept. 16.—For the whole or any portion of work required in erection of billiard saloon. Mr. F. H. Livesay, architect and surveyor, 107 Newgate Street, Bishop Auckland.

**CALVELEY.**—Sept. 24.—For alterations at the Council school. Deposit 1/. Mr. H. Beswick, county architect, Newgate Street, Chester.

**CHAGFORD.**—Sept. 14.—For making internal alterations and adding a wing to Gidleigh Park House. Mr. James Crocker, architect, 98 Queen Street, Exeter.

**CHESTER.**—Sept. 16.—For public elementary school for 600 boys and girls, to be erected in Love Street. Deposit 1/. Mr. H. Beswick, architect, Newgate Street, Chester.

**CHISLEHURST.**—Sept. 16.—For erection of Council school to accommodate 300 children in the Lower Borough, Chislehurst, Kent. Deposit 1/1s. Mr. Fras. W. Crook, secretary, Caxton House, Westminster, S.W.

**CORSLEY.**—Sept. 17.—For building additions to Sandhayes, Corsley, Warminster. Deposit 2/ 2s. Messrs. Long & Glass, architects, 53 Market Place, Warminster.

**DARLINGTON.**—Sept. 18.—For extension of parcels office, &c., Bank Top station, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

**DISS.**—Sept. 30.—For erection of a secondary school at Diss, Norfolk. Deposit 2/ 2s. Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C.

**DONCASTER.**—Sept. 16.—For erection of laundry, boiler-house, mortuary, &c., at the Coventry and Warwickshire hospital. Deposit 2/ 2s. Messrs. A. Hessel Tiltman, 1 Raymond Buildings, Gray's Inn, London, W.C., and Herbert W. Chattaway, Trinity Churchyard, Coventry.

**DUBLIN.**—Oct. 22.—For the superstructure of the in Upper Merrion Street, and for erection of work adjoining. Deposit 5/ 5s. The Secretary, Office of Works, Upper Merrion Street, Dublin.

**FERRYHILL.**—Sept. 17.—For alterations and addition to the Council school at Chilton Buildings, near Ferrydurham. Mr. C. A. Clayton Greene, architect and surveyor, 18 Norfolk Street, Sunderland.

**GUILDFORD.**—Sept. 16.—For erection of a technical institute at Guildford, Surrey. Deposit 5/ 5s. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

**HEMYOCK.**—Sept. 17.—For erection of a house and outbuildings in Station Road. Apply at Passby, Hemyock, Devon.

**HOUNSLOW.**—Sept. 24.—For erection of new school at Hounslow Heath, for the Heston and Isleworth District education committee. Deposit 2/ 2s. Messrs. Lancelot-Lang, architect, Council House, Hounslow.

**HULL.**—Sept. 18.—For erection of accumulator and clock tower, Albert Dock, Hull, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

**HULL.**—Sept. 23.—For demolition of existing building now upon the site, and for erection of club premises at West Dock Avenue. Deposit 1/. Mr. Arthur Elliott, architect and surveyor, 7 Land-of-Green-Ginger, Hull.

**HULL.**—Oct. 3.—For supply of fittings and furniture for the law courts, town hall extension. Deposit 5/ 5s. The Treasurer, Town Hall, Hull.

**ILLOGAN.**—Sept. 21.—For erection of Wesleyan Methodist church at Illogan Highway, near Redruth. Mr. S. Hill, architect, Green Lane, Redruth.

**IRELAND.**—Sept. 25.—For building boot factory and warehouse, also shops and dwelling-houses, at Castle Corner and Waterloo Street, Londonderry. Mr. Patrick Elliott, architect, Exchange Buildings, Castle Street, Londonderry.

**IRELAND.**—Sept. 25.—For supply of fittings and furniture for post office at Portrush, co. Antrim. The Office of Public Works, Dublin, and at the Board of Works Office, Queen's College, Belfast.

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LEISTON.—Oct. 26.—For erection of a higher elementary school and cookery, laundry and manual instruction subjects centres at Leiston, East Suffolk. Deposit 2*l.* Education Committee, County Hall, Ipswich.

LONDON.—Sept. 17.—For erection of a mechanics' workshop at the Royal Mint. Deposit 1*l.* 1*s.* Mr. J. B. Cott, M.V.O., H.M. Office of Works, &c., Storey's S.W.

LONDON.—Sept. 18.—For construction of an underground entrance for women on the island at the Elephant head—Southwark. Deposit 2*l.* Mr. A. Harrison, M.I.C.E., High engineer, Town Hall, Walworth Road.

LONDON.—Oct. 9.—For erection of a school for mentally physically defective children at Pound Lane, Willesden, N.W. Deposit 3*l.* 3*s.* Mr. G. E. T. Laurence, architect, 12 Buckingham Street, Adelphi, W.C.

MIDDLETON.—Sept. 18.—For erection of a Dutch barn in Dale Road, near the Black Bull. Deposit 1*os.* 6*d.* Mr. Velburn, borough surveyor, Town Hall, Middleton.

MIDDLETON.—Sept. 25.—For construction of a cotton mill at Middleton, Lancs, for the Lancashire and Yorkshire Ray Company. The Engineer's Office, Hunt's Bank, Manchester.

OSKEMERE.—Sept. 23.—For alterations and additions to county police station at Oakmere, Cheshire. Deposit 1*l.* H. Beswick, county architect, Chester.

PURLEY.—Sept. 16.—For mason, joiner, plumber and painter's work required for alterations at workhouse at Purley. Mr. J. H. Wall, Guardians' architect, Manor House, Otley, Yorks.

STIRLING.—Sept. 26.—For erection of a Customs warehouse. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's S.W.

TRURING.—Sept. 19.—For construction of a public convenience at Purley, near Croydon. Deposit 3*l.* Mr. Robert Smith, sanitary surveyor, Town Hall, Croydon.

ROCHESTER.—Sept. 17.—For carrying-out alterations and additions to the municipal offices. Mr. William Banks, city surveyor, Guildhall, Rochester.

SCOTLAND.—Sept. 17.—For mason, carpenter, slater, plumber and plasterer's work of villa to be erected on East Terrace, Kingussie. Mr. Alexander Mackenzie, architect.

SCUNTHORPE.—Sept. 19.—For erection of a higher elementary school and pupil-teachers' centre at Scunthorpe, Lincs. Messrs. Scorer & Gamble, architects, Bank Street Chambers, Lincoln.

SIDCUP.—Sept. 19.—For reinstating damage caused by fire at the administrative block of the children's homes at Sidcup, Kent, including new top storey and roof. Deposit 2*l.* Messrs. Thomas Dinwiddy & Sons, 54 Parliament Street, S.W., and Greenwick.

SUNDERLAND.—Sept. 19.—For erection of school at the Green, Sunderland. Deposit 2*l.* 2*s.* Mr. C. A. Clayton Greene, 18 Norfolk Street, Sunderland.

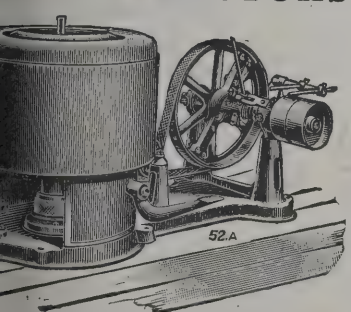
SUTTON.—Sept. 18.—For erection of new schools at Sutton, Thundersley and Rayleigh, for the Essex education committee (Rochford Hundred sub-committee). Deposit 2*l.* 2*s.* Mr. S. I. Adams, architect and surveyor, Weston Chambers, Weston Road, Southend-on-Sea.

THORNHILL.—Sept. 14.—For erection of a carbide factory at Thornhill, near Dewsbury. Deposit 2*l.* 2*s.* Messrs. C. H. Marriott, Son & Shaw, civil engineers, &c., Dewsbury.

WAKEFIELD.—Sept. 14.—For builder, joiner, slater, plumber, plasterer and painter's work at \*new school at Swinton, and alterations and additions to \*Crow Lane. Provided school, Golcar; asphaltting at \*Thrybergh new school and \*Brinsworth new school; builder, joiner, slater and plumber's work in conversion of offices, &c., at \*Halton Provided school, Templenewsam; builder, joiner, plasterer and painter's work in alterations and repairs to Main Street Provided school, Burley. Note.—A deposit of 1*l.* is required in each of the cases marked \*. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

WAKEFIELD.—Sept. 16.—For erection of divisional headquarters for the West Riding Constabulary. Deposit 1*l.* Mr. J. Vickers-Edwards, county architect, County Hall Wakefield.

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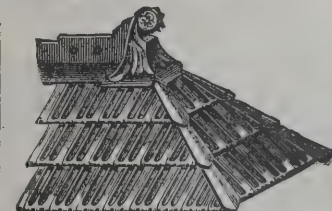
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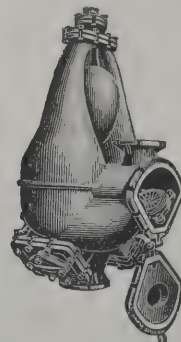
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WALES.—Sept. 19.—For building a house, motor garage, &c., at Park Road, Cardigan. Mr. L. Lewis, architect and surveyor, Cardigan and Fishguard.

WALES.—Sept. 21.—For execution of improvements to St. Dogmael's National school buildings, &c. The Headmaster, Abbey Cottage, St. Dogmael's, Cardigan.

WALES.—Sept. 23.—For erection of forty houses, with roads, lanes and sewers, at Pontypridd. Mr. Arthur Lloyd Thomas, architect and surveyor, Church Street Chambers, Pontypridd.

WALES.—Sept. 27.—For building two semi-detached villas on the St. Dogmael's Road, Cardigan. Mr. L. Lewis, architect and surveyor, Cardigan and Fishguard.

WALTON-ON-THAMES.—Sept. 17.—For erection of post office. Deposit 1*l.* 1*s.* Mr. J. Rutherford, H.M. Office of Works, Westminster, S.W.

WARWICK.—Sept. 16.—For erection of laundry, boiler-house, mortuary, &c., for the Coventry and Warwickshire hospital committee. Deposit 2*l.* 2*s.* Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C., and Mr. Herbert W. Chattaway, architect, Trinity Churchyard, Coventry.

WATFORD.—Sept. 25.—For erection and completion of a County Council school for 960 children. Deposit 2*l.* 2*s.* Mr. W. H. Syme, architect, 4 High Street, Watford, Hertfordshire.

WEDMORE.—Sept. 14.—For improvements, alterations and repairs at the Wedmore Council school, Somerset. Messrs. Price & Jane, architects, Weston-super-Mare.

WESTONING.—Sept. 23.—For erection of residence at Westoning, near Ampthill, Beds. Mr. E. T. Tutt, F.S.I., chartered surveyor, Market Place, Ampthill.

WETHERBY.—For alterations and additions to a chapel near Wetherby, Yorkshire. Deposit 1*l.* 1*s.* Messrs. Bare, Leaning & Bare, quantity surveyors, 115 High Holborn, London, W.C.

THE directors of the Great Western Railway have sanctioned a scheme for building a new station in Moor Street, Birmingham.

## TENDERS.

## ALDERSHOT.

For building the Wesleyan Soldiers' Home, S. Camp. Mr. ROBERT CURWEN, A.R.I.B.A., architect, 112 Hamilton House, E.C.

Edgoose	£6,434
Castle & Son	6,040
Parker	5,867
Knight	5,690
Stephens, Bastow & Co.	5,677
Crosby & Co.	5,650
Burton	5,631
Wall, Ltd.	5,621
Thomas & Edge	5,550
Wallis	5,541
Yates	5,526
Somerford & Son	5,503
Cæsar Bros.	5,500
Lawrance	5,379
Kemp	5,379
SNUGGS, Aldershot (accepted)	5,250
Martin, Wells & Co.	5,249

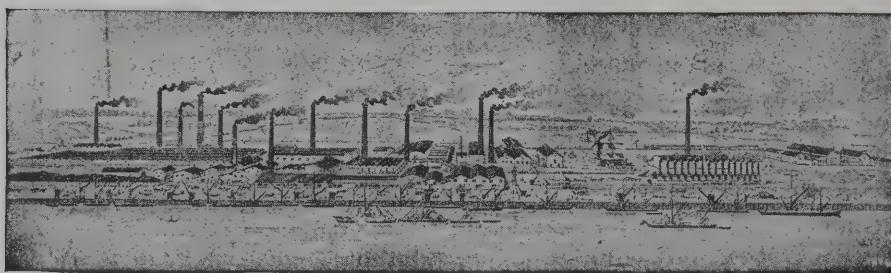
## BRISTOL.

For alterations and additions to Coalpit Heath Church. Messrs. LINGEN BARKER, SON & ELLIS, architects, Bristol.

Marsh & Stone	£560
Cowlin & Son	559
Browning	500
Smith	472
Clark & Sons	455
Foster	435
Curtis & Sons	432
Love	404
ADAMS & JEFFERIES, Oldham (accepted)	375

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**BURSLEM.**

the rebuilding of wall at gasworks, Longport. Mr. EDWARD JONES, engineer.

Cook & Sons . . . . .	£200	10	0
Vardle . . . . .	200	0	0
Grant & Sons . . . . .	185	0	0
GRINDLEY, Burslem (accepted) . . . . .	165	0	0

**CHERTSEY.**

erection of Council schools. Messrs. JARVIS & RICHARDS, architects.

Night & Sons . . . . .	£17,320	9	11
ray . . . . .	14,957	0	0
rie & Robinson . . . . .	14,290	0	0
emp . . . . .	13,749	0	0
ummins & Sons . . . . .	13,743	0	0
oddard & Sons . . . . .	13,712	0	0
mith & Sons . . . . .	13,598	0	0
akeham Bros. . . . .	13,534	0	0
awkins & Co. . . . .	13,454	0	0
URGESS & SONS (accepted) . . . . .	13,398	0	0
artin, Wells & Co. (withdrawn) . . . . .	12,832	0	0

**CHESTERFIELD.**

alterations to premises in Theatre Yard. Mr. S. B. D. SHEWBROOKS, architect, Chesterfield.

ollis & Sons . . . . .	£397	11	0
right . . . . .	378	0	0
irk . . . . .	369	0	0
BROWN, Hasland, Chesterfield (accepted) . . . . .	363	0	0

**DENVER.**

proposed offices, outbuildings and fencing, &c., to non-provided school. Messrs. LACEY & UPCHER, architects.

oper . . . . .	£180	0	0
hite . . . . .	155	8	0
nanks . . . . .	145	0	0
ickerson . . . . .	141	0	0
ash & Langley . . . . .	129	0	0
ase . . . . .	127	0	0
orter . . . . .	123	10	0
nes, Sons & Co. . . . .	118	10	0
OLLINS, Downham Market (accepted) . . . . .	108	0	0

**EARSDON.**

For laying 12-inch sewer. Mr. J. R. MACMILLEN, surveyor, Shiremoor.

Brebner . . . . .	£1,421	7	2
Chatt & Co. . . . .	1,142	6	4
Totty . . . . .	1,061	15	8
MacElhattan & Co. . . . .	1,047	14	1
Mackay & Son . . . . .	923	0	10
Hollings . . . . .	913	5	4
Simpson . . . . .	892	2	6
Young . . . . .	881	3	2
Edgar . . . . .	823	11	3
Henderson . . . . .	819	10	5
Thompson . . . . .	760	4	10
COXON & SONS, Holywell (accepted) . . . . .	756	18	10

**EDINBURGH.**

For the erection of industrial hall at Saughton Park, for the exhibition of 1908.

CALDER & SON, Edinburgh (accepted) . . . . .	£10,160	0	0
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**LEICESTER.**

For alterations and additions to the workhouse. Mr. A. H. HIND, architect, Grey Friars, Leicester.

Hardington & Elliot . . . . .	£1,693	0	0
Haskard, Rudkin & Beck . . . . .	1,635	0	0
Phipps . . . . .	1,614	17	0
Bentley & Co. . . . .	1,610	0	0
T. Herbert . . . . .	1,607	0	0
Pipes . . . . .	1,595	0	0
H. Herbert . . . . .	1,590	0	0
Fox . . . . .	1,578	0	0
Hutchinson & Son . . . . .	1,570	0	0
Chapman . . . . .	1,560	0	0
Stanger . . . . .	1,539	0	0
Simons . . . . .	1,534	0	0
Wright . . . . .	1,530	0	0
Rudkin & Son . . . . .	1,524	0	0
Bradford . . . . .	1,521	4	6
A. & W. CHAMBERS, Leicester (accepted) . . . . .	1,497	10	0

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For paving High Street with creosoted yellow deal blocks.

Mr. J. H. WEBB, borough surveyor.

Tash, Langley & Co.	£2,073	0	0
Case	1,987	0	0
Dye & Allen	1,798	0	0
Barnes & Co.	1,750	0	0
Griffiths & Co.	1,723	0	0
Acme Flooring and Paving Company	1,504	0	0

**MACHYNLLETH.**

For carrying-out sewerage and sewage disposal works.

Mr. S. R. Lowcock, engineer, Westminster.

Humphries	£5,331	8	11
Moffat	4,697	6	7
Jones	4,417	15	9
Edwards & Co.	4,410	10	1
Mitchell & Co.	4,410	0	0
Ward & Tetley, Bradford	4,376	5	10

**NEATH.**

For construction of dam at waterworks.

MORRISON &amp; MASON, Glasgow (accepted) £88,932 0 0

**RUABON.**

For erection of chapel, school, &amp;c. Mr. S. NICHOLAS, architect, Ruabon.

	Stone Dressing.		Terra-Cotta,
S. & J. Davies	£2,074	0	0
Watkin, Jones & Son	1,945	10	0
Moss	1,882	0	0
Roberts	1,846	0	0
T. L. DAVIES, Ruabon (accepted)	1,680	13	0
	Girders, &c.		
T. L. DAVIES (accepted)		53	10

**TRELOGAN.**

For erection of Council school. Mr. S. EVANS, county surveyor, Mold.

Wright & Son	£1,900	0	0
Jones	1,832	0	0
R. Williams	1,560	14	9
Hughes	1,430	0	0
E. WILLIAMS, Dyserth (accepted)	1,387	0	0

**STRATFORD-ON-AVON.**

For painting and other work to the workhouse built

Mr. A. H. CALLAWAY, architect.

Smith	£226
Bolt	195
Fincher & Co.	195
Callaway	180
Marriott	175
PITT & Co., Dudley (accepted)	159

**UXBRIDGE.**

For erection of hospital ward block, observation ward block, administrative block and laundry and disinfectant at hospital, Hillingdon. Mr. WILLIAM L. architect, Uxbridge, Middlesex.

Norman	£7,478
Foster & Dicksee	6,916
McCormick & Son	6,835
Mills	6,719
Barker & Co.	6,656
Roberts & Co.	6,614
Chessum & Sons	6,552
Patman & Fotheringham	6,488
Moss & Co.	6,484
Lovell & Sons	6,480
Godwin	6,453
Perry & Co.	6,447
Hunt & Son	6,287
Thorne	6,263
Pattinson & Son	6,228
Fassnidge & Son	6,181
Page & Sons	6,140
Fairhead & Sons	6,096
Kearley	6,029
Lawrence & Son	5,992
Bendon	5,991
Wilmott	5,984
Rowley Bros.	5,951
Hanson	5,944
Hammond & Son	5,852
Ward & Son	5,850
Dickens	5,824
Bowyer, Slough (provisionally accepted)	5,693

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WOLVERHAMPTON.

For erecting wing to science building, with alteration and painting at the grammar school. Mr. J. HUTCHINGS, architect.

Speake & Son	£1,629	0	0
Hallett	1,613	0	0
Cave & Son	1,589	0	0
Herbert	1,577	0	0
Mason	1,545	10	0
T. & S. Ham	1,508	0	0
Jones	1,490	0	0
Gough & Son	1,466	0	0
Willcock & Co.	1,457	10	0

"CAT'S EYE" GLASS.

We have received samples of "Cat's Eye" glass, which is claimed to be a variation upon figured rolled glass, inasmuch as the arrangement of the lenses and discs is such that all the light received by the surface of the glass is concentrated in the discs, causing them to shine like cat's eyes—hence the name—while the portion of the glass between the discs remains dark. The result is certainly most effective, specially when placed in a half light, for the brilliancy of the "cat's eye" increases as the sheets are removed from the source of light. The makers claim that it is an obtuse ornamental glass which does not lessen the light, is brilliant by day and night, and shows a good design when viewed from either side. Further, that as all the surfaces are smooth, dust cannot collect on it.



TRADE NOTES.

MESSRS. JOHN H. FULLER & Co., LTD., of the Minster Mills, Reading, proprietors of the "Marpedo" paint, inform us that they have moved their London offices and depôt to 230 Pentonville Road, King's Cross.

MESSRS. ALTENBACH, LTD., of Brighouse, have commenced business as manufacturers of castings in malleable iron, steel alloy and special steels, claiming as a special feature to make mild steel castings for breakdowns within a very short time.

H.M. GOVERNMENT have given instructions to Messrs. Wm. Potts & Sons, Ltd., clock manufacturers, Leeds and Newcastle-on-Tyne, to erect a new illuminated chime clock at the Duke of York's schools, Dover. It is to be made generally on the lines of the late Lord Grimthorpe, with all the latest improvements inserted. The work is now well in hand and will be fixed at an early date.

MESSRS. HAHN & Co. have issued a specification of the important stock of foreign hard woods now lying at the Alexandra Wharf, close to Tidal Basin station, G.E.R. It comprises mahogany, wainscot oak, teak in logs, floorings, flitches, whitewood, sawn oak, kauri, Quebec birch, basswood, maple floorings, &c., which will be offered at lowest prices. Trains are frequent from Fenchurch Street.

MESSRS. GEORGE MILLS & Co., engineers, Radcliffe, near Manchester (proprietors of the "Titan" sprinkler) have received the following letter from Messrs. Robert MacLaren & Co., Eglinton Foundry, Port Eglinton, near Glasgow:—"As a few days ago a fire occurred in our pattern store, which was successfully extinguished by your automatic sprinkler, we have pleasure in enclosing you order for an extension to this service. Please have same put through without delay."

An article appears in this week's issue of *The Building Trade* describing the works and offices of the Zeta Wood Block Flooring Company, Ltd., of Stratford. Illustrations are given of the several departments of a wood-block flooring works. We gave some particulars of this firm in a recent issue. The result of less than three months' work is that the company have recently been compelled to work day and night shifts to cope with the demands made upon them.

We are informed that Mr. Joseph Hamblet has resigned his connection with Hamblet's Blue Brick Company, Ltd., of West Bromwich, with which firm he has been connected as proprietor, managing director and chairman for nearly forty years. The name of Joseph Hamblet has been so identified with the manufacture of blue bricks, for which he did so much to bring them to their present state of perfection, that we regret the severance of his connection with one of the most prominent firms. We have been asked to state that all personal communications should be addressed to him at Eagle Works, West Bromwich.

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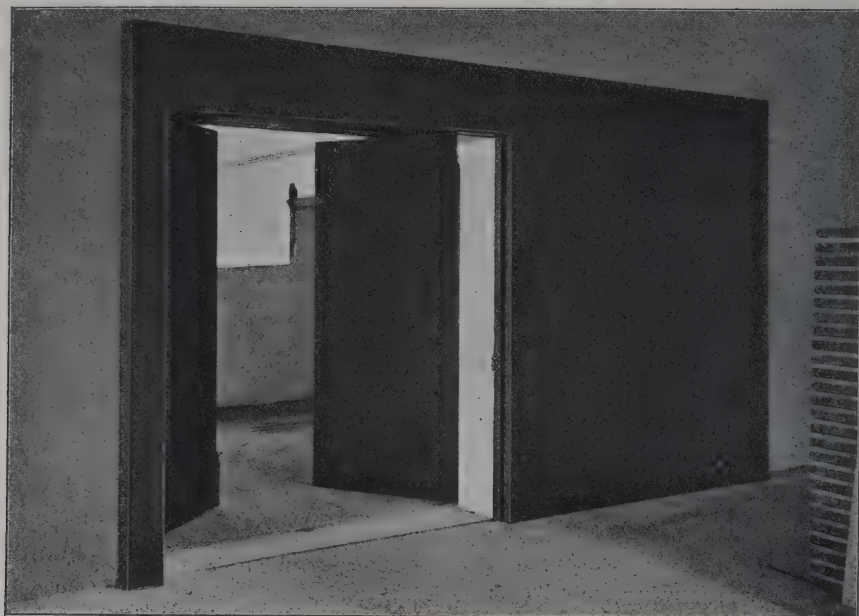
WM. E. PECK & CO.  
(Incorp.),  
8 BRADFORD AVENUE, LONDON, E.C.



**FIRE PROTECTION.**

THE accompanying illustration shows one of the numerous fireproof doors that have been fixed at Messrs. Eastwood's Dying and Cleaning Works at Acton. At these works, covering over six acres, a fire broke out early in the present year practically destroying three buildings, and in

construction of these fireproof doors used their well-known hollow bricks, 1½-inch thick. As will be seen, the hangers are completely cased in with these blocks also, entirely protecting the iron from fire, and the doors when closed are the same way protected at both ends, where it is most needed.



re-erecting them every precaution has been taken to insure, in the event of a fresh outbreak, that the fire so far as is possible shall be confined to a limited area.

The Hempstead Patent Brick Company have in the

As the blocks used are guaranteed fire-resisting to the melting-point of steel these doors, with the special means adopted of casing the hangers, &c., should provide absolute protection.

# "Standard"



"Standard" Porcelain Enamel Ware is moderate in cost, beautiful in its finish and extremely durable. Absolute freedom from cracks or crevices assures the maximum sanitary protection. A bathroom fitted with "Standard" Ware greatly increases property value.

Write for our elaborate booklet, "MODERN BATHROOMS," also for our special lavatory booklet, showing many new patterns. Ask for Booklet No. 6, post free on application to Dept. F.

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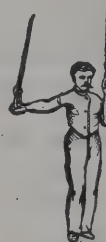
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ELECTRIC NOTES.

THE electric-lighting committee of the Sheffield Corporation is proposing to spend 39,267*l.*—15,267*l.* on a 1,000 k.w. turbo generator plant at Neepsend and 24,000*l.* for electric cable.

AYR Town Council have agreed to apply for a provisional order for the extension of the Corporation tramway system from the north end of the New Bridge, by way of River Street, George Street and Whiteletts Road, to theburgh boundary at the new racecourse. The estimated cost of the proposed extension is 14,000*l.*

THE churchwardens of St. Gabriel's Church, Willesden Green, have requested the tramway company to reduce the speed of the cars past the church during service to eight miles an hour. They have offered to erect a semaphore signal, the arm being raised during service, if the company will instruct their drivers to observe its warnings.

THE Dudley Town, Council on Tuesday adopted the following resolution:—"That application be made to the Board of Trade for their sanction to the borrowing by the Council of a loan not exceeding 95,000*l.* for the purpose of the purchase of the tramways and light railways in the borough, to be borrowed on the credit of a mortgage of the general district rate of the borough."

MESSRS. GEORGE CRADDOCK & Co., Wakefield, have received a further order from the Glasgow District Subway Company for a specially made tramway cable. This rope is 36,300 feet long, 1½-inch diameter and weighs approximately 57 to 60 tons. This is the heaviest rope in the world.

THE Portsmouth Town Council are about to carry out extensions to the tramways costing 33,875*l.* 16*s.*, made up as follows:—For the line commencing at Fratton bridge and passing along Goldsmith Avenue to a point opposite the White House public-house, 14,407*l.*; from the point through Eastney Road to the Eastney terminus, 8,368*l.* 16*s.*; and from Highland Road through Festing Road to the existing tramways at the Canoe Lake, 11,100*l.*

THE Horsham Urban District Council give notice that they are prepared to receive applications for the free pupilage

offered by them at their electricity works. The pupilage will be tenable for two years, free of premium, and it is restricted to sons of ratepayers resident in the Horsham urban district since January 1, 1906. Candidates must be between 14½ and 17 years of age at the date of the qualifying examination.

THE Government of Ceylon having abolished the office of consulting electrical engineer, Mr. Francis B. Rylands, electrical works superintendent, has been appointed electrical engineer, in which office he will combine the duties he has been discharging with those performed by the late consulting electrical engineer. Mr. Rylands is the senior electrical engineer in Ceylon, and has been in the Government service for seven years, with charge of all electrical work except telegraphy.

TENDERS for providing the mains for the high-tension and low-tension systems in connection with the new electric station at Stannergate were submitted to the electricity committee of Dundee Town Council. Eight British firms have offered, and this part of the new installation will involve an expenditure of from 10,000*l.* to 12,000*l.* None of them in the matter of cost commended itself to the committee. It was felt that, having regard to the position of the copper market, and to the fact that its tendency is still downwards, an undue charge was being made. Accordingly it was resolved to take in fresh tenders, and in widening the field of selection to call for offers from foreign manufacturers.

THE work in connection with the instalment of the electric light at Dunrobin Castle, N.B., is now completed, and it will be largely used during the visit of H.R.H. the Duke and Duchess of Connaught. It has been found possible to retain the magnificent historical candelabra in the dining-room, drawing-room and main staircases. In place of wax candles electric lamps, an exact imitation of the shape and colour of a wax candle, have been fitted. In many of the other rooms the existing valuable fittings have been adapted and fitted with electric lamps. Electric fans for ventilating purposes have also been fitted, and now gas has been dispensed with for lighting, heating and ventilating purposes. The Duke of Portland has also recently had Langwell House on his Caithness estate similarly lighted and heated by electricity.

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## VARIETIES.

THE Solihull Board of Guardians on Tuesday resolved on the erection of an administrative block at a cost of nearly 6,000*l*.

THE Hackney Board of Guardians have agreed to the erection of an additional pavilion at the workhouse infirmary at a cost not exceeding 21,050*l*.

THE Bremen Senate has assigned a sum of 400,000*l*. for the extension of the harbour and the improvement of the means of communication in Bremerhaven.

THE National Housing Reform Council have decided to give a prize of 2*l*. 2*s*. to the working man who sends in the best descriptive account of the Housing Exhibition at Wincobank, near Sheffield.

FOR building schools in Ireland the Education Commissioners in their report say that 40,000*l*. per annum is promised for this year and the two years following, while they ask 25,000*l*. a year additional from the development grant.

THE East Dereham Urban District Council have agreed that Mr. W. J. Dibdin, F.C.S., F.I.C., should be engaged at a fee of fifty guineas, to inspect the sewerage works and report as to the best means of carrying forward the works scheme.

STEEPLEJACKS who are at present repairing the chimney-stalk of the Caledonia Flour Mill, Montrose, discovered on the top a halfpenny of the date 1906. It is a good many years since any person was at the top of the chimney, and it is surmised that the coin, which was bent almost double, had been deposited there by a crow.

A NOTICE that no smoking would be permitted, and that disobedience of this order would mean instant dismissal, has brought out on strike 100 men employed at Springwell quarries, near Newcastle. They characterise the order as an unwarrantable interference with an old custom.

APPLICATIONS for membership for the next International Congress for Hygiene and Demography, which is to be held in Berlin from the 23rd to the 29th of the present month, now exceed 2,500. In order to make the necessary preparations intending visitors are advised to make application without delay.

THE Swansea Corporation housing committee have decided, with a view to expedite a scheme for the erection of dwellings on the Baptist Well estate of the Corporation which has been hanging fire owing to a difficulty as to the apportionment of the cost of providing main sewers and retaining walls, that an offer be made of 1*s*. per foot for the land, and a contribution of 500*l*. towards the cost of levelling, the Corporation to construct the main sewer.

THE Rugby Urban District Council have received a letter from the Local Government Board sanctioning the raising of a loan of 14,300*l*. for the construction of sewer disposal works in the parishes of Bilton and Newbold. The scheme is to be put in hand at once. It was said the scheme will be carried through at a comparatively small cost. The cost per head of the population would be only 1*s*., whereas the average cost of such schemes was 3*l*. per head.

THE thirty-second annual report of the Public Works Loan Board for the year 1906-7, states the Public Works Loan Commissioners made during the year 906 advances for sums amounting altogether to 2,123,496*l*., as compared with 1,030 advances for 2,266,305*l*. in the previous financial year. Of the total advanced 1,995,845*l*. was lent on security of local rates and 127,651*l*. on security of property. The average rate of interest receivable on the advances was 3*l*. 13*s*. 7*d*. per cent., as against 3*l*. 9*s*. 2*d*. in 1904-5. The advances included 29,166*l*. for the provision of working class dwellings.

AT the last meeting of Leith Parish Council it was reported, with regard to the defective flooring at the new poorhouse, that the architect had been instructed to call upon the contractors to lift all the upper floors in the main buildings and substitute proper material for the same. The architect was further instructed, in the event of the contractors failing to comply with this demand within three days from the date of the architect's letter, to at once proceed to take an estimate or estimates from other contractors for the carrying-out of this work.

THE health committee of the Liverpool City Council have under consideration the question "whether the powers under the existing Acts of Parliament and by-laws are sufficient to secure (a) health and cleanliness in dwelling sublet or otherwise, in courts and alleys in Liverpool; (b)

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A PAIR OF COTTAGES AT LAMBERHURST, SUSSEX.

THE MAPPIN ART GALLERY, SHEFFIELD.

prevention of the building up of areas in the outskirts out due consideration to the proper planning of such areas; and, if not, what further powers the committee should be obtained." A new set of by-laws is in the process of preparation, and will be submitted within the next three months.

At the monthly meeting of Rothesay Harbour Trust—Major Burness presiding—approval was given to a scheme in connection with harbour alterations and improvements, involving an outlay of over 10,000*l*. The scheme submitted includes an extension of Albert Pier seaward, the construction of a new swing-bridge for the existing draw-bridge connecting the inner and outer harbours, and widening of Albert Place by 17 feet and the provision of a cargo wharf. It was also agreed that Mr. James Brodie, C.E., who acted as advisory engineer in connection with the alterations, should be appointed to superintend the work during construction.

MAJOR J. STEWART, R.E., inspector of the Local Government Board, held an inquiry at Chester respecting an application made by Chester Town Council for sanction to borrow 2,200*l*. for the provision of underground lavatories in the town hall square and at the junction of Bridge Street and Grosvenor Road; sums amounting to 6,000*l*. for the purchase of certain property required for the widening and improvement of Frodsham Street, Christleton Road and Grosvenor Lane, and also for the borrowing of 500*l*. with regard to the disposal of land in connection with the proposed widening of Goss Street and Hamilton Place.

A RETURN has been issued as a Parliamentary paper "of the medical officers of health and inspectors of nuisances in the rural districts of each county in England and Wales, showing the area and population of each district, and as regards each officer, the amount of his remuneration, whether payment is made in respect of it by the county council, and whether he holds any other appointment or carries on any other occupation." In the case of inspectors of nuisances there are 597 instances in which the officer has other appointments, such as surveyors of highways, building surveyor, &c., under his own or some other council, and 140 in which he follows some private occupation.

THE Holborn Board of Guardians have written the President of the Local Government Board asking permission to incur an expenditure—probably about 500*l*.—in making good the well-water supply at their schools at Mitcham. This supply, which was giving over 80,000 gallons per day, has fallen off and become cloudy, which experts say is due to the perishing of the pipes at the base of the bore. The well is 350 feet deep, and it will be found necessary to make another boring alongside that existing. The expenditure, however, is said to be justified, seeing that the water company's supply costs 6*d*. per 1,000 gallons, and the outlay in the pumping, &c., does not reach 3*d*. per 1,000 gallons.

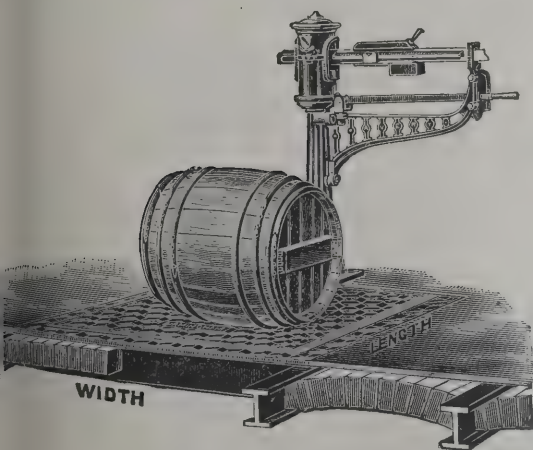
THE Helensburgh Town Council have accepted the estimate of Messrs. A. Trail & Son, Helensburgh, for the building of new battery wall and the broadening of Row Road, in continuation of the present west esplanade. The cost will be between 4,000*l*. and 5,000*l*. There were a large number of offerers from different parts of the country. Messrs. Babbie & Brown, Glasgow, are the engineers of the scheme. Originally a scheme amounting to 16,000*l*. was approved by committee, but was rejected by the Council, and the present modified scheme adopted. The contractors have agreed to complete the whole works tendered for within eight months from the date of acceptance of their offer.

A LOCAL GOVERNMENT BOARD inquiry was opened at Berwick on Friday by Mr. A. G. Drury into an application by Berwick sanitary authority for power to borrow 20,000*l*. to meet the cost of a combined water scheme for the



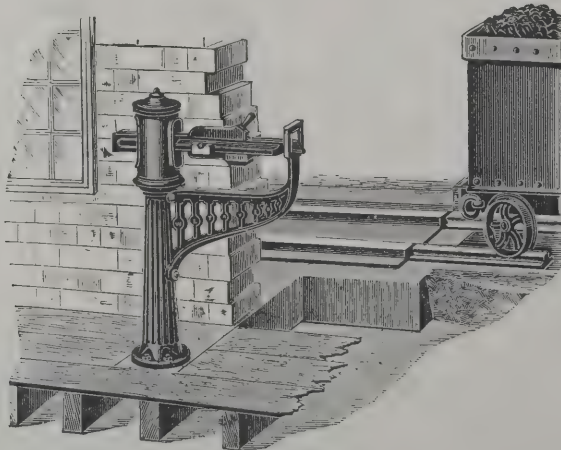
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borough. Under the scheme it is proposed to augment Berwick's present supply by means of a borehole, a large supply of excellent water having been found in the fell sandstone. The scheme includes a large storage reservoir, and would supply Berwick, Tweedmouth and Spittal, giving about 27 gallons per head per day. There is a strong local opposition to the proposal, and the witnesses examined in favour of the scheme were subjected to a severe cross-examination, considerable feeling being displayed at times. After sitting five hours Mr. Drury adjourned the inquiry till September 24.

THE Worcestershire County Council on Thursday considered a report upon the need of labourers' dwellings in the Evesham rural district, reference being made to the inquiry at Evesham in June. It was stated that there was a shortage of houses, which seemed likely to increase, and it had the result of driving young people into the town and of preventing the land being fully developed and other evils. As the law now stood the County Council could not in the first instance take any steps. The authority to put the Acts in force was the District Council, and they considered an opportunity should be given to the District Council to prepare a scheme. On their failing to produce an adequate scheme in a reasonable time they could, if necessary, report further on the matter. The report was adopted.

MR. BARNEWALL CROFTON, Local Government Board inspector, opened an inquiry on Monday at the North Dublin workhouse for the purpose of considering the propriety of confirming an improvement scheme of the Rural District Council. The scheme contemplates the compulsory purchase of land in the districts of Blandhardstown, Castleknock, Coolock, Santry, Howth and Raheny. The estimated cost of the first of the schemes for the acquisition of land is 3,740*l.*, and other incidental expenses make a total of 4,000*l.* It is proposed that the land shall be parcelled into seventy-eight allotments. Under the second schedule it is proposed to acquire compulsorily plots of land in the same districts, and the erection thereon of 209 cottages. The cost of acquiring the land was estimated at 16,200*l.*, the fencing 1,045*l.*, the building of the cottages 30,305*l.* and the expenses 1,236*l.*—total 48,786*l.*

THE Lord Mayor of London will preside on the 20th over an important conference, to be held at the Letchworth Garden City, for the purpose of discussing matters in connection with the Garden City movement and of making arrangements for propaganda work in various parts of the country. Several municipal authorities will be represented at the conference, and well-known experts will read papers dealing with the housing question. In October a further conference will be held in London under the auspices of the Garden City Association. The principal matter for consideration will be town planning. Many of the leading local authorities in the country have in this instance assented to the suggestion of being represented. This was the most important conference held in this country on town planning, and it is being convened because it was felt that the subject did not receive the attention it deserved at the International Conference held recently owing to the multiplicity of the matters discussed.

MR. R. J. PACK-BERESFORD, Local Government Board inspector, sat in the board-room of the workhouse at North Dublin to take evidence relating to the improvement scheme made by the Navan Rural Council under the Labourers' Dwellings Act. The clerk, Mr. C. Lacy, said there were 301 cottages in the scheme and the rents charged were 10*d.* to 1*s.* 1*d.* The total per year to the ratepayers on account of the scheme already promoted was 1,639*l.* 5*s.* 4*d.* The average annual loss on each cottage was 5*l.* 9*s.* The amount of the loss now applied for was 28,841*l.* 8*s.* It was proposed to add 102 additional plots. Mr. Anthony Scott, the Council architect, gave evidence as to the cost of the cottages, erection, 146*l.*; sites, 40*l.* an acre; legal, engineering and other costs, 14*l.* 12*s.*; total, 201*l.* 3*s.* The inspector of the Local Government Board wanted the estimate reduced to 180*l.* Mr. Scott said the estimate could be reduced to 180*l.* and still have four-roomed cottages, but he did not think the Council would consent to alter their plan for three-roomed cottages.

At a meeting of Shrewsbury Town Council on the 9th inst. a recommendation from the sanitary committee that the Council should adopt Part III. of the Housing of the Working Classes Act 1890, which authorises the acquisition of land for the erection of workmen's cottages,

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to considerable discussion. The committee pointed out while desirous to support the medical officer of health, had reported that there were nearly 200 houses in the unfit for human habitation, they were unable to condemn them because of the absence of other dwellings into which the tenants might go. A suggestion that the Council should provide houses for the working classes at a rental which private people would not be prepared to do was met with the objection that it savoured of Socialism, and that it would be unfair to saddle the general body of ratepayers with the cost of providing houses for a section at less than market rents. Several members of the sanitary committee, who had taken a part in considering the question for several years, assured the Council of the gravity of the situation and of the shocking condition of many of the dwellings of the poor in Shrewsbury. The Council asked for fuller information, and when this was supplied, with the report of the medical officer, the recommendation was unanimously adopted.

R. H. J. DUNLAP, the United States Consul at Cologne, in his report on the condition of the manufacturing industries in the Rhine provinces continues to be most favourable. One of the points of travel any distance on any railway line in any direction that one does not see new factories being built. Additions made to those now in operation. Some of the new buildings are of great extent and seemingly indicate that the builders have great confidence in the future, and that all are erected in the most substantial manner, the material used being mostly cement, brick, and iron or steel. The new buildings are practically fireproof, where business contemplated permits of such construction. A general complaint is of the scarcity of labour and the difficulty to obtain any great increase from any place. It is said with certainty that no man in Germany is idle who does not so chooses.

The City of London Board of Guardians last week adopted the revised plans for the proposed new City workhouse and infirmary, the original scheme having been amended to meet certain suggestions made by the Local Government Board. The drawings of the imbecile block and the married couples' quarters were presented separately, in the sequence of a suggestion from Whitehall that their

erection should be deferred for the present. Provision has been made for constructing the open corridors of iron columns instead of brickwork, while the thickness of the walls has been materially reduced. "With regard to the construction of the floors, finishing of walls, sanitary fittings, joinery, &c." wrote the architect, Mr. A. E. Pridmore, "I am, and have been, paying due regard to the use of inexpensive materials and fittings." The chairman of the Board, Mr. J. B. Wild, stated that when the new building was finished there would be a saving of something like 5,000*l.* or 6,000*l.* a year to the ratepayers.

THE Glamorgan County Council roads and bridges committee at Cardiff last week considered several claims for damages, the result of recent accidents upon the Mumbles Road. The County Council had arranged with the Tarspra Company, Ltd., to spray two miles of the road with tar, and the accidents were stated to have occurred during the carrying-out of the work. The Tarspra Company sent in an account for 124*l.* for work done and repudiated any liability for damages. The clerk to the Council again expressed the opinion that under the contract the Tarspra Company were liable. Replying to a remark that the work was only done for the benefit of motorists, the Chairman said that the tarring of the road was purely experimental. It was further stated that the tarring of the road had done much to abate the dust nuisance, and was greatly appreciated by visitors and inhabitants. From the letters read it appeared that in several cases horses had slipped on the tarred road and people had been pitched out of vehicles. One correspondent threatened to report the matter to the Society for the Prevention of Cruelty to Animals. It was understood that the clerk would reply to the Tarspra Company repudiating the liability of the County Council.

THE Vice-President of the Department of Agriculture and Technical Instruction for Ireland has appointed a committee to inquire into and report upon certain matters relating to the improvement of forestry in Ireland. The committee consists of the following members:—Mr. T. P. Gill, secretary of the Department of Agriculture and Technical Instruction for Ireland (chairman), Lord Castle-town, Mr. William Redmond, M.P., Most Rev. Denis Kelly,

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D.D., Bishop of Ross, Mr. Hugh de Fellenburg Montgomery, Mr. W. F. Bailey, Mr. William Rogers Fisher, M.A., and Professor John Rich Campbell. The terms of reference are:—To inquire into and report upon the following matters relating to the improvement of forestry in Ireland, viz. (1) The present provision for State aid to forestry in Ireland; (2) the means whereby, in connection with the operation of the Land Purchase Acts, existing woods may be preserved, and land suitable for forestry acquired for public purposes; and (3) the financial and other provisions necessary for a comprehensive scheme of afforestation in Ireland. The committee will commence its sittings in October. All communications intended for the committee should, for the present, be addressed to the Secretary of the committee at the offices of the department, 4 Upper Merrion Street, Dublin.

An inquiry was held at Stockport last week by Major J. Stewart, R.E., an inspector of the Local Government Board, into an application by the Stockport Corporation for sanction to borrow 7,090*l.* for the purchase of the Edgeley House estate. It was stated that the estate, which comprises ten acres, came into the market for building purposes, and a builder offered to buy five acres at 1,000*l.* an acre. The Corporation, however, desired to preserve the land for a park, and the owner had offered it to them for 7,000*l.* The estate was well timbered, and some beautiful old trees would be cut down if it got into the hands of builders. The district was rapidly being built up and close on 700 houses had been recently erected. It was originally proposed to build a public elementary school on one part. The owners of the adjoining land, however, objected to a school so close to residential property, and the education committee and the general purposes committee had not been able to agree as to a site. The general purposes committee therefore proposed that the whole of the estate should be laid out as pleasure-grounds. The Inspector said he did not think he should be able to persuade the Local Government Board to grant a loan in these circumstances. The Board would probably decide to wait to see what decision the Council came to. In his opinion Stockport was well supplied with recreation grounds and parks.

The British Consul-General, in his report on the commerce of Belgium for the year 1906 and the first half of

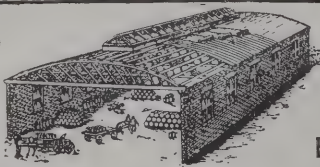
the present year, states that there has been an increase of 90,528 tons in the quantity of stone sent to France regard to the exports of cement, the total exports amounting to 813,329 tons, an increase of 133,903 tons on the 1905, which is largely accounted for by the augmentation of 55,864 tons in the exports to the United States of America. The value of the cement exports was 910,928*l.*, compared with 652,250*l.* in 1905—a very large increase for one year. It is perhaps from the point of view of the British cement manufacturer satisfactory to note that the exports of Belgian manufacture to the United Kingdom decreased in 1906 to 151,273 tons, valued at 169,426*l.*, the 1905 being 196,583 tons and 188,719*l.* The cement exports during 1906 was, notwithstanding this falling off, in a flourishing condition. The total sum raised by the customs duty on goods entering Belgium amounted in 1906 to 2,251,516*l.* The articles which produce the amount of revenue from the imposition of duty are: (1) Tobacco, the duty paid on which amounted to 20 per cent. of the total; and (2) wood for building purposes, duty 186,008*l.*, about 8.3 per cent.

A PROGRAMME has been issued in connection with the Conference of the National Association of Master Painters and Decorators of England and Wales, to be held in Liverpool from Monday, the 16th, to the 20th inst. In the evening of the 16th the president, Mr. G. H. Lloyd, will receive the members in the small concert-room, George's Hall, where the Conference meetings will be held. On the Tuesday the visitors will be welcomed by the Mayor, and the presidential address will be given by him, will be followed by the opening of an exhibition of the work of the apprentices' competition and an international student competition in drawings. The afternoon session will be devoted to the reports from the secretary, treasurer, and committees, education committee and the trade scholarship competition. Greetings from the Association of Master Painters in Scotland and Ireland will be given by the respective presidents, Mr. Robt. L. Anderson and Mr. Macnamara. In the evening there will be a reception by the Lord Mayor and Lady Mayoress at the town hall. The second day will be spent in addresses and discussions.

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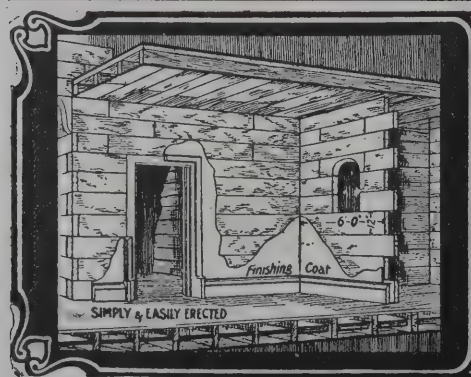
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papers will be read by Mr. Halsey Ricardo, F.R.I.B.A., on "The External Application of Colour to Buildings;" Mr. W. Major, "The Evil and Peril of Cheap Tendering;" Mr. H. Harris, "Our Association and its Programme, with special Reference to the Apprenticeship Question;" "The new Compensation Act: Some Thoughts on and the Need for Collaboration by Members." The annual dinner will be held in the evening. On Thursday the members of the convention will pay a visit to Furness Abbey and Lakeside, and on the last day there will be excursions on the Mersey to Eastham and the Bar Lightship in the morning, and in the afternoon the visitors will inspect the Cunard liner *Campania*.

### MONOLITHIC BRICKWORK.

An interesting and impartial series of tests concerning the effect of the reinforcing of the mortar joints of brickwork has been conducted by Mr. W. H. Brown, architect, York. They were less elaborate perhaps than some others that have been announced. Yet on that account they have special importance because they refer to ordinary work; and we might say that similar experiments could be made without extraordinary expense. For reinforcement hoop-iron was first employed. But as it appeared to act independently it did not serve Mr. Brown's purpose. Simple wire netting proved to be preferable, and it sustained very remarkable tests. It would not be fair to Mr. Brown to describe the results without the aid of the photographs which are in his brochure. He ascertained that brickwork with such simple reinforcement as was afforded by wire netting laid in the mortar joints, resisted compression and tension to an unanticipated extent.

### NEW CATALOGUE.

The sanitary specialties of Mr. W. E. Farrer, of Birmingham, show a desire to strike out new lines, and that not only in the manner of working but in their appearance. He is saying much for a volume which contains over 200 illustrated pages. Mr. Farrer's specialties are not confined to those required in private houses, schools, hospitals and

other places for indoor use. He has also succeeded in producing ingenious automatic sewage distributors for filter beds. The latter have, moreover, the advantage of not appearing unsightly, and the analytical tests by official chemists show that they have fully answered the purposes for which they were designed.

### AN ABERDEEN MANSION.

The renovation of a somewhat celebrated old building in Aberdeen has brought to light some interesting examples of decorative art at the end of the seventeenth century. The building referred to stands in the Guestrow—one of the slum districts of the city—and was erected about 1676, although a portion of it dates back to 1580. During the Jacobite rebellion of 1745 the house was lent by its then owner to the Duke of Cumberland, who occupied it as his residence during his six weeks' stay in the city, and not only made very free with all it contained, but on his departure carried off all the valuables he could possess himself of. Since that date the house has changed hands many times, and latterly has been used as a common lodging-house—a purpose to which it was well adapted as it contained numerous rooms. It was in a small panelled apartment—probably an ante-chamber—that the discovery referred to was made. Ordinarily one would have expected that the panels themselves would have been the portions decorated with subjects, but it is not so in this case. The panels have been painted very boldly with an effective imitation of marble, and the stiles and rails enclosing the panels have been carefully and minutely treated with painted decoration on a black ground. The decorations include groups of figures, landscapes with trees and with towers, spires, castles and ruins. The work has been done with great skill and is evidently by a thorough craftsman. A feature of it is the brilliance of the colouring, which in some portions is probably as perfect as on the day when it was applied. To all appearance the painting is contemporaneous with the date of the erection of the house, so that it is probably about 230 years old. The whole decoration of the room is an extremely interesting example of the decoration of the period, which appears to have been largely influenced by the art of the Low Countries; and it displays

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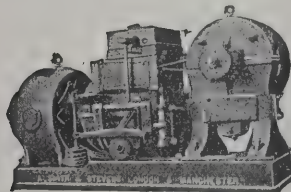
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the high ability and cultivation of the craftsmen of the time. The ceiling of a small apartment in the older part of the house is painted in the Flemish manner. This apartment was probably used as a private chapel. An extraordinary amount of interest has been taken in these discoveries, and for some time past the house has been visited on an average by between two and three hundred people daily.

### LEICESTERSHIRE SCHOOLS.

THE following remarks by the Director of Education for Leicestershire are put as a "Prefatory Memorandum" to the latest Report on Public Elementary School Accommodation in the county:—

On the evidence of the former "Report on Public Elementary School Accommodation" of January 21, 1904, and of the subsequent public inquiries held by the buildings and sites committee during the early months of the same year, it was estimated that the minimum number of school places immediately to be provided by the county council was 3,775, and that the number which it then appeared probable would be provided by voluntary school managers was 1,310. It was, however, remarked in the report that this by no means exhausted the number of school places which might have to be provided in the early future by the county council.

Unforeseen developments and changes of policy have necessarily affected largely the original proposals, especially in regard to projected building and extension of voluntary schools. And further, the resolution to exclude infant scholars under the age of five years in rural districts helped to relieve the overcrowding in many schools.

Apart from the provision of additional accommodation, a considerable sum of money has been expended for the improvement of existing accommodation, both by the committee and by the managers of voluntary schools.

In the present report, particulars are given of the actual number of additional school places provided by the education committee and by voluntary school managers during the past three years. Some attempt has also been made to estimate the future requirements in regard to school accommodation in a form similar to that of the previous report referred to above. This has necessitated a general review

of the whole of the schools in the county, with special reference not merely to any deficiency of accommodation but also to defects of structure.

On the understanding that the policy of the committee is to effect gradually, but continuously, an improvement in the general character of school buildings, several buildings are "blacklisted" in the report, which, though not notoriously inadequate, cannot be regarded as attaining a satisfactory standard of efficiency. Consequently, the present report regards elementary school buildings from a high standard, and goes somewhat more deeply into the question of inadequacy or of structural deficiency than the former report of 1904.

In this connection special attention is directed to Part Section IV., of the report. In this section some attempt has been made to summarise the requirements of school accommodation in the immediate future, and to indicate the relative gravity of cases of deficiency.

In accordance with circular letter El. Ed. 74 the managers of schools have now been supplied with a full and detailed record of repairs and structural alterations which will be necessary during the year 1907-8 in order to satisfy the requirements of the Board of Education and of the committee. Managers have also been at the same time informed as to the more substantial items of damage due to fair wear and tear for which the committee may accept responsibility under section 7 (1) (d) of the 1902 Act, and which, it is suggested, shall be made good during the next summer holidays, and managers have been requested to submit any observations thereon.

Consequently in Part II., Section II., under the heading "Particulars of schools deficient or inefficient in accommodation," only those schools are included which appear to demand special attention from the committee. Minor defects intimated to the managers as above are not recorded in this section.

As in my former report of 1904, I would again urge that a nominal accommodation on the basis of 8 square feet per scholar does not insure any degree of efficiency. Even where the accommodation is nominally adequate on this lower basis, or yet on the higher basis of 10 square feet, the planning and internal arrangements of the schools (as ill-shaped rooms and deficient corridor and cloak-rooms)

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space) frequently render it quite inadequate for the number of children habitually attending. In other words, the low official standards for floor space adopted in England leave little or no margin for comfortable working and render it extremely difficult to give in figures any true indication of the needs of a school as to accommodation.

In any case, a school building in which from 100 to 200 children are nominally accommodated, on an 8 square feet basis, in one large room without partitions or any means of deadening the dreadful babel of sound, should be severely condemned from the point of view of educational economy. The use of such a building for school purposes involves an enormous waste of ratepayers' money.

Another cause of delusion is the estimation of the efficiency of a school building by reference merely to the average attendance of the children. In many a school, which appears to provide sufficient accommodation when tested by a year's average attendance, efficient teaching is impossible during six months of the year owing to overcrowding. The accommodation of a school may be regarded as sufficient only when there is floor-space, at least approximately, for the highest number, and not merely for the average number, of scholars attending during the year. Generally speaking, for the purpose of the present report a standard of attendance somewhat more exacting than the average standard has been accepted as the basis of calculation.

Accordingly, in regard to the deficient schools scheduled Part II., Section II., the following information is supplied:—(a) Nominal accommodation; (b) the number of scholars on the register during that period of the year when the school reaches its full complement.

The nominal accommodation is that recorded in the Board of Education List of Public Elementary Schools on January 1, 1906. On October 31, 1906, managers of schools were requested to submit any observations as to errors or possible errors occurring in this official list; and many instances of important information has been received supplementary to that contained in the Blue-book. Where information may affect the official estimate of accommodation, attention is called to the same in a footnote.

The number of scholars on the register during that period of the year when the school reaches its full complement

(by which it is suggested that, approximately at least, the actual accommodation of the school should be measured) is in accordance with the school attendance returns for the past twelve months.

The committee will understand that any suggestions contained in the present report, as in the report of 1904, are based entirely upon such information as comes strictly within the purview of their educational adviser. In the ultimate solution of the various problems the committee will be assisted by that special local knowledge which will be placed at their disposal by the representatives of each of the districts concerned.

I take this opportunity of acknowledging the expert assistance received in the preparation of the report from Mr. E. G. Fowler, clerk of school buildings.

## TRAPPING AND VENTILATION OF SEWERS.

At the meeting of the Sanitary Association of Scotland in Aberdeen, Mr. Gilbert Thomson, C.E., Glasgow, read a paper on the subject of "The Trapping and Ventilation of Drains and Sewers." The question was by no means new to the Association. It was of great importance as bearing upon health, and large financial questions were involved. It was complicated by the fact that what was really one problem was artificially divided into two parts, the local authority being responsible for the sewers while the individual was responsible for the drains, but the latter was controlled by the former under minute regulations. In fact, the proprietor had little option in deciding upon the work; his function was to pay the bill. The local authority even had not altogether a free hand. Acts of Parliament which, in the nature of things, could not be up to date, were fairly specific in their requirements. He did not know if they were always obeyed, but at all events they could be presented like a pistol at the head of any objector. Who, for example, could hesitate to trap and re-trap his drains when he read, as one Act had it, "All sewers and drains, whether public or private, shall be trapped and ventilated by the Commissioners or the persons to whom they severally belong"? (Burgh

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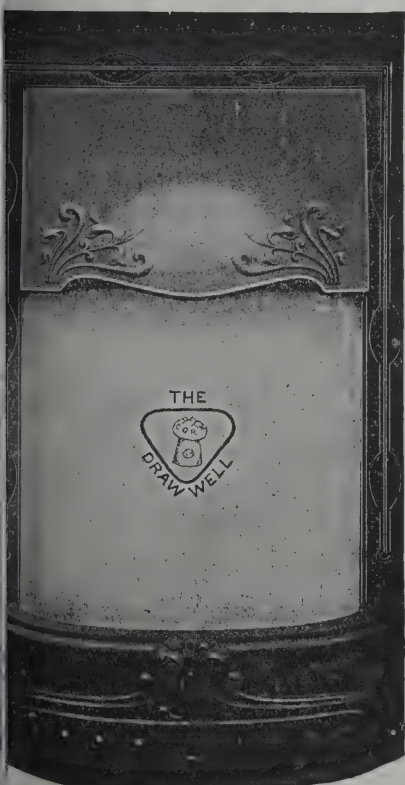
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Police [Scotland] Act, 1892, section 229.) Whether this meant that all sewers were to be trapped and all drains ventilated, or that both were to be trapped and both ventilated, did not clearly appear; one meaning which did not seem natural was that sewers were to be only ventilated, and drains both trapped and ventilated; but this was what was usually done. He did not profess to be an expert in bacteriology, and therefore spoke subject to correction when he said that the effect of bad drains in causing illness was probably not so much due to the gases which escaped into the house as to the foul liquid which escaped and saturated the surrounding soil, thereby providing an excellent breeding-ground for untold multitudes of germs. There was at least no doubt that the old idea about the danger due to an accidental whiff of sewer air, or the complete explanation of an outbreak of illness when a crack was discovered in a pipe, was exaggerated, otherwise their system of sewer ventilation would be utterly indefensible. As it was, they were not very consistent. There were other inconveniences in the usual system of trapping and ventilation in addition to the difficulty of ventilating the sewer. First among these was the liability of traps to choke. By abandoning the main disconnecting trap, they would at one stroke solve the problem of sewer ventilation. The alternative to the system of traps was simply tight pipes.

There was a feeling that our elaborate precautions, if they erred at all, did so on the side of safety. With this he did not agree. The present system of building regulations, while of service in preventing very bad work, had actually the effect of encouraging mediocre work, and directly discouraging the highest class of work. The work with which sanitary authorities had perforce to be content, compared with that which sanitary inspectors would like to get, and which he and others insisted on getting, differed as night from day; and, further, if freed from hampering by-laws and consequent complications, the better work would in many cases be the cheaper. He would therefore submit to the Congress that, while the present system of trapping and ventilating sewers and drains was suitable for former conditions, these conditions no longer existed, and the time had now come when disconnecting traps on either drain or waste pipes need not, in the case of pipes properly constructed and effectively tested, be compul-

sory. Anyone building a house should have the option of complying with the present regulations, and passing present haphazard tests, or of passing a stringent test, simplifying his work. He was perfectly satisfied that the latter would be safer, and as it would usually be cheaper it would before long be the course naturally adopted; and the present regulations might join pan-closets, street ventilating gratings, smoke testing and "D" traps in so museum of sanitary antiquities.

Mr. John P. Lawrie, sanitary inspector, Bo'ness, did not see what harm the poor old trap had done. The doctor did not cure them—he gave them the sense of security. He did the trap.

Dr. Matthew Hay, Aberdeen, had long been impressed with the force of the views put forward by Mr. Thomson with regard to drainage. He mentioned difficulties of a practical kind, and suggested precautions that should be taken in connection with the present system. He agreed with Mr. Thomson that it would be a very desirable thing to get the main sewers better ventilated than they were. The sewers in our large towns were very far from perfect. Though people feared microbes nowadays, they must be in mind that these odours had a bad and depressing effect, and had been the means of bringing about typhoid or tubercle and making people susceptible to disease.

#### A SUBTERRANEAN LIBRARY.

THE Carnegie library scheme, as applicable to Dundee, is developing to a conclusion. The branch libraries are being constructed, and now, seven years after the gift was made, plans have been prepared for the erection of the central reading-rooms. For this purpose a sum of 11,000 was ear-marked from the Carnegie gift. The cause of the delay, in the main, has been the lack of a suitable site. To secure such was only possible at an expenditure beyond the limits of the public purse. The private benevolence which was expected to be exercised for the purpose was not forthcoming, and accordingly the ingenuity of the committee and of the city architect, Mr. Jas. Thomson, has been severely taxed to find a way out of the difficulty. Mr. Thomson, says the *Dundee Advertiser*, has evolved a plan

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which, because of its boldness of conception and the skill with which natural difficulties are surmounted, is noteworthy to a degree. It was felt that, *ceteris paribus*, an extension of the Albert Institute was the line of natural development, but investigations, thorough and prolonged, showed that in the ordinary way such was impossible without cramping the grounds and marring the architectural features of the building. Accordingly, as stated, the city architect has been led to the unusual course of building below ground. At a meeting of a joint-committee of the free library committee and of the Town Council last week plans were submitted.

Mr. Thomson stated that he had carefully considered the matter to report as to what provision could be made for the extension or enlargement of the central library within the grounds of the Albert Institute, and had fully investigated as to the advantages and disadvantages of several methods of providing the required accommodation. He had prepared plans of several schemes, but it would probably be sufficient if the committee considered such of these as at first sight might be regarded as reasonable and feasible proposals. In every instance the light, utility and amenity of the existing buildings were injuriously affected, but the unavoidable and most serious objection was that all three schemes involved the building over a part of the existing open space. This objection was of itself fatal, and he was sure that any attempt to encroach on the open space would be received with disfavour, and would not be tolerated by the community. It naturally fell to be considered whether the additions could be provided within the grounds of the Institute by placing the accommodation underground and avoiding all the objections which are attendant to the other schemes. He had fully and carefully considered this alternative, and had prepared sketch plans of an underground scheme. They show the accommodation placed on the north side of the Institute buildings to the west of the Queen's statue, approached by an entrance porch on the north side of the present main staircase, this staircase continued down to the level of the new floor, and connected with a spacious octagonal entrance hall, from which are entered the main reading-room, 77 feet by 33 feet, and ladies' reading-room, 33 feet by 33 feet, special provision being made for the

accommodation of newspaper readers off the main reading-room. The plans provide for 184 feet of reading tables for men, 100 feet for ladies and 285 feet of newspaper stands, as compared with the present accommodation of 80 feet for men, 30 feet for ladies and 65 feet of newspaper stands. The effect of the top lights of the reading-room, as seen from the adjoining streets and grounds, has also been considered, and the roof so designed that the surface might be laid out as at present with turf and flower beds. In the suggestion of underground rooms, the city architect added, questions immediately arise in most minds as to probable damp, insufficient light and inefficient ventilation; but on investigation and by the application of up-to-date methods of construction these supposed difficulties are found to be imaginary. The placing of rooms underground is no new departure in design, more especially where ground is valuable or is necessary as open space, and there are many examples of excellent accommodation having been provided underground where circumstances demanded. In the present instance, he said, there is no practical difficulty in providing the required accommodation underground, and he had no hesitation in recommending that the new reading-rooms be so provided. He had not made his recommendation without giving the matter the fullest and most earnest consideration, keeping specially in view the provision of spacious, well-lighted, efficiently-ventilated and conveniently-situated reading-rooms, so designed as to admit of the greatest economy in management, without injury to the amenity of the Albert Institute buildings, and without building over any part of the Institute grounds, an action which would, he was satisfied, be an irretrievable blunder.

Internally the reading-rooms will be finished in faience and the floors will be laid with indiarubber tiles. The height of the ceiling will be 17 feet. As indicated, there will be little disturbance of the grounds. The roof lights or lanterns will be within the present enclosures, masked by flower-beds.

In the course of discussion the committee expressed its appreciation of the artistic design of the rooms, and its commendation of a bold and original idea skilfully worked out. The committee unanimously approved of the plans, and decided to recommend the Town Council accordingly.

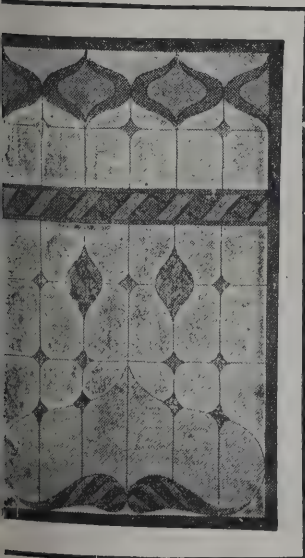
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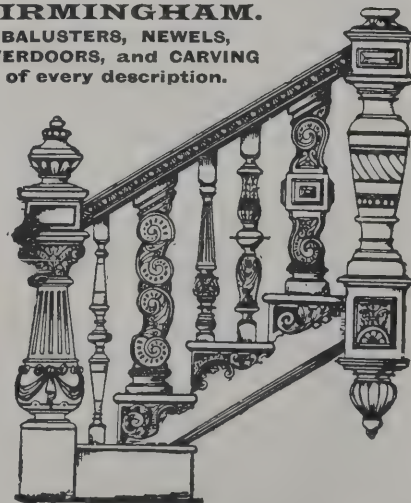
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## LONDON COUNTY COUNCIL EVENING SCHOOLS.

THE London County Council desires to call attention to the facilities offered for evening instruction in the various institutions maintained by it or under its control. In the various polytechnics, technical institutes and schools of art situated in the county, classes in science, art and technology, music, artistic handicrafts, &c., will be reopened towards the end of the present month. These institutions provide instruction of an advanced or technical character. Every facility is offered to different types of students to supplement workshop, office or studio practice by evening study under the most favourable conditions. Courses are arranged, where necessary, to prepare professional students for various examinations, art students for the examination of the Board of Education, and artisans for the examinations of the City and Guilds of London Institute, &c. The Council offers annually scholarships and exhibitions to the total value of 1,500*l.* for competition among students of polytechnics, technical institutes and art schools. The great success which has in the past attended the classes held at the Council's institutes and schools of art has made it necessary in several cases to provide for additional meetings of such classes to accommodate the increased number of students, and it is also proposed, provided the necessary number of students be forthcoming, to open certain new classes for which frequent application has been made.

The fees vary from 4*s.* 6*d.* to 10*s.* a session. In many subjects apprentices, learners and improvers are admitted free.

In thirty-six London County Council schools centres for instruction in commercial and science and art subjects will be opened. These centres are in a degree contributory to the polytechnics and technical institutes mentioned above, and are primarily intended for students not sufficiently advanced for the polytechnic classes. Advanced work, however, is taken in many of the subjects. The instruction given in these centres includes commercial subjects such as accountancy, banking and currency, commercial law, book-keeping, commercial correspondence, shorthand, typewriting and modern languages, science subjects such as physiology,

geology, mathematics, chemistry, hygiene, building and machine construction; and art subjects such as drawing in light and shade, model, freehand and geometrical drawing, memory drawing of plant-form and common objects. The fees vary from 1*s.* 6*d.* to 5*s.* the session for one or more subjects, according to the age of the student and the character of the subjects taken.

In 237 London County Council school buildings situated in every part of London ordinary evening schools will be opened this session. The instruction will, as a rule, be of a character preparatory to that given in the centres, and will embrace commercial subjects such as book-keeping, shorthand and modern languages, and general subjects such as arithmetic, geography, history and composition. Women and girls will be able to receive lessons in practical cookery, dressmaking, millinery, needlework and laundry work, and instruction in woodwork will be provided for men and boys. Gymnastics will be taught, and lectures by doctors and nurses on first aid, home nursing, health and infant care will be given.

There are eleven special schools which provide suitable instruction for the deaf.

In fifty-eight schools situated in poor districts no fee will be charged to any students, but as a rule a charge of one shilling for the session for one or more subjects will be made in the remainder of the schools.

A special effort is being made by the Council to encourage the study of English literature. Special lecturers have been engaged to deliver courses on the literature of various periods in twenty-four commercial centres and six secondary schools, &c.; in the latter the lectures will be of a more advanced type.

The polytechnics and technical institutes will be open, as a rule, during the week commencing September 23. The centres and the ordinary evening schools will be open for the enrolment of students in the week commencing Monday, September 16.

Any persons who desire further information concerning these institutions should apply to the schoolkeeper of any one of the Council's schools for a handbill giving particulars of the various institutions in the district. Full details are given in the prospectus of each institution, a copy of which may be obtained free on application at the institution.

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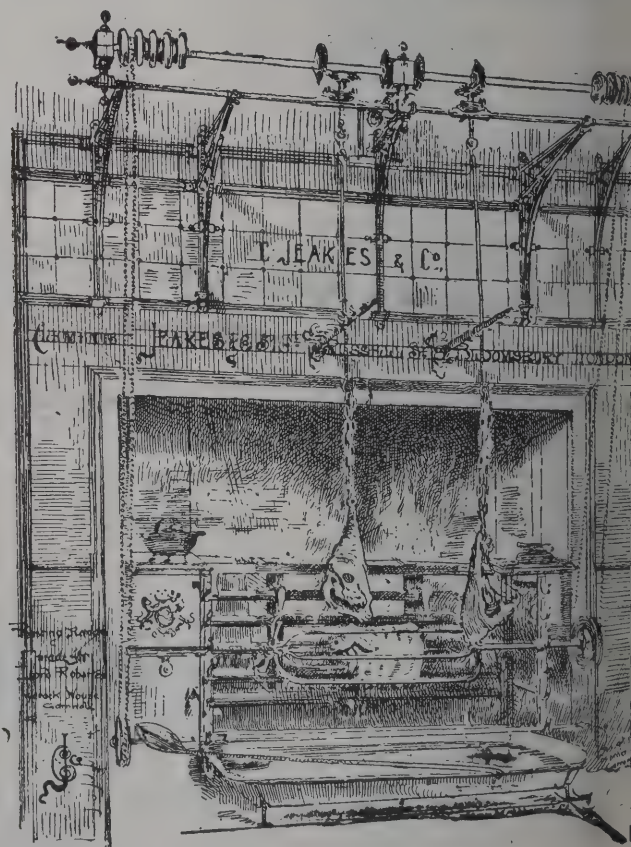
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## NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

## TENDERS, ETC.

\* \* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

BOOTLE (LANCS).—Jan. 31.—The Bootle education committee invite designs for a public elementary school for 1,000 children. Conditions and particulars may be obtained from Mr. J. Henry Farmer, town clerk, Town Hall, Bootle.

CEMAES.—Oct. 15.—The Twrc-lyn Rural District Council invite plans and specifications for a drainage scheme for the village of Cemaes, Anglesey. Competitors are requested to state the remuneration required by them for the plans, specifications and supervision of the work. Mr. Thomas Hughes, clerk, Brynaethwy, Menai Bridge.

DOVER.—Oct. 14.—The committee of the Dover pageant, July 27 to August 1, 1908, invite coloured designs for a suitable double-royal poster (40 inches by 25 inches). There should be some indication of the sea, a ship and Dover as the key of England. Prizes of 10l., 2l. 10s. and 1l. are offered. The prize-winning designs will become the absolute property of the committee. The Secretary, Pageant House, Dover.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

## CONTRACTS OPEN.

AMBLE.—Sept. 23.—For erecting County school to accommodate 220 scholars at Amble, Northumberland. Deposit 2l. 2s. Mr. C. Williams, secretary, Pearl Buildings, Newcastle-on-Tyne.

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**BACUP.**—Oct. 19.—For reconstruction, widening and improvement of the bridge carrying Blackwood Road over the river Irwell at Stacksteads. Deposit 1*l*. 1*s*. Mr. W. H. Elce, A.M.I.C.E., borough engineer, Municipal Buildings, Bacup.

**BIRMINGHAM.**—Sept. 27.—For erection of accommodation for able-bodied inmates at Birmingham workhouse. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

**BISLEY.**—For erection of a clubhouse at Bisley Camp for the Middlesex Rifle Association. Deposit 10*s*. Mr. C. E. Lancaster Parkinson, architect and surveyor, 44 Bedford Row, London, W.C.

**BOSHAM.**—Sept. 21.—For alterations and additions to the Bosham Council school, near Chichester. Deposit 10*s*. 6*d*. Mr. Lionel Thompson, secretary, West Sussex and Chichester Joint Education Committee, Horsham.

**BOWDON.**—Sept. 21.—For erection of sheds and boundary wall for the new town's yard. Deposit 10*s*. The Council Offices, Bowdon, Cheshire.

**BURSCOUGH.**—Sept. 23.—For furnishing and fitting-up Council offices at Burscough Bridge. The Surveyor, Surveyor's office, Stanley Institute, Burscough, Lancs.

**CALVELEY.**—Sept. 24.—For alterations at the Council school. Deposit 1*l*. Mr. H. Beswick, county architect, Newgate Street, Chester.

**CHAPPEL.**—Sept. 24.—For building in concrete the walls and buttresses for a new bridge at Chappel, Essex; also for supplying and fixing steel girders and ironwork required for same, for the Lexden and Winstree Rural District Council. Separate tenders. Mr. John Ennals, surveyor, Lexden.

**CHISELDON.**—Sept. 28.—For alteration of the Oddfellows' hall, Chiseldon, Swindon, into an infant school. Mr. R. J. Beswick, architect, 10 Victoria Road, Swindon.

**DARWEN.**—Sept. 21.—For joiners' work in renovating shop, 131 Duckworth Street, Darwen, Lancs; also for painting, papering and plastering houses and shops in Duckworth Street, Charles Street and Robin Bank Road. The Gas Engineer at the Gasworks.

**DISS.**—Sept. 30.—For erection of a secondary school at Diss, Norfolk. Deposit 2*l*. 2*s*. Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C.

**DUBLIN.**—Oct. 22.—For the superstructure of the coll in Upper Merrion Street, and for erection of worksh adjoining. Deposit 5*l*. 5*s*. The Secretary, Office of Public Works, Upper Merrion Street, Dublin.

**GLASGOW.**—Sept. 30.—For works of superstructure north wing of gatehouse block at Glasgow Royal Infirmary (1) mason; (2) wright; (3) plumber; (4) plaster; (5) t Deposit 1*l*. 1*s*. Mr. James Miller, A.R.S.A., architect, 15 Blythswood Square, Glasgow.

**GOLCAR.**—Sept. 23.—For erection of a branch store butcher's shop at Wellhouse. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

**GOLCAR.**—Sept. 27.—For erection of dwelling-house at shop at Town End. Mr. Joe Ainley, architect and surveyor, Chapel Street, Slaithwaite.

**HOUNSLOW.**—Sept. 24.—For erection of new schools Hounslow Heath, for the Heston and Isleworth Urban District education committee. Deposit 2*l*. 2*s*. Mr. Lancelot-Lang, architect, Council House, Hounslow.

**HUDDERSFIELD.**—Sept. 26.—For work in erection of house and shop at corner of King's Mill Road and Moor green Road. Messrs. John Kirk & Sons, architects, 10 William Street, Huddersfield.

**HULL.**—Sept. 23.—For demolition of existing building now upon the site, and for erection of club premises West Dock Avenue. Deposit 1*l*. Mr. Arthur East, architect and surveyor, 7 Land-of-Green-Ginger, Hull.

**HULL.**—Sept. 26.—For erection of a station government house at the gasworks, St. Mark Street. The Engineer's Office, Gas Offices, St. Mark Street, Groves, Hull.

**HULL.**—Oct. 3.—For supply of fittings and furniture the law courts, town hall extension. Deposit 5*l*. The Corporation Treasurer, Town Hall, Hull.

**ILLOGAN.**—Sept. 21.—For erection of Wesleyan Methodist church at Illogan Highway, near Redruth. Mr. Samuel Hill, architect, Green Lane, Redruth.

**IRELAND.**—Sept. 25.—For building boot factory and warehouse, also shops and dwelling-houses, at Castle Green Corner and Waterloo Street, Londonderry. Mr. Patrick Elliott, architect, Exchange Buildings, Castle Street, Londonderry.

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IRELAND.—Oct. 14.—For building a dispensary residence and dispensary at Anamoe, for the guardians of Rathdrum Union. Mr. George T. Moore, C.E., 1 and 2 Foster Place, College Green, Dublin.

LEISTON.—Oct. 26.—For erection of a higher elementary school and cookery, laundry and manual instruction for special subjects centres at Leiston, East Suffolk. Deposit 2*l.* The Education Committee, County Hall, Ipswich.

LONDON.—Sept. 27.—For enlargement of Holloway printing office, Hornsey Road, N. Deposit 1*l.* 1*s.* Mr. Wager, H.M. Office of Works, &c., Westminster, S.W.

LONDON.—Oct. 9.—For erection of a school for mentally and physically defective children at Pound Lane, Willesden Green, N.W. Deposit 3*l.* 3*s.* Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

MIDDLETON.—Sept. 25.—For construction of a cotton mill at Middleton, Lancs, for the Lancashire and Yorkshire Railway Company. The Engineer's Office, Hunt's Bank, Manchester.

MORLEY.—Sept. 24.—For various works in extensions to the Side Mills. Messrs. T. A. Buttery & S. B. Birds, architects, Queen Street, Morley, and at Leeds.

NOTTINGHAM.—Sept. 25.—For hot-water supply, atmospheric heating and other engineering work required at new mills, Vernon Road, Basford. Deposit 2*l.* 2*s.* Mr. Frank Lewis, city architect, Guildhall.

OAKMERE.—Sept. 23.—For alterations and additions to county police station at Oakmere, Cheshire. Deposit 1*l.* Mr. H. Beswick, county architect, Chester.

PORTLAND.—Sept. 26.—For erection of a Customs warehouse. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's Gate, S.W.

SALFORD.—Oct. 4.—For erection of a bakehouse at the Union workhouse, Eccles New Road. Mr. H. Lord, architect, 42 Deansgate, Manchester.

UPWEY.—Oct. 3.—For erection of a cottage at higher pumping station, Upwey, Portland. Mr. R. Stevenson Hen-

shaw, waterworks engineer, Council Offices, New Road, Portland.

WATERSTAVE.—Sept. 25.—For building a retaining wall at Waterstave Bridge, near Cullompton, Devon. The Council, Exeter Castle.

WALES.—Sept. 21.—For execution of improvements to St. Dogmael's National school buildings, &c. The Headmaster, Abbey Cottage, St. Dogmael's, Cardigan.

WALES.—Sept. 23.—For erection of forty houses, with roads, lanes and sewers, at Pontypridd. Mr. Arthur Lloyd Thomas, architect and surveyor, Church Street Chambers, Pontypridd.

WALES.—Sept. 23.—For erection of 21 cottages at Llantwit Vardre. Messrs. Evans, Williams & Evans, architects, Pontypridd.

WALES.—Sept. 23.—For construction of a public convenience in Penarth Road, Cardiff. Mr. W. Harpur, M.I.C.E., city engineer, City Hall, Cardiff.

WALES.—Sept. 24.—For erection of a villa residence at Blaenavon. Mr. T. Ruther, New William Street, Blaenavon, Mon.

WALES.—Sept. 24.—For building a shop and warehouse at Talywain. The Manager, Co-operative Stores, Abersychan.

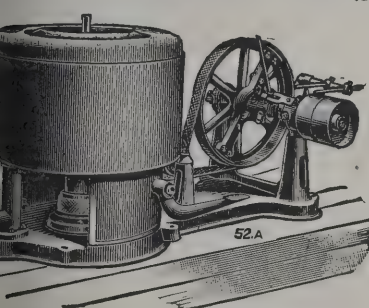
WALES.—Sept. 26.—For following works for Rhondda Urban District Council:—(1) Excavation and concrete-work in building piers for the Cymmer bridge; (2) supply, delivery and erection of about 12 tons steelwork and 2 tons cast-iron in the strengthening of Cymmer bridge, Porth. Deposit 1*l.* 1*s.* each. Mr. W. J. Jones, engineer, Council Offices, Pentre, Rhondda.

WALES.—Sept. 27.—For building two semi-detached villas on the St. Dogmael's Road, Cardigan. Mr. L. Lewis, architect and surveyor, Cardigan and Fishguard.

WALES.—Sept. 28.—For erection of two shops and dwelling-houses at Commercial Street, and two lock-up shops at Talbot Street, Maesteg. Mr. J. Cook Rees, architect, Neath.

WALES.—Sept. 28.—For building ten cottages and eight semi-detached villas at Hirwain, Glam. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

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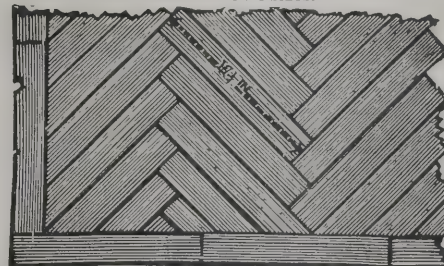


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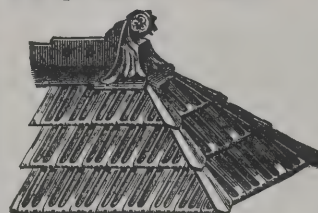


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WALES.—Oct. 11.—For erection of a swimming-bath, hall to seat 1,500, institute and library at Ferndale. Deposit 3*l*. 3*s*. Mr. T. E. Richards, architect, Market Square Chambers, Pontypridd.

WALES.—Oct. 19.—For proposed Council school at Rhiw-Syr-Dafydd, near Blackwood, Mon, to accommodate 300 children. Deposit 3*l*. 3*s*. Mr. R. L. Roberts, architect, Abercarn.

WATFORD.—Sept. 25.—For erection and completion of a County Council school for 960 children. Deposit 2*l*. 2*s*. Mr. W. H. Syme, architect, 4 High Street, Watford, Hertfordshire.

WESTONING.—Sept. 23.—For erection of residence at Westoning, near Amptill, Beds. Mr. E. T. Tutt, F.S.I., chartered surveyor, Market Place, Amptill.

WIDNES.—Oct. 2.—For erection of church of St. Mary. Messrs. Wright & Son, surveyors, Lancaster.

WOOLAVINGTON.—Sept. 21.—For extensive repairs to the roofs of Woolavington Council school, Somerset. County Education Office, Weston-super-Mare.

IN a reference to the Thames barrage scheme, Dr. Williams, the medical officer for the port, remarks that, unless measures are adopted to divert the sewage outfall, there will be a big stagnant sewer in the middle of London if the project is carried out.

THE Home Secretary has appointed a committee to inquire and report what would be the best means of securing to persons employed in lime and cement works and chalk quarries, who are paid by weight or by measurement, the means of ascertaining the correctness of the wages they receive. The committee is constituted as follows:—Mr. Ernest F. G. Hatch (chairman), Mr. J. N. Bell (of the National Amalgamated Union of Labour), Mr. Alfred Brooks (Associated Portland Cement Manufacturers), Mr. J. E. Harston (one of His Majesty's Inspectors of Factories), and Mr. Lloyd Morgan, K.C., M.P. Correspondence may be addressed to the secretary, Mr. A. Maxwell, of the Home Office.

## TENDERS.

### ASHFORD (KENT).

For erection of public conveniences. Mr. W. TERRILL, surveyor.

Bowles . . . . .	£548 0
Smith & Son . . . . .	488 0
Baker & Co. . . . .	459 0
Marx . . . . .	450 0
South . . . . .	438 0
LAWRENCE, South Norwood (accepted) . . . . .	390 0

### BEESTON.

For paving Waverley Avenue. Mr. E. A. BUSH, surveyor.

Hawley & Son . . . . .	£287 10
Thumbs . . . . .	260 0
Bower Bros. . . . .	244 0
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Bennett . . . . .	219 0
Raynor . . . . .	218 3
Summerfield . . . . .	215 1
Keeth & Wainer . . . . .	214 16

### BIGGLESWADE.

For extensions to isolation hospital. Mr. THOS. COCKRIE, architect, Biggleswade.

Howard . . . . .	£427 0
Woodman . . . . .	387 0
Phillips . . . . .	375 0
Wrycroft & Son . . . . .	365 0
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WRIGHT, Langford (accepted) . . . . .	330 0

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extension of Congregational Sunday schools. Mr. R. EATON, architect.			
Webster & Cannon	£2,478	0	0
Wayne & Son	2,350	0	0
W. & T. Cannon	2,175	0	0
Brook & Judd, Waddesdon (accepted).	1,839	9	0

### BIRCHANGER.

erecting farmhouse on Combe Sydenham Hall estate. Messrs. ANDREW & HOSEGOOD, architects, Williton.			
Dear	£1,113	0	0
ursland	829	0	0
urt & Sons	797	10	0
AMLIN, Stawley, Wellington (accepted)	785	0	0

### BLETCHLEY.

various street works on Tanqueray estate. Mr. JOHN CHADWICK, engineer.			
ilsby	£2,624	0	0
riffiths & Co.	2,427	4	7
arry	2,366	17	0
atson, jun.	2,239	11	9
urrall, Lewis & Martin	2,060	0	0
ckson	2,040	17	0
y Bros.	2,034	0	0
rueman	2,020	0	0
sher	2,000	0	0
ee	1,997	7	0
ilmott	1,853	0	0
illis & Powis	1,774	16	7
owdrill	1,769	14	0
rrell	1,722	0	0

### BRIDGWATER.

works of water supply at Cannington. Mr. FRANCIS PARR, engineer.			
nder & Son	£770	15	11
eikle	704	1	11
llard & Co.	500	0	0
yer	439	0	0
RIGHT & SON, Glastonbury (accepted)	400	0	0

### BROMLEY.

For erecting show-room and garage, with residential flat over, for Mr. J. E. Anthony. Messrs. DUNSMORE BROS., architects and surveyors, Honor Oak Park, S.E.			
J. & C. Bowyer	£1,598	0	0
Champion	1,420	0	0
Arnaud & Son	1,419	0	0
Nash	1,260	0	0
Watt	1,158	0	0
GATHERCOLE BROS. (accepted as modified)	1,140	0	0

### CARSHALTON.

For making-up Blakehall Road. Mr. W. W. GALE, surveyor.			
Swaker	£1,663	9	1
Woodhams & Sons	1,272	17	7
Hoffman	1,250	18	3
Wood & Sons	1,186	0	4
Bell & Sons	1,173	0	0
Free & Son	1,167	4	11
Pearce	1,155	12	0
Aedy	1,128	18	9
Potter & Co.	1,077	17	0
Adams	1,061	1	6
Streeter	1,054	14	11
Chittenden & Simmonds	1,019	6	10
May	991	10	0
E. & E. Iles	982	11	7
POTTER, Sutton (accepted)	968	14	1

### COALPIT HEATH.

For additions and improvements to parish church. Messrs. LINGEN BARKER, SON & ELLIS, architects, Bristol.			
Marsh & Stone	£560	0	0
Cowlin & Son	559	0	0
Browning	500	0	0
Smith	472	0	0
Clarke	455	10	0
Foster	435	0	0
Curtis & Son	432	15	0
Love	404	0	0
ADAMS & JEFFRIES, Oldland (accepted)	375	0	0

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For Industrial Co-operative Society's bakery in Kent Road.		
Wolfe . . . . .	£1,250	0 0
Saunders . . . . .	1,165	15 8
Lonsdale . . . . .	1,126	0 0
Knight . . . . .	1,005	0 0
R. & I. Butler . . . . .	945	0 0
KETTERING CO-OPERATIVE BUILDERS (accepted)	915	12 6

**DUNFERMLINE.**

For erection of a cemetery lodge, for the Parish Council.

*Accepted tenders.*

Scotland & Hutchison, mason . . . . .	£581	7 5
Mitchell & Kinghorn, joiner . . . . .	184	10 0
Robertson, slater . . . . .	22	7 6
Macgregor, plasterer . . . . .	35	9 0
R. & W. Smith . . . . .	75	0 0

**GRAVESEND.**

For enlargement of post office.

Beal & Hubbard . . . . .	£2,894	0 0
Milton & Wallis . . . . .	2,550	0 0
Gates & Sons . . . . .	2,500	0 0
Goose & Sons . . . . .	2,480	0 0
Lonsdale . . . . .	2,391	0 0
Archer & Son . . . . .	2,388	0 0
Phillips . . . . .	2,368	0 0
Seager . . . . .	2,349	0 0
Tong . . . . .	2,287	0 0
Hyde & Co. . . . .	2,209	0 0
Miskin . . . . .	2,165	0 0
Pavitt & Sons . . . . .	2,050	0 0

**IRELAND.**

For erection of a parochial hall in Skibbereen, co. Cork.

Messrs. W. H. HILL &amp; SON, architects, Cork.

Duggan Bros., Cork.

Murphy, Cork.

Kelleher, Cork.

JERMYN &amp; SON, Skibbereen and Bantry (accepted).

**KENDAL.**

For constructing three circular filters, &amp;c., at the sewer disposal works. Mr. F. W. OXBERRY, borough engineer.

Howie . . . . .	£1,783	10 0
Hinchcliffe & Co. . . . .	1,626	0 0
T. JOHNSON & SON, Salford (accepted) . . . . .	1,320	0 0
Woodburn . . . . .	1,308	17 0

**KINGSTON-ON-THAMES.**

For erection of telephone exchange, for H.M. Office Works, &amp;c.

Cassé . . . . .	£6,888	0 0
Fire-Resisting Corporation . . . . .	6,659	0 0
Lawrance . . . . .	6,599	0 0
Collinson & Co. . . . .	6,549	0 0
Leather . . . . .	6,097	0 0
Garrett & Son . . . . .	6,043	0 0
Drowley & Co. . . . .	5,889	0 0
Foster . . . . .	5,844	0 0
Martin, Wells & Co. . . . .	5,840	0 0
Cox & Sons . . . . .	5,795	0 0
Higgs . . . . .	5,785	0 0
Cropley Bros. . . . .	5,737	0 0
Shelbourne & Co. . . . .	5,675	0 0
Minter . . . . .	5,636	0 0
Fitt . . . . .	5,585	0 0
Jarman, Daws & Co. . . . .	5,555	0 0
Gaze & Sons . . . . .	5,497	0 0
Cropley & Sons . . . . .	5,318	0 0
Lawrence . . . . .	5,275	0 0
Patman & Fotheringham . . . . .	5,223	0 0
Wisdom Bros. . . . .	4,987	0 0

**LONDON.**

For rearrangement of hot-water supplies in staff administrative blocks, Western hospital.

Inns . . . . .	£347	0 0
Fairbrother & Co. . . . .	323	10 0
Handover & Gascoigne . . . . .	312	0 0
Watkin & Son . . . . .	298	18 0
Main . . . . .	297	10 0
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Spencer	244	0	0
J. & F. May	235	10	0
Cannon & Hefford	235	0	0
Cannon & Sons	228	2	0
Potter & Sons	218	10	0
Phillips & Son	212	0	0
SMITH & Co., Leicester (accepted)	204	15	0

For alterations to hot-water supplies and cold-water mains, Gore Farm hospital.

Dawson & Co.	£977	0	0
Potter & Sons	497	10	0
Cannon & Sons	490	0	0
Tilley Bros.	489	14	3
Brightside Foundry and Engineering Co.	487	0	0
Spencer	451	0	0
Cannon & Hefford	449	0	0
J. & F. May	445	10	0
WATFORD ENGINEERING WORKS (accepted)	415	0	0
Glendinning	340	0	0

For boilers and machinery for the North-Eastern hospital.

Lancashire Heating Co.	£13,800	0	0
Thames Ironworks, Shipbuilding and Engineering Co.	8,747	0	0
Danks & Co.	8,571	13	0
Brightside Foundry and Engineering Co.	8,497	0	0
Le Bas & Co.	8,340	0	0
Holdsworth & Sons	8,235	0	0
Haden & Sons	8,169	0	0
Dargue, Griffiths & Co.	7,951	0	0
Cannon & Hefford	7,950	0	0
G. & E. Bradley	7,610	0	0
Moorwood, Sons & Co.	7,500	0	0
Beeley & Son	7,450	0	0
Berry & Sons	7,250	0	0
Potter & Sons	7,223	0	0
J. & F. MAY (accepted)	6,985	10	0

LONDON—continued.

For alterations to fire-alarms and telephones, Gore Farm hospital.			
Watford Engineering Works	£400	0	0
Cannon & Sons	375	8	0
Gray & Son	300	0	0
Potter & Sons	299	0	0
Speedy, Eynon & Co.	295	0	0
National Telephone Co.	275	0	0
Galliers	257	1	11
Bryden & Sons	248	10	0
Private Wire and Telephone Installation Co.	226	0	0
ELECTRICAL ENGINEERING AND MAINTENANCE Co. (accepted)	175	0	0

NORTHAMPTON.

For erection of Holy Trinity Church.

Fisher	£10,600	0	0
Archer	9,510	0	0
E. Green	9,400	0	0
Martin	9,360	0	0
Sharman & Son	9,205	0	0
H. Green	9,184	0	0
Hawtin	8,940	0	0
COSFORD (accepted)	8,760	0	0

NORTHENDEN.

For extension of the churchyard. Mr. A. H. MOUNTAIN, surveyor, Manchester.

Haycraft	£348	2	0
Clarke & Sons	322	13	0
Boszon	306	0	0
Naylor & Sons	294	13	6
Snap & Sons	292	1	0
Naylor, jun.	286	16	0
WORTHINGTON, Manchester (accepted)	289	2	6

PENRITH.

For erection of wards at the Fair Hill hospital.

Accepted tenders.

Forrester, masonwork	£169	0	0
Jackson, plastering, &c.	117	9	9
Richardson, joinerwork	80	0	0
Jackson, slaterwork	32	8	0

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## TAUNTON.

For additions to Huish's school. Mr. J. H. SPENCER, architect, Taunton.

Potter	£849	0	0
Manning & Son	815	0	0
Pollard & Co.	811	0	0
Spiller & Son	779	10	0
MOGGRIDGE & SONS, Taunton (accepted)	730	2	2

## TRADE NOTES.

THE Bowes Museum, Barnard Castle, is being ventilated by means of Shorland's patent exhaust roof ventilators, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

UNDER the direction of Mr. W. L. Mason, F.R.I.B.A., architect, Ambleside, the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the Wesleyan school, Ambleside.

MESSRS. SAMPSON LOW, MARSTON & CO., LTD., are about to publish "Owen's Slate and Tile Tables," which will show at a glance the equivalent price per square, or per square yard, to any given price per 1,200 slates in all sizes.

MESSRS. T. T. SMITH & CO., Leicester, are executing the heating apparatus in connection with the new wing No. 2 north pavilion of the workhouse, Gravelly Hill, for the Aston Board of Guardians; and the heating apparatus and domestic supply for the new café and tea-rooms, Market Street, Leicester.

It will be seen from an advertisement on another page that the rights under the patent for the manufacture of the "Ideal Window" in England are for sale. In Germany the window has found unusual approval, and judging from the drawings it has features which are both novel and convenient. A specimen window will soon be exhibited in London.

MESSRS. NORTON & GREGORY, not satisfied with their varied and extensive practice, have acquired the business hitherto carried on by the Architects and Engineers' Supply Association, 4 and 5 Dean Street, High Holborn, W.C.,

which is now transferred to Castle Lane, Buckingham Gate, S.W. Messrs. Norton & Gregory will continue to stock the identical goods.

THE Coatstone Decoration Company, of 77 Mortimer Street, W., have secured the contracts for coating the walls with coatstone of palm-court, grille-room, corridors and staircases at the Waldorf Hotel, and corridors and staircases at the Piccadilly Hotel. The material gives an excellent imitation and cannot be detected from the natural stone with its masons' joints and blocked out in courses. We think when this material is better known it will be more extensively used in the future, both for interior and exterior work.

MESSRS. CHURCHILL & SIM, in their circular for September, state that August has been a month of crisis for the wood trade, consequent on the heavy reductions in selling prices, made in the first instance by Swedish shippers from the Upper Gulf and followed more or less by all Swedish, Russian and Finnish exporters. These reductions having somewhat exceeded the bounds of reason and necessity have fallen severely on importers in this country. Nevertheless a very large business has been effected, country markets having shown a great capacity for large purchases at the lower rates, and having been followed, though to a lesser extent, by London. In the meantime, owing to the minute importation, aided by an increase of some 1,700 standards in the dock deliveries, in comparison with those for August last year, a beneficial change has taken place in the figures of the London dock stocks.

## CORRESPONDENCE.

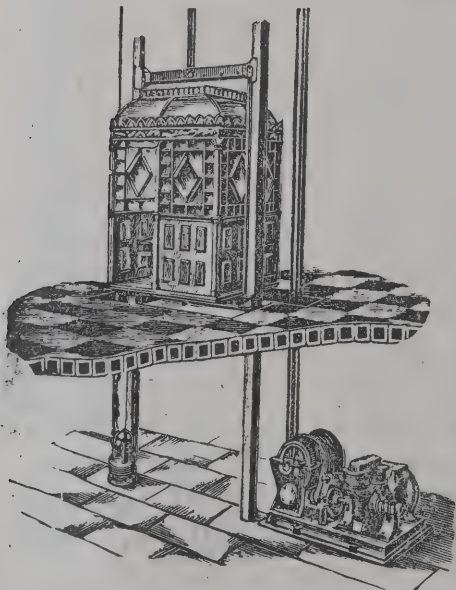
## Fire Protection.

SIR,—Referring to a notice of fire-resisting doors in your issue of September 13, page 14, we are sorry our name has been given to you wrong, and also an unfortunate error has been made in spelling the word "dying" instead of "dyeing."—Yours faithfully,  
EASTMAN & SON.

Uxbridge Road, Acton Vale, W. : September 17, 1907.

MR. MCKENZIE, builder, Grasslot, Maryport, has secured a contract for the erection of twenty-six dwelling-houses at Fletchertown, Mealsgate, for the Allerdale Coal Company.

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## VARIETIES.

THE Society of Architects on Saturday the 21st pay a visit to Letchworth (Garden City), and will inspect the estate with its houses, factories, exhibition cottages, &c.

THE Leigh Town Council have rejected a proposal to make the minimum wage of Corporation employes 25s. a week, but decided to increase the wages of scavengers from *d.* to 5*d.* an hour from April 1 next.

THE accounts of the Bath Corporation's electrical undertaking for the year ended March 1907 have been published. The year completes ten years of municipal control, and the result is a deficit of 1,440*l.*, although the capital expenditure stands at 162,000*l.*

A BOARD OF TRADE memorandum on the state of skilled labour in August states that employment during the month showed on the whole some decline as compared with July. On the other hand, there was slight improvement in the building trades as compared with a year ago.

THE President of the Local Government Board has authorised, under the grant voted by Parliament in aid of scientific investigation concerning the causes and processes of disease, a bacteriological investigation by Dr. F. W. Andrews of the air of sewers and drains.

LAST year there was a slight decrease in the number of new houses built in Sheffield. The total was 1,892, as compared with 2,010 in the previous year and 2,117 in the year before that. The biggest building year was in 1900, when 2,722 houses were erected.

AMONG the attractions of *Harper's Magazine* for this month is an article on "A Country under Two Kings," by Robert Shackleton, and another one on "Saracenesco, the Home of Models," by Grace Ellery Channing. The numerous illustrations throughout are of the usual high class.

At a meeting of the Cannock District Council plans for a proposed sewerage scheme for Cheslyn Hay, costing 600*l.*, were approved. As the parish council had requested that the sewer connections should be made to the boundaries of properties at the expense of the Council, a further sum 400*l.* was added to the intended loan.

At a meeting of the plans committee of the Aberdeen Town Council on the 12th inst., plans were submitted

representing property to the value of 10,250*l.* The plans passed during the past fortnight represent a total value of almost 18,000*l.* for the month. This may be taken as an indication of a slight improvement in the building trade.

THE Tamworth Rural District Council on Saturday resolved to apply to the Public Works Loan Board for a loan of 28,920*l.* at 3½ per cent., to be repaid by sixty half-yearly instalments of principal and interest, for the sewerage and sewage disposal scheme, and for a further 1,600*l.* at 3½ per cent., repayable by thirty half-yearly instalments of principal and interest, in respect of machinery.

THE Dunfermline Town Council have adopted the plans presented by the Corporation gas committee for a proposed building for improved sulphate of ammonia plant and housing for same, with workmen's room and lavatory attached. The engineer stated the probable cost of the building, fittings and plant, &c., to be 900*l.*

THE market committee of the Belfast Corporation has passed a resolution recommending the Council to instruct the finance committee to borrow the money necessary for the erection of the new abattoir already approved by the Council, and for which a loan of 30,000*l.* was sanctioned by the Local Government Board in 1899.

THE Urban District Council of Portrush invite tenders by November 2 for a thorough and complete lighting installation by means of either electricity or gas, and for this purpose have had specifications prepared by Mr. John Woodside, A.M.I.E.E., Ocean Buildings, Belfast, copies of which can be seen at the office of the Council, Town Hall, Portrush.

ACTING upon instructions from the Southend-on-Sea Council, Mr. E. J. Elford, the borough engineer, has prepared a scheme for the enlargement of the pierhead extension of the tramway and increasing the berthing accommodation. It is estimated that the scheme will involve an outlay of 73,000*l.*

A CHIMNEYJACK was charged at St. Helens police-court on Monday with causing his three children—aged five, seven and fifteen—to take part in a dangerous performance by climbing a chimney 110 feet high at Roughdales brickworks. Defendant, who claimed that the children were the cham-

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pion juvenile steeplejacks, said they had to be trained from early childhood. He was ordered to pay costs and was bound over.

THE Chester District Council were informed at their last meeting that the tender of Messrs. Jowett Brothers, contractors, Burscough, Lancashire, at 13,336*l.* had been accepted for carrying out the Upton, Bache and Newton sewerage scheme, and that they had already established works and made some little progress with the sewerage of Upton Heath.

At a conference held on the 13th inst. in Aberdeen between representatives of the settmakers and the quarrymasters regarding the reduction intimated by the latter in the making price of setts, the masters, with a view to corroboration, agreed to make a modification of 3*d.* per ton on one size of setts, namely, those of 3 inches by 6 inches. The reduction will thus be 1*s.* in place of 1*s.* 3*d.* The result of the conference was that, with this exception, the other reductions proposed are to stand.

THE North Walsham and Dilham Canal, nine miles in length, which runs from the river Ant, near Wayford Bridge, at Stalham and Smallburgh, through about fourteen parishes to Antingham Basin, in Norfolk, has been offered for sale by auction in London. The undertaking consists of the freehold of the greater part and the leasehold interest in the remaining part of the waterway, and its trade income is said to be close upon 400*l.* per annum. The property was knocked down for 2,550*l.*

THE final payment of compensation for damage inflicted by the recent explosion at Woolwich Arsenal has been made, and the sum of nearly 10,000*l.* paid out. This does not include damage to the arsenal itself, but only to private property. It will be remembered that in the "danger zone" by Woolwich more than half the windows in the shops and houses were broken, while some of the buildings were almost wrecked.

THE highways committee for the Kidsgrove Ward have reported that the surveyor had been approached by an architect from Fenton, who was in search of about two acres of land near the canal on which to build a large earthenware factory, and the architect had been shown the Council's land at Hardingewood, which he thought would

be suitable. The Council agreed to sell to the prospective purchasers, who at present are unknown, a plot of land situated by the side of the canal and the main line of the North Staffordshire Railway.

THE *Glasgow Herald* reports on good authority that an amalgamation is contemplated between two well-known steel roofing and bridge works in the Glasgow district which, if carried to a successful issue, will make the combined concern one of the largest in the kingdom. The principals are both very old-established and successful concerns, and as the one has a world-wide reputation in medium and light structural work and the other is equally well known as having successfully carried out some heavy contracts in recent years, the combination ought to be a strong one.

MR. H. DICKINSON, manager of the electric-lighting department at Leeds, informed the Corporation committed at their meeting that recent experiments have resulted in the discovery of alloys of tungsten and other rare earths which can be made into lamp filaments, apparently possessing very great advantages over the carbon filament hitherto employed. It was claimed that there was a saving of about 60 per cent. in the quantity of energy required for a given amount of illumination compared with the carbon filament lamps. To facilitate the trial by consumers the committee sanctioned the purchase of a few lamps for resale at the price of 4*s.* per 32 candle-power lamp, believing that any loss to the Corporation due to the reduced consumption of electricity per lamp will ultimately be more than compensated for by a resulting large increase in the number of consumers.

THE Town Council of St. Andrews has resolved to take a plébiscite of the ratepayers on the question of the augmentation of the water supply, and at a special meeting of the Council four schemes were selected, which have the approval of the engineers, Messrs. Bruce & Proudfoot. These, with the approximate cost, were as follows:—Lumbo Den scheme, an extension of the present supply at an estimated cost of 21,216*l.*; Lochty and Kinaldy joint scheme, cost 17,502*l.*; Cameron Burn scheme, 24,147*l.*; and a supply from Dundee, 26,131*l.*, with an additional charge for water of 571*l.* In connection with the Lochty and

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joint scheme and Cameron Burn scheme it was ed out that in the course of the next ten years addi- filters would require to be provided at a cost of . All the schemes aim at providing a supply of o gallons a day—equal to fifty gallons per head per or a population of ten thousand.

LENGTHY report was read at the monthly meeting of the am Rural District Council by the Surveyor for the highway district, Mr. G. F. Surtees, as to calcium de as a dust preventive. The cost of mixing it and ding it had been 7½ a mile. Its effect upon the road e it had been applied had been very marked and very icial. On the Tyneside Agricultural Show day an ous traffic passed over about a quarter of a mile e the solution had been applied, and no one could fail e its good effect in keeping down the dust, as on the ing road the traffic was raising clouds of dust. How- many experiments were being carried out with dust- tives with a view to grapple with the dust nuisance, o doubt in the near future something more definite e be known as to the best and cheapest method.

a meeting of the Metropolitan Asylums Board on ay letters were read from the Local Government ating—(a) that they were advised that the estimated f the proposed additional storage accommodation for t the Eastern hospital was unnecessarily high, and y the managers to reconsider their proposals with a o a reduction in the expenditure; and (b) that they e prepared to issue an order authorising the proposed diture on the goods reception station and porters' at Joyce Green hospital, but that they were not pre

pared to sanction so heavy an expenditure as 3,042½ on the erection and drainage on the block of eight cottages, and asking the managers to reconsider the matter with a view to a reduction in the cost of that portion of the scheme. It was agreed "that the managers approve of the erection at Belmont, instead of at Peckham, of the new laboratories for the preparation of diphtheria antitoxin and for bacteriological work, and authorise the preparation by the architects, Messrs. T. W. Aldwinckle & Son, of an amended scheme upon instructions to be given to them by the hospitals committee."

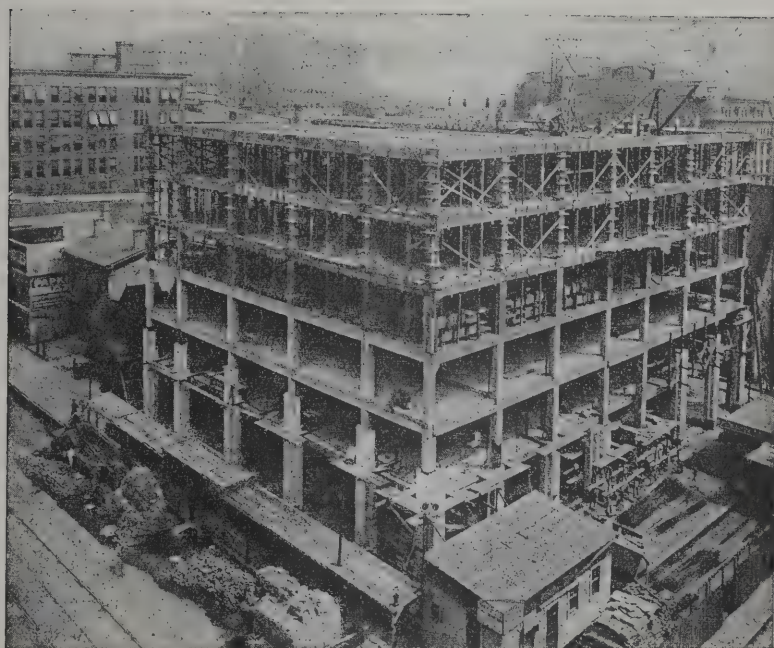
A LOCAL GOVERNMENT BOARD inquiry in connection with the electricity undertaking was concluded last week at the Wednesbury town hall by Mr. H. R. Hooper, an inspector of the Board. The inquiry was into an applica- tion of the Corporation for sanction to borrow 10,000½ for the purposes of laying down a complete plant for the generation of electricity. The town clerk explained that the Corporation considered the time had come when they should have their own electricity undertaking. They were at present taking their power from the Midland Power Company, but the mains belonged to the Corporation, and they had now only to instal their own plant. Mr. Hayward, on behalf of the Midland Power Company, strongly opposed the application, urging that it would not pay the Corpora- tion to generate their own electricity, and he further pointed out that in that case the present agreement between the company and the Corporation would be liable to be deter- mined. The result of that would be that there would be three concerns which would have the power to supply electricity in the borough of Wednesbury—the Corporation, the Midland Power Company and the Mond Gas Company.

The British Consul at Riga, in his official report states that the timber trade naturally stands first at the port, and about 13,600 rafts were floated down from the forests in 1906. This, however, was below the average of the last twenty years, viz. 15,000 rafts. Notwithstanding this prices were favourable to buyers, mainly due to the lack of organisation amongst Riga exporters of sawn goods. They tackle more goods than they can comfortably finance. Their one idea seems to be to turn out as much stuff as they can and get it shipped off before the winter comes, so as to have less stock to finance over during the close time of winter.

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The result is that, through fear of not clearing their production of the summer and autumn before the winter comes, and easing themselves financially by getting their money back, they operate one against another in making sales and forcing the foreign market. This is all to the advantage of the buyers in the United Kingdom, but it is not profitable to themselves. Already the Riga exporters begin to see that they have been over rash in selling ahead at lower prices. Not nearly as many sawing logs will arrive from the forests as they anticipated, and they are paying for their raw material much higher prices than ever they expected to do, and it is probable that prices for sawn goods will again stiffen—that is to say, unless the demand in the United States for Canadian spruce falls off, and spruce begins to compete in the United Kingdom with Riga white-wood again; but, unfortunately for Riga, Canadian spruce is taking a downward movement.

At the Birmingham police court last week a large firm of builders were summoned for that they, being the occupiers of a factory, neglected to securely fence a portion of dangerous machinery, in consequence of which a workman suffered injury on May 23 last. The defendants pleaded not guilty. One of H.M. Inspectors of Factories who conducted the prosecution said in one shop there were a number of machines driven by a gas-engine. Amongst them was a spindle moulding machine. The cutter revolved on the spindle at such a speed that it could not be seen going. It was a type of machine that was exceedingly dangerous and one that the Department insisted upon being protected. On May 23 a workman was feeding the machine when the wood kicked or moved, the man's hand slipped and his thumb was caught by the cutter. He sustained such injury that he was prevented from following his employment for thirteen weeks. At the time no guard was in use on the machine. The Inspector understood that the defence was that the guard produced was available for use if the workman had put it on, but his contention was that that guard was insufficient, and also that the employer was liable if the guard was not used. After hearing further evidence the chairman said the defendants had not proved to the satisfaction of the Court that they exercised due diligence as required by the Factory and Workshops Act. There was a technical breach of the law, because defendants

did not make it impossible for the machine to be run with protection. They would be fined 10*l.* and costs.

AFTER considering a report from a sub-committee aquarium committee of the Brighton Corporation recommend the acceptance of the offer of Messrs. J. F. Phillips Son, of Brighton, for heating the aquarium building at a cost of 45*z*l. At a meeting of the sub-committee Phillips advised that the work in the theatre and entrance hall could be completed within four weeks, and on behalf of his firm agreed to extend the guarantee of efficiency for two years to five years; to make good all defects within two years; to a retention of 10 per cent. of the amount of the contract for a period of six months; to give a guarantee of 55 degrees Fahrenheit in any part of the aquarium, with 25 degrees external temperature at 58 degrees with 32 degrees internal temperature; to give a guarantee that the whole installation shall be efficient and worked by means of the steam produced by one of the existing boilers only, subject to the condition that coal be substituted for the existing coke fuel, and if the guarantee is not fulfilled will carry out to the satisfaction of a borough surveyor such works as are necessary to furnish the required amount of steam without further cost to the Corporation; to give credit for old pipes, and to instruct the aquarium staff in management and working of the apparatus, and to instruct any new engineer appointed.

### ASSOCIATED PORTLAND CEMENT MANUFACTURERS (1900).

THE report for the year ended June 30 states that profits, after deductions, which include 138,619*l.* for repairs and renewals, amount to 403,524*l.*, making, with amount brought forward, 416,076*l.* After deducting managing directors' remuneration, directors and trustees' fees, 18,541*l.*; debenture interest, &c., 136,667*l.*; sinking fund, depreciation and reserves, 70,775*l.*; reserve for contingencies and doubtful debts, 10,000*l.*, a balance remains of 180,000*l.* The directors propose to carry to the general reserve depreciation account 25,000*l.*, and to recommend a dividend on the Preference shares to June 30 at the rate of 5½ per cent. per annum, leaving 36,208*l.* to be carried forward.

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d. The profits during the past twelve months have some improvement on those of the previous year, owing to the increased demand for Portland cement in export markets. Prices have been somewhat during the period, but, on the other hand, owing to increased cost of fuel, the expense of manufacture has increased, and will certainly be still higher for the current year. It will therefore be necessary to obtain increased prices for Portland cement.

## THE ENGINEERING EXHIBITION, OLYMPIA.

The exhibition, one of the largest of the series held lately at Olympia, has been opened and viewed by a large body of representatives of every profession and trade. While, of course, the preference is given to mechanical engineering, there are many and various side issues which appeal to the architect. The show of moulding and machinery both for wood and stone is a very large and is representative of the latest developments in the construction of machinery to this work. There is the chain drive, and quite an array of general joinery and wood-working machines, and the higher developments of art and architecture are met by the introduction of paints and materials which are included in the catalogue. We shall in our next issues give details of these, but as they are in the early stages of forwardness it is unwise to single out for mention the products of any particular firm. It is to say that the collection is a large—we had almost very large—and a representative one. The managers, Mr. C. Smith and T. W. Bridges, are to be congratulated on the successful result of their labours and of the function which it was inaugurated.

## UNIONISM OF THE RIGHT SORT.

On the evening, September 6, the workmen did honour to their employer, Mr. Charles D. Phillips, Emlyn Engineering Works, Brass and Iron Foundry, by presenting him with a beautiful silver cigar-case, with the following inscription:—"Presented to Charles D. Phillips, Esq., J.P., by the Gloucester employés, as a mark of esteem and recognition of him as an employer." The presentation

was made by Mr. Haynes (foreman patternmaker), who in a few suitable words said how much they as workmen appreciated the deep interest Mr. Phillips had always taken in their welfare, and referred to the many generous actions shown on his part in the past. A few words were spoken by Mr. Andrew Glass, who endorsed Mr. Haynes's remarks, and assured Mr. Phillips that the same good feeling which the men at Gloucester had shown that day also existed at the Newport works.

Mr. Phillips, in responding, said it was a very pleasant surprise to him to be the recipient of this gift from his workmen. He was glad to see this good feeling existing amongst them, and he assured them he would always do his best, in the interest of his men, to maintain this good feeling, which during the past forty years he had always endeavoured to do. Mr. Phillips remarked that he himself was not born with a silver spoon in his mouth, and had had to work hard to build up the business which gave the workmen employment. It was a great honour, which he himself much esteemed, in these days to have his men show a very good example of good fellowship in the common cause to do the best for one another. Mr. Phillips, in conclusion, addressed, in a few words, the apprentices and young men, giving them some sound advice for their future conduct and welfare, exhorting them to put all their energy into their work. They should try to make themselves indispensable, as upon this would depend their future success and also the success of the trade of the country.

## ASSOCIATION OF HOUSE PAINTERS.

The annual convention of the National Association of Master House Painters and Decorators of England and Wales was opened in Liverpool on Tuesday by the Lord Mayor.

Mr. G. A. Morton delivered his presidential address. In explaining, says the *Liverpool Courier*, the objects of the Association, he said it existed to guard and protect the more commercial interests connected with the craft, but it was mostly concerned in maintaining a high standard of work and a true artistic excellence. By so doing it benefited in the highest sense both its members and the public alike.

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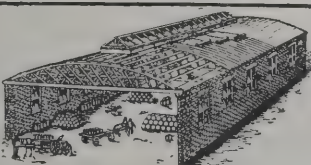
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Its large influence had a far-reaching effect in obtaining fair and equitable settlements in those disputes which unfortunately occurred from time to time between master and man, and avoiding the serious losses to both capital and labour when resort had to be taken to a strike or a lock-out. It also protected the interests of the craft against any unfair monopolies of manufacturers. In regard to the education of apprentices, prizes were offered for the best work, both plain and decorative. It was a remarkable fact that in this country the provinces almost entirely provided the future workman. The apprentice, if not practically unknown in the Metropolis, was certainly not encouraged. Happily, a movement was now on foot in London to remedy that defect. Though they did not undervalue the great and good work that schools of art and technical schools were doing throughout the country, they felt that no system of education in the crafts was so good and so productive of the best workman as the old-fashioned way of apprenticeship. It was due to a conviction that master painters were failing in their obligations to their boys and young men, and that the schools of art and technical schools were not taking their place, that caused that Association to establish some four years ago a school of decorative painting in Manchester on the lines of those existing abroad, particularly in Germany. Owing, however, to lack of support, and the difficulty and expense of sending boys from districts distant from Manchester, the school was not successful in point of numbers, in which respect only was it a failure, and for the present it had been suspended. All efforts for the better education of the decorator would not avail so long as a mistaken system of competition prevailed. To the ordinary commercial mind there was only one kind of competition, namely, that of price. As a matter of fact, there were other kinds far more intrinsically important. There was competition in quality of work, in the artistic conception, and in the carrying out of a scheme and in avoiding excess, for good decoration did not necessarily mean superabundance, but in most cases the reverse. Competition of merit, not of price, was so frequently ignored that the painter of to-day had little time or encouragement to do his best work; his chief concern was not to lose on the contract. Colour, he proceeded to remark, was the real test of the true decorator. Most educated people could

appreciate a good colour scheme when completed, but were able to work out and obtain a really successful one. There might be all the difference in colours that there is in music between a pantomime song and a Beethoven sonata. Design in decoration seemed to him to have gone considerable change, and in some respects deteriorated during the past few years. Tracing the evolutions that had taken place in design he attributed these in some measure to the changed conditions of social life. We had now observed, the smart set, the eagerness for sport and motor-car, and we were expected to keep pace with it. There was no time to consider whether a design was good or not, something more exciting, if temporary, was demanded. Those conditions were bound to have an effect upon the decorative art of to-day, and to retard the advance of a purer, simpler, more refined and better style of decoration.

Sir William Forwood said it was a matter of great gratulation that their convention should have a practical side, and that they should not meet merely for the purpose of talking, but also of seeing what had been done in the processes of manufacture, and also the most recent materials with which they had to do. No one could go to that exhibition without being struck with the remarkable progress made in decorative art during recent years. The work of the apprentices and pupils showed that the education of their students was excellently carried out. So the examples of craftsmanship on exhibition were magnificent. Whilst admitting that their progress in decorative art had been very great, he thought they should consider themselves the question whether it had been, and was proceeding upon the right lines, and whether it was true progress or simply a reaction from a very bad period? They should also consider whether in regard to decorative art they had not arrived at a period where they were, so to speak, waiting for the development of a new art. It seemed to him that that was exactly what had happened at the present moment. Colour was the test of decoration. Unfortunately the new art strove after originality; he thought art ought to strive after beauty. It did not care what originality they might have; if the design itself was not beautiful the effect could not be good. He knew of a house built and decorated for a gentleman

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When the work was finished was told by the architect must not have one picture in it. At last after great deal of persuasion this gentleman was allowed to hang just one picture of a distinguished tradesman and ancestor. He (Sir William) believed there was no more beautiful form of decoration than pictorial decoration of the highest class, and he did not believe decoration would be proceeding on right and true lines until it recognised that and led up to the pictorial form rather than turn it out of the house and discard it. Pictorial art in this country had made great strides, but they could not expect it to make great strides unless it had encouragement. If in carrying out their house decorations they excluded pictures, he wanted to know what was to come of the art of England. To adorn their houses with pictorial art was the best form of decoration they could adopt.

The first business session of the convention was held in the afternoon, when various reports were received and considered, dealing with the work of the Association in its various branches during the year.

### DEATH OF A STEEPLEJACK.

An inquiry has been held in Glasgow into the case of the fatal fall of John Goldie, a steeplejack, from the summit of a chimney at Messrs. Townsend's works, Port Dundas. From the evidence of a bricklayer, William Hall, it appeared that Goldie was employed to help witness, who, with his brother, were present at the time of the accident. Before the ascent was made there were certain preliminary operations, which witness described in detail. These operations were carried out by witness, his brother, Goldie and others. The ascent was made on a chair by means of an endless circular wire rope, the person making the ascent being able to regulate the height of the ascent. Witness saw Goldie at the top of the chimney shifting his block and tackle, an operation which he could do without any assistance. Witness noticed that Goldie managed to get the block to the place where he wanted it to be. The brim at the summit of the chimney was eighteen inches in breadth and the diameter of the flue measured 13 feet. The

chimney was the highest in the world. Including the iron-work at the top the chimney was 488 feet high. The brick-work was 466 feet high. Goldie was at the top of the chimney about half an hour. Witness and the others were waiting at the base of the chimney on Goldie signalling. The signalling was done by shouting. No shouts were heard by them until just at the moment they saw Goldie fall from the top. Previous to that witness observed that Goldie had gone round to the other side of the chimney in order to escape the fumes which were being emitted very thickly for a time. He did not think that Goldie could have been overcome by the smoke. Witness himself had spent a whole day on the chimney coping, and had not been seriously inconvenienced by the smoke. Around the top of the chimney were two rails—forming part of the iron crown which ornamented the top—one at the height of a man's waist, the other at a height a little above a man's head. These rails acted as a protection. Deceased had been on the head of the chimney on only one occasion previously. Witness ascended the chimney on the Saturday following the accident and found everything in order.

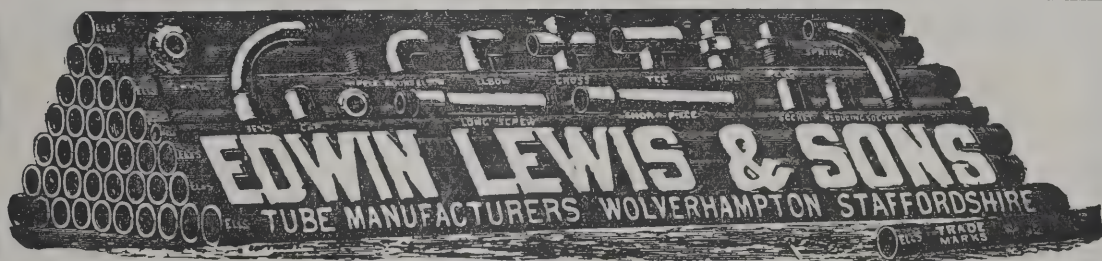
The jury came to the conclusion that Goldie's fall was not due to any part of the chimney or apparatus giving way.

### ENGLISH CHURCH, KHARTOUM.

Rapid progress is being made with the construction of the foundations of the English church at Khartoum. The site chosen is very convenient—a parallelogram of which the long sides face north and south, the latter fronting on Khedive Avenue, while the road bounding the former divides it from the gardens of the palace. At a short distance from the west is the open space in which has been erected the Gordon statue, and therefrom runs one of the main roads of the town towards the site of the new railway station. For climatic reasons the actual building of the church is being raised to a height of 2 feet above the road level, the spare ground being laid out as gardens, a pleasant feature made possible by the inclusion of the area within the bounds of the water supply of the palace. The whole is to be enclosed with a low wall and iron railings.

The plan takes the form of a Latin cross, having on the

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south a detached campanile connected with the nave by a covered way, its lower part serving for a baptistery. Roughly speaking, the greatest length over all will be 54 mètres, the width of the chancel, nave and transepts 13 mètres, and at the crossing about 19 mètres. It has been designed to provide accommodation for about 600 persons. On each side of the nave and transepts are narrow passage aisles, and an ambulatory encompasses the chancel. The transepts will be arranged for use as chapels, that on the south for daily services, while the north transept is to be called the "Gordon Memorial Chapel," and will contain panels in memory of those who have fallen in the execution of their duty in the Soudan. Many of these have already been promised. The main entrance is at the west end, but this will be, as a rule, only for ceremonial or special occasions, side doors being provided both on the north and south within the shelter of the transepts, so that the prevailing winds being from one or other of those quarters an alternative means of access will always be available. The choir is raised three steps from the nave, and is furnished with a screen to be made of wood from the Bahr-el-Ghazal, with which also or with some other suitable native wood the stalls are to be made.

The design of the church itself is in many ways remarkable. One great principle has been kept always in view by Mr. Weir Schultz, the architect, that of absolute simplicity and utility. He has broken away from all the stereotyped "styles." There are pointed arches, because this construction reaches the ground quicker and does not need heavy buttresses to resist the thrust. The roof has a low pitch, because that is more suitable to the special local conditions, and the smaller windows and openings of the ambulatory are not arched, but built with simple sloping slabs, because this is more easily and cheaply done by the local labour available than the arched form. The material generally will be a sandstone of two colours, yellow and a pale red, which is got from a hill called Gebel Arli, on the White Nile, and about twenty-eight miles south of Khartoum. The floor will be laid with Soudanese marble and the roof covered with green glazed corrugated tiles; indeed, the church will be built with local labour and local material as far as possible, and the choice of its details is ruled by this important consideration. The windows will be shaded

from the direct rays of the sun, and in hot weather can be screened with mats to be kept cool with the trickle of water from a perforated pipe. Within, a fine and dignified effect is produced by the great constructional ribs which uphold the roof; all the more striking because they are not fretted with recrudescences of obsolete or alien ornament, but tell their own tale in the simplest of architectural language. The works are under the supervision of Mr. John Latimer, who is aided by the advice of Captain Done, R.E., Director of Military Works for the Soudan and a member of the church building committee.

To complete this great undertaking something like 7,000*l.* is still needed, not counting the cost of the campanile and a most necessary increase of the endowment fund. There is money enough in hand to carry on the building for about another year, and to avoid the waste and loss of an interruption in the work it is hoped that the interval of time may suffice for the raising of the remainder. A general appeal for help is shortly to be made.

#### MUNICIPAL BUILDINGS, EAST HAM.

The following letter has been sent by the Local Government Board to the Town Council of East Ham:—

"Sir,—I am directed by the Local Government Board to state that they have had under consideration the report made by their inspector, Mr. Hooper, and their architect, Mr. Kitchin, on the local inquiry held by them in reference to the application of the Town Council of East Ham for a provisional order to amend the East Ham Improvement Act, 1898, in regard to the erection of public offices, technical institute and other buildings referred to in section 82 of that Act, and in regard to the audits of the accounts of the Council.

"It appears that the amount sanctioned by the Act for the erection of all the buildings referred to—namely 55,000*l.*—was not based on any detailed estimates of the cost of providing the buildings, and that no plans have been prepared at the time of the passing of the Act. It would also seem that the requirements of the district have not at that time been considered in any detail, and that subsequently, when the Council decided to proceed with

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erection of some of the buildings, they did not care-satisfy themselves beforehand as to the amount of expenditure which their proposals involved, or determine any degree of exactitude the scheme to be carried. The estimate of 55,000*l.* placed before Parliament as probable cost of all the buildings referred to in the Act had been exceeded very largely, notwithstanding that some of the buildings included in the estimate have not been commenced. The Board cannot but consider that the estimate adopted by the Council in regard to the erection of buildings is open to adverse criticism, and that to an appreciable extent the excess expenditure has been attributed to the want of due consideration beforehand of the cost and to the absence of carefully prepared estimates of expenditure involved.

It appears also from the report that the supervision of work when in progress was in some respects very satisfactory. In some cases orders for extra work or alterations of works appear to have been given by the clerk of works, instead of by the Council through the architect. Moreover, the measuring up of the work was done almost entirely by the clerk of the works, a course which is obviously undesirable. The Board understand that it is the duty of the architect, under the terms of the Council's agreement with him, to measure up the whole of the work, but this duty appears to have been delegated to the clerk of the works. The Board consider that the arrangement made by the Council with the architect in regard to this matter was unusual and undesirable, and that provision should have been made for the work being regularly measured up by an independent quantity surveyor. Under all the circumstances of the case, however, the Board are prepared to issue a provisional order to give effect to the several proposals included in the applications to the Council. The Board's sanction to any loan in excess of the sum of 5,000*l.* and 55,000*l.* authorised by the Act will be necessary, and the sanction cannot be given until the matter has been confirmed by Parliament.

The amounts for which sanction to borrow is desired by the Council appear to be:—(1) Excess expenditure incurred in connection with the public offices, technical institute, &c., 23,600*l.*; (2) additional buildings for the sanitary department and for education offices, 5,250*l.*

"As regards the first mentioned amount, the Board consider that certain items should be deducted from the proposed loan. A statement of these items, amounting to 2,022*l.* 7*s.* 10*d.*, is enclosed, and the Board would be prepared to sanction a loan for 21,578*l.* In fixing the period for repayment of this loan, the Board would regard as included in it all the capital expenditure incurred in the furnishing and equipment of the buildings.

"As regards the sum of 5,250*l.*, I am to state that the Board undertake that, in the event of new offices for the education staff of the Council being provided, an arrangement would be made with the Essex County Council under which the East Ham Town Council would be relieved of the loan charges in respect of the existing offices erected by the late School Board. Before further considering this matter the Board will require to be informed fully of the arrangement proposed to be made.—I am, sir, your obedient servant, ASSISTANT SECRETARY."

#### GLASGOW MAIN DRAINAGE.

THE works in progress for the sewerage of Glasgow were lately visited by members of the Corporation. The following are the contracts in progress:—Outfall sewer No. 1, contract No. 1—Messrs. James Goldie & Son, Ltd., contractors, 35,250*l.* 3*s.*; outfall sewer No. 1, contract No. 1a—Mr. John Watt, contractor, 48,595*l.* 8*s.*; outfall sewer No. 1, contract No. 2—Messrs. William Kennedy, Ltd., contractors, 61,813*l.* 16*s.* 8*d.*; outfall sewer No. 1, contract No. 2a—Messrs. Kinnear, Moodie & Co., contractors, 45,381*l.* 9*s.*; sewer No. 6, Dumbreck sewer—Mr. Andrew Blair, contractor, 5,874*l.* 9*s.* 9*d.*; Shieldhall works tanks contract—Messrs. James Goldie & Son, Ltd., contractors, 82,940*l.* 14*s.* The gross amount of these six contracts is 279,856*l.* 0*s.* 5*d.*; the gross value of work done on these to date is about 170,000*l.* The total length of main sewers to be constructed under the above five sewer contracts is 9,175 yards, of which 6,175 yards have been constructed, leaving 3,000 yards to finish.

The outlet works, Shieldhall, are being carried out by the Clyde trustees. Shieldhall machinery buildings—Sub-structures contract (Messrs. Good & MacKinnon, contractors),

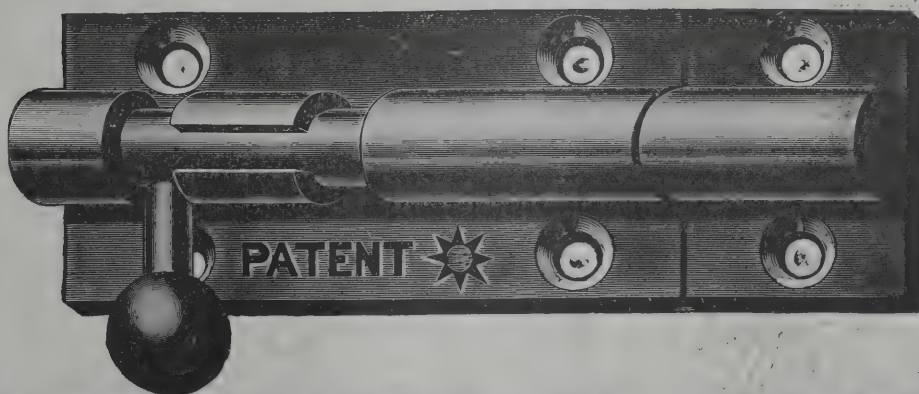
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22,526*l.* 1*s.* 9*d.*; power contract (Messrs. Lowdon Brothers & Co., contractors), 17,063*l.*; machinery contract (Messrs. the Barrowfield Iron Works, Ltd., contractors), 25,756*l.* These contracts are being carried out under the supervision of Mr. W. D. Hamilton, the consulting engineer.

The following work is still to be commenced:—Kinning Park pumping station, rising main tunnels, low-level sewer No. 4, from Kinning Park pumping station to Govan Street at Crown Street; reversing sewers along line of sewer No. 4, storm-water overflow sewer, sundry smaller works, Mount Florida, Cathcart and Pollokshaws; sundry accessory works, wharf barges, &c., Shieldhall; burgh of Govan intercepting sewer, by the burgh of Govan; Thornliebank sewer, by the County Council of Renfrew; Rutherglen sewers, by the burgh of Rutherglen and the County Council of Lanark.

### LOAD TESTS OF A FERRO-CONCRETE FLOOR.

On July 5 a series of tests was conducted under the direction of Messrs. Johnson & Baxter, architects, upon one of the floors in the new bonded warehouse erected for Messrs. James Watson & Co., Ltd., at Seagate, Dundee. The new building was designed of ferro-concrete, and includes some structural features of unusually interesting character. It takes the place of the warehouse destroyed by fire in September, 1906, and every precaution was taken to guard against any repetition of the disaster. The warehouse includes five storeys covered with a flat roof, and occupies a site of about 27,000 square feet. It is divided into three entirely separate sections by fireproof division walls, through which the only means of intercommunication are provided by firelocks. In addition to this novel structural feature, a very complete system of ferro-concrete ducts has been installed with the object of permitting the spirit to be drawn from any floor of the warehouse where an outbreak of fire may have occurred, thus facilitating the extinction of the flames by removing inflammable material from their vicinity.

The floor area selected for the purpose of the official tests was situated on the ground floor, and measured 19 feet 6 inches by 12 feet 6 inches. It is carried by one

of the main beams, 8 inches wide by 6 inches deep, inclusive of the floor slab, which is 3 inches thick. The construction, including main and secondary beams and continuous floor slab, is of standard Mouchel-Hennebly design, having bent longitudinal reinforcement to provide for continuous-beam action and transverse stirrups to withstand shearing stresses.

In compliance with the terms of the specification, floor area was loaded to the extent of  $3\frac{3}{4}$  cwt. per sq. foot, or 50 per cent. beyond the normal working load. The measurement of deflection three sensitive instruments giving readings in 500th parts of an inch, were placed beneath the beam, one in the middle of the span and others at the distance of 6 inches from the supports. The following table we give the various deflections observed during the process of loading:—

Time.	Load in cwt. per square foot.	Deflection of decimals of an inch.		
		Left-hand end.	Middle.	Right-hand end.
12 Noon	0.00	0.000	0.000	0.000
—	1.64	0.004	0.036	0.016
1.0 P.M.	2.46*	0.016	0.080	0.020
2.15 P.M.	2.79	0.020	0.096	0.020
2.40 P.M.	3.77	0.040	0.164	0.040
3.40 P.M.	3.77	0.040	0.168	0.040
4.0 P.M.	3.77	0.040	0.168	0.040

\* This load remained unaltered for one hour.

At 4 P.M. unloading was started, and at 9 A.M. on succeeding morning, when the load had been entirely removed, the deflection registered was scarcely appreciable. By 12 noon of the same day the indicators of the instruments all pointed to zero.

The maximum deflection of 0.168 is equivalent to  $\frac{1}{10}$  of the span, which compares very favourably with the portion of  $\frac{1}{80}$  permitted by the terms of the specification.

Other satisfactory points were that no surface cracks were developed in the concrete, and that the perfect tightness of the construction was proved by the disappearance of deflection on removal of the loading.

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**GERMAN ADMINISTRATION OF BUILDING LAND.**

Good example of the scientific manner in which German municipalities attack administrative problems is shown by their housing policy. Germany, like Britain, has gone through an industrial revolution, and is changing from a nation of agriculturists to one of urban manufacturers. Hence, precisely the same problems of overcrowding, and the consequences which overcrowding brings, present themselves. Germany, however, is unlike Great Britain in being recognised that her industrial prosperity depends on the maintenance of a healthy population, and has set itself to secure this by a municipal housing policy with a consistent and scientific thoroughness unknown in this country. Owing to the fact that local authorities in Germany have a freer hand than have similar bodies in England, the details of that policy vary from town to town and state to state. The essential characteristic everywhere, however, is that German municipalities do not shirk their duty simply to meet the evils of overcrowding when they are so conspicuous as to be intolerable, but to make plans in advance which shall, as far as possible, prevent the evils from arising. On the ground that prevention is better than cure, they are continually planning and adopting measures which in this country would be described as "biting the bullet" or "unnecessary," because they show the forethought as would be required by shareholders of any board of directors of ordinary competence. There are three main lines along which municipal action with regard to housing has proceeded. The first is concerned with the acquisition of land, the second with the regulation of building, the third with taxation. A German expert who visited England some time ago remarked that the primary need of our towns was the adoption of a far-seeing and transport policy by local authorities, and added, "that respect our German communities are in a far more fortunate position." How that more fortunate position has been brought about may be gathered from a Prussian law as to housing of 1901, which urges that all municipalities shall, in the first place, retain in their own hands

all the land which they possess, and, second, purchase more land whenever it comes into the market. "The evils which at present prevail have their chief source in an unhealthy speculation in land [*i.e.* because such speculation raises rents]. . . . An effective remedy for keeping it within bounds can be found in the acquisition of as many plots of land as possible by those towns where constant growth is transforming agricultural and garden land into building land . . . it will certainly be in conformity with a sound land policy if even towns in which a house famine exists do not sell outright those parts of the land they own which are suitable sites for cheap dwellings. . . . The community should keep the right of pre-emption or some other adequate security that the plots of land will be permanently withdrawn from private speculation." The effect of this decree was analogous to a circular letter from the Local Government Board specially requesting British municipalities to buy land whenever they saw an opportunity of doing so. That the policy recommended is popular with local authorities is shown by the large amount of land held by many of them. Thus six towns own from 23 to 59 square yards per head of inhabitants; nine towns, including Berlin, from 60 to 120 square yards; five towns from 120 to 240 square yards. In the words of the Minister of Commerce of Hesse, which has established a national credit bank to lend money to towns acquiring land, "The early purchase of land in all parts of the country must be regarded as the first duty of towns."

When land cannot be acquired voluntarily the question arises whether expropriation should not in one form or another be sanctioned. The importance of giving municipalities the power to acquire land by compulsory purchase, when it appears desirable to do so, is not so necessary in Germany as in Britain, owing to the fact that the policy of voluntary purchase has there so long been in operation. Nevertheless, the powers possessed by German municipalities are considerable. The Saxon law confers on municipalities the power to compel an owner who hinders the laying out of streets or the creation of an orderly building plan in suburbs, by refusing to part with land, to surrender his plot in return for a similar plot elsewhere. Thus suppose the owners of five-sixths of a district suitable for houses want to build, and are prevented by one who

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holds an essential piece of ground in the centre or at the corner, and who refuses to sell it or build on it, they can appeal to the municipality to compel him to part with the land. In addition to this power of land redistribution, Saxon municipalities can, with the approval of the Minister of the Interior, compulsorily purchase land, not only, as in this country, to meet a specific and immediate need, but also when, on general grounds, such purchase seems likely to be in the public interest. An example of this policy is supplied by the town of Düsseldorf, which has recently incorporated a large area of surrounding country by purchasing it from the State or from private owners. "If," it stated, "a private owner is unwilling to sell, the town applies to the Landtag (i.e. the State Government), and if it can show that possession of the land is necessary for the welfare of the town, the Landtag compels the owner to sell." The practical effect is to enable a community to regulate its growth in accordance with a preconceived plan.

Such regulation can, however, be achieved without actual ownership by the system of "building plans," or "building zones," which form an important part of the housing policy of German municipalities. The essence of this system is given in the words of the Prussian Dwellings Bill of 1903:—"To prevent the price of land in and near towns from being raised through the town's extension plans not being prepared early enough, the local police authority must have the right to demand that building lines shall be decided on, and that streets or parts of streets shall be constructed. In the preparation of building lines care must be taken that squares, sufficiently numerous and large, and public gardens and playgrounds are provided for." That is to say, before any district as yet unbuilt upon is laid out for building, the local authority must prepare a building plan. This plan, which is ready perhaps several years before operations actually commence, specifies within what areas houses may be built, the lines of the streets, and the spaces to be reserved for public or private gardens, as well as the height of the buildings and their distance from each other. It would be tedious to give the details of these regulations, but their far-reaching character can be seen from what has been said. Their effect is not likely to be underestimated by anyone who compares with the squalid

suburbs of London or Glasgow the way in which open spaces and breathing room between house and house are preserved in the neighbourhood of the larger German towns. Instead of the growth of an old city reproducing new slums around it, as is done by the manufacturing towns of Great Britain, where buildings are erected without regard to posterity, and, of course, without a thought to beauty or pleasantness of life, the system of building plans introduces an orderly and regulated growth, based upon a reasonable forethought and the use of scientific knowledge which is not within the reach of our grandfathers.

Finally, there is the question of rating. The principle that land which is capable of being used for building must not escape with a low rate simply because its owner chooses to put it to a less productive use, or to no use at all, has been accepted by a large number of towns, and formed the subject of a recommendation made by the Prussian Finance Ministry in 1899 to those towns which had hitherto not adopted it. So far from being a device adopted by greedy municipalities, the system of rating land according to its selling value has received the imprimatur of the Prussian Government, which has prepared model by-laws for the guidance of small town councils as cared to adopt them. The effect, it is argued, is to tap the unearned increment received by persons whose land appreciates in value simply because the community's need for it is becoming imperative, and to discourage land speculation. It would be out of place here to enter upon the merits of such a policy; but it may perhaps be pointed out that the question which of various interests united in a site bears the burden of a rise in site values—a question which is dear to lawyers, and which is not answerable with any certainty—does not arise, however it is answered, the expediency of throwing the burden of rates on to sites rather than on to buildings. Frankfurt-am-Main has, indeed, gone unusually far in attempting to get at the unearned increment. When a property is sold it levies a rate upon any increase in the value of the property over that shown by the last valuation. No rate is charged on an increase of less than 30 per cent. 5 per cent. is charged on an increase of from 30 to 40 per cent., 10 per cent. on an increase of from 40 to 50 per cent., and 20 per cent. on an increase of 50 to 74 per cent. and 20 per cent. on an increase of 74 per cent.



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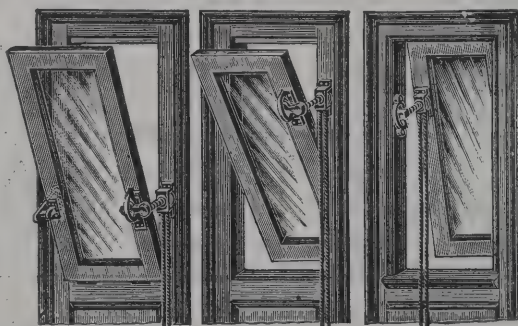
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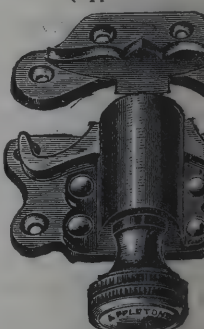
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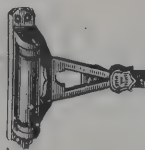
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# THE Architect and Contract Reporter.

FRIDAY, SEPTEMBER 27, 1907.

Published weekly, subscription 19s. per annum for Great Britain, and for Colonial and Foreign subscriptions £1 6s. 6d. Business communications to the Managing Director,

P. A. GILBERT WOOD,

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London has become one of the most important centres of the professions of Architecture and Civil Engineering. Arrangements have been made by Messrs. GILBERT WOOD & CO., Ltd., to establish Branch Offices in that district at 102 QUEEN STREET, S.W., Messrs. W. HAY & CO. becoming the representatives for all business purposes.

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## NOTICE TO ADVERTISERS.

In no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

## EDITORIAL NOTICES.

One of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff a VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

## TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

## COMPETITIONS OPEN.

BOOTLE (LANCS).—Jan. 31.—The Bootle education committee invite designs for a public elementary school for 1,000 children. Conditions and particulars may be obtained from Mr. J. Henry Farmer, town clerk, Town Hall, Bootle.

CEMAES.—Oct. 15.—The Twrc-lyn Rural District Council invite plans and specifications for a drainage scheme for the village of Cemaes, Anglesey. Competitors are requested to state the remuneration required by them for the plans, specifications and supervision of the work. Mr. Thomas Hughes, clerk, Brynaethwy, Menai Bridge.

DOVER.—Oct. 14.—The committee of the Dover pageant, July 27 to August 1, 1908, invite coloured designs for a suitable double-royal poster (40 inches by 25 inches). There should be some indication of the sea, a ship and Dover as the key of England. Prizes of 10l., 2l. 10s. and 1l. are offered. The prize-winning designs will become the absolute property of the committee. The Secretary, Pageant House, Dover.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

## CONTRACTS OPEN.

BACUP.—Oct. 19.—For reconstruction, widening and improvement of the bridge carrying Blackwood Road over the river Irwell at Stacksteads. Deposit 1l. 1s. Mr. W. H. Elce, A.M.I.C.E., borough engineer, Municipal Buildings, Bacup.

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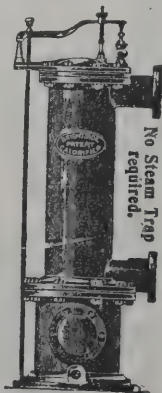
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BIRDWELL.—Sept. 30.—For the whole or any portion of works required in erection of two houses. Mr. Arthur Whitaker, architect, Worsbrough Bridge, Barnsley.

BRIDPORT.—Oct. 21.—For erection of a secondary school in St. Andrew's Road. Mr. F. Cooper, architect, 77 East Street, Bridport.

CARLETON.—Oct. 4.—For various works required in additions and new sanitary conveniences to Carleton mills; also for the mason, plasterer and slater's work in alterations to Dale Garth, Carleton, near Skipton. Mr. James Hartley, architect, Skipton.

CATCLIFFE.—Oct. 1.—For various works at the following schools, for the Aston sub-committee of the West Riding County Council:—Catcliffe Provided school—new glazed screen, lavatory accommodation, ventilation and general repairs; Fence Provided school—asphalting and conversion of earth closets into w.c.'s. Mr. S. Abson, divisional clerk, Education Offices, Woodhouse.

CHISELDON.—Sept. 28.—For alteration of the Oddfellows' hall, Chiseldon, Swindon, into an infant school. Mr. R. J. Beswick, architect, 10 Victoria Road, Swindon.

CLIFTON.—Oct. 2.—For erection of two blocks for chronic cases at the North Riding asylum, Clifton, York. Deposit 5*l.* Mr. G. H. Fowler Jones, architect, 8 Lendal, York.

CORSHAM.—Sept. 28.—For erection of a villa residence in Pickwick Road. Mr. W. H. Bromley, surveyor, Pickwick Road, Corsham.

COSHAM.—For erection of new nursing sisters' quarters at Alexandra hospital, Cosham, Portsmouth. Apply on October 1, 2 and 3 at the Barrack Construction Office, Alexandra Hospital, Cosham.

DISS.—Sept. 30.—For erection of a secondary school at Diss, Norfolk. Deposit 2*l.* 2*s.* Mr. A. Hessel Tiltman, architect, 1 Raymond Buildings, Gray's Inn, London, W.C.

DUBLIN.—Oct. 22.—For the superstructure of the college in Upper Merrion Street, and for erection of workshops adjoining. Deposit 5*l.* 5*s.* The Secretary, Office of Public Works, Upper Merrion Street, Dublin.

DUDLEY.—Oct. 4.—For printing works and offices, Priory Street, for the *Dudley Herald*. Deposit 1*l.* 1*s.* Mr. Walter Wright, architect, 28 Wolverhampton Street, Dudley.

EGREMONT.—Oct. 4.—For alterations to the Industrial Co-operative Society's South Street premises. Messrs. V. Scott & Co., architects and surveyors, 2 Park Lane, W. 1*ngton.*

GLASGOW.—Sept. 30.—For works of superstructure north wing of gatehouse block at Glasgow Royal Infirmary (1) mason; (2) wright; (3) plumber; (4) plaster; (5) Deposit 1*l.* 1*s.* Mr. James Miller, A.R.S.A., architect, 15 Blythswood Square, Glasgow.

GORLESTON.—Sept. 30.—For repairs to the Oddfellows' Hall, High Street. Mr. G. A. Woods, 91 Lower Cliff Road, Gorleston, near Great Yarmouth.

HULL.—Oct. 3.—For supply of fittings and furniture to the law courts, town hall extension. Deposit 5*l.* The Treasurer, Town Hall, Hull.

IRELAND.—Sept. 30.—For erection of a Carnegie Library at Swords, co. Dublin. Messrs. A. Scott & Co., architects, 34 Lower Sackville Street, Dublin.

IRELAND.—Oct. 14.—For building a dispensary residence and dispensary at Anamoe, for the guardians of Rathfriland Union. Mr. George T. Moore, C.E., 1 and 2 Foster Road, College Green, Dublin.

LEISTON.—Oct. 26.—For erection of a higher elementary school and cookery, laundry and manual instruction special subjects centres at Leiston, East Suffolk. Deposit 5*l.* The Education Committee, County Hall, Ipswich.

LONDON.—Oct. 4.—For rebuilding the Aldgate branch post office, E. Deposit 1*l.* 1*s.* Mr. J. Wager, H.M. Office of Works, &c., Westminster, S.W.

LONDON.—Oct. 8.—For erection of two small bath-rooms at the workhouse, Bridport Road, Edmonton, N. Mr. S. Hill, architect, 106 Cannon Street, E.C.

LONDON.—Oct. 8.—For erection of a tramways electric sub-station at Lewisham, S.E., for the London County Council. The Highways Section of the Architect's Department, 13 Charing Cross, S.W.

LONDON.—Oct. 9.—For erection of a school for mentally and physically defective children at Pound Lane, Willesden Green, N.W. Deposit 3*l.* 3*s.* Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

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PORTSMOUTH.—Oct. 7.—For erecting, completing and maintaining in thorough repair for six months from common four new villa blocks and other works in connection with at the lunatic asylum, Milton, in the borough of Southport. Deposit 3*l.* 3*s.* Messrs. Rake & Cogswell, Architects, Prudential Buildings, Portsmouth.

LFORD.—Oct. 4.—For erection of a bakehouse at the  
workhouse, Eccles New Road. Mr. H. Lord, archi-  
2 Deansgate, Manchester.

OTLAND.—Oct. 8.—For mason, joiner, plumber, slater, iron and cementer's work required in connection with repairs to Station hotel, Morar. Messrs. L. & J. Falconer, Agents, Fort William.

OTSWOOD-ON-TYNE.—Sept. 30.—For erection of twelve flats on the Blaydon Estate. The Blaydon Cooperative Society.

HEFFIELD.—Oct. 2.—For construction of conveniences, on Road, Heeley. Deposit 10s. The City Surveyor's Town Hall, Sheffield.

ELFIELD AND SHORT HEATH (STAFFS).—Oct. 12.—For sed infants' Council school, to accommodate 220 chil-

dren, at Shelfield, near Walsall, and slight alterations to existing school, and a new Council school, to accommodate 276 children, at Short Heath, near Wolverhampton. Deposit 1*l.* 1*s.* in each case. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

STEEPLE LANGFORD.—Oct. 14.—For alterations and repairs to the East End inn, Steeple Langford, Wilts. Messrs. John Harding & Son, architects and surveyors, 58 High Street, Salisbury.

THATCHAM.—Oct. 3.—For pulling-down old cottages and erecting premises, comprising shop, dwelling-house, stabling, &c. Mr. W. Bell, architect, Newbury.

TUNSTALL (STAFFS).—For erection of a public elementary school at Summer Bank Road. Deposit 3*l*. 3*s*. Mr. A. R. Wood, architect, Town Hall, Tunstall.

UPWEY.—Oct. 3.—For erection of a cottage at higher pumping station, Upwey, Portland. Mr. R. Stevenson Henshaw, waterworks engineer, Council Offices, New Road, Portland.

WALES.—Sept. 28.—For erection of a schoolroom, classrooms, &c., for the committee of Capel Coch (C.M.), Llanberis. Rev. Thomas Lloyd, Bronygraig, Llanberis, R.S.O.

WALES.—Sept. 28.—For building ten cottages and eight semi-detached villas at Hirwain, Glam. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Sept. 28.—For erection of two shops and dwelling-houses at Commercial Street, and two lock-up shops at Talbot Street, Maesteg. Mr. J. Cook Rees, architect, Neath.

WALES.—Sept. 30.—For converting, &c., Lower Danyderi cottages, Merthyr Vale, into five houses. Mr. Alec S. Cameron, architect, 1 Glanant Street, Aberdare.

WIDNES.—Oct. 2.—For erection of church of St. Mary.  
Messrs. Wright & Son, surveyors, Lancaster.

WALES.—Oct. 9.—For erection of cookery and laundry-rooms, physical laboratory, classroom, &c., for the Managers of the Tasker's Endowed Girls' School, Haverfordwest. Messrs. D. Edward Thomas & Son, architects, 17 Victoria Place, Haverfordwest.

WALES.—Oct. 11.—For erection of a swimming-bath, hall to seat 1,500, institute and library at Ferndale. Deposit

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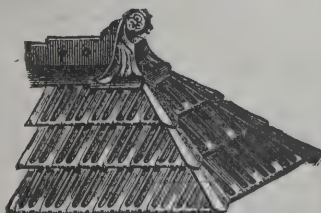
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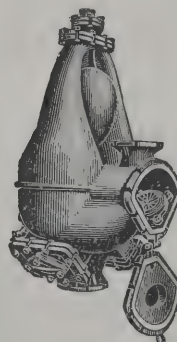
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3/ 3s. Mr. T. E. Richards, architect, Market Square Chambers, Pontypridd.

WALES.—Oct. 14.—For erection of a school, school-master's house, offices, workshops and cottages in the Elan Valley, near Rhayader, Radnorshire, for the Birmingham Water Committee. Deposit 5/ Mr. Herbert T. Buckland, architect, Norwich Union Chambers, Congreve Street, Birmingham.

WALES.—Oct. 19.—For proposed Council school at Rhiw-Syr-Dafydd, near Blackwood, Mon, to accommodate 300 children. Deposit 3/ 3s. Mr. R. L. Roberts, architect, Abercarn.

WALSALL.—Oct. 1.—For the construction of a pump-house and sewage-tank, together with the necessary machinery, at Park Brook, Wolverhampton Road; also the providing and laying of 615 yards of 6-inch cast-iron main and 586 yards of 9-inch stoneware sewer, with necessary manholes, &c. Mr. John Taylor, borough surveyor, Council House, Walsall.

WARWICK.—Oct. 4.—For the following works:—(1) Providing and fixing gas mains and fittings, (2) exterior painting and other repairs and alterations at the workhouse. Mr. F. P. Trepess, F.I.A.S., 1 Church Street, Warwick.

WEST BROMWICH.—Oct. 4.—For building a wall at the workhouse. Mr. John W. Allen, architect, High Street, West Bromwich.

WREXHAM.—Oct. 1.—For pulling-down and rebuilding a stone boundary and other works in Regent Street. The Borough Engineer's Office, Willow Road.

An unexpected sequel has occurred in connection with the Chatham Corporation's experiments in tarring the highway in New Road with a view to minimising the dust nuisance caused by the passage of motor-cars. The tar adhered to the boots of people who had to cross the road, and the floor of the new Presbyterian church was badly soiled, marked and discoloured. The authorities of the church have called upon the Corporation to bear the cost of scraping and polishing the floor, but the latter body declines to admit any responsibility.

## TENDERS.

### BEVERLEY.

For alterations to Northwood House, for the Government High School for Girls. Mr. B. S. JACOBS, F.R.C.S., architect, Hull.

Bentley	£1,463
Potts	1,261
Marsden & Son	1,258
Bowman & Son	1,190
Pape & Sons	1,160
Sanderson	1,136
JACKSON & SONS, Hull (accepted)	1,108
Singleton	1,104

### BOLTON-UPON-DEARNE (YORKS).

For private street works, for the Urban District Council.

Dickinson	£636
Cliffe	570
Haigh	550
Buckley	548
Johnson	509
HAMILTON, 37 Nora Street, Goldthorpe (accepted)	487
Meanley	486

### BOW.

For offices, drainage and ventilation at Bow Council Offices. Mr. P. MORRIS, architect.

Dart & Francis	£280
Gillard & Son	250
Fisher Bros.	250
BLACKWELL, Crediton (accepted)	213

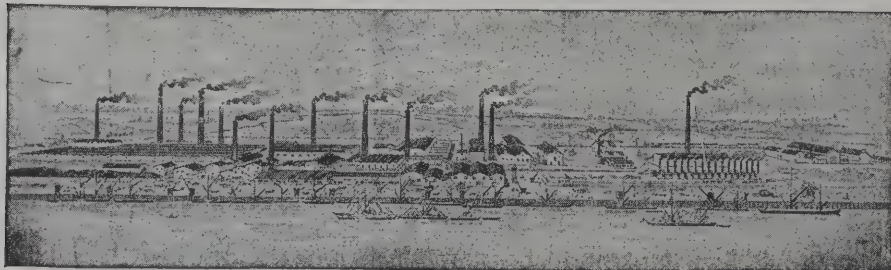
### BRISTOL.

For erection of entrance lodge at The Grove, Stoke Bishop. Mr. W. H. WATKINS, architect, Bristol.

Humphreys	£695
Neale Bros.	693
Cowlin & Son	674
Walters & Sons	660
Stephens, Bastow & Co.	619
Hayes	569

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For sewerage and completing Bamford Street, Sefton Street and Industry Street. Mr. A. W. Cox, surveyor.

Bamford Street.

Yates	£191	14	9
Mayall	180	0	0
Calcraft & Son	175	0	0
Freeman & Sons	172	2	6
HEARD, Chadderton (accepted)	171	5	4

Sefton Street.

Mayall	432	0	0
Yates	429	8	2
Calcraft & Son	425	0	0
Heard	411	16	3
FREEMAN & SONS, Chadderton (accepted)	406	9	11

Industry Street.

Yates	116	17	6
Mayall	106	0	0
Freeman & Sons	102	10	4
Heard	100	7	10
CALCRAFT & SON, Oldham (accepted)	100	0	0

CHEPPING WYCOMBE.

For reconstruction of bridge over the river Wye at Newland. Mr. T. J. RUSHBROOKE, borough surveyor.

Harris	£579	0	0
Lee	570	0	0
Langley & Johnson	568	0	0
GIBSON, High Wycombe (accepted)	500	0	0

CHESHAM.

For erection of factory. Messrs. STOKES, PINDER & BELCH, architects, Chesham, and 49 Upper Baker Street, N.W.

A. Wright	£1,546	4	0
Darvell	1,532	0	0
H. J. Wright	1,490	0	0
Rust	1,471	4	9
Freeman	1,398	0	0
Darlington	1,358	0	0
Abbott & Son	1,333	0	0
Mead & Son	1,325	0	0
MEAD, Chesham (accepted)	1,288	0	0

CHESTER.

For construction of sewers and other works in the townships of Bache, Great Boughton, Newton and Upton. Mr. FRANK E. PRIEST, M.I.C.E., engineer, Liverpool.

Contracts Nos. 1, 2 and 3.

Warren	£22,735	14	0
Brebner & Co.	20,269	7	0
Wilson	15,882	5	4
Neal, Ltd.	15,547	13	1
Underwood & Bros.	15,439	17	7
Lock, Andrews & Price	14,452	12	6
Jones	14,026	3	0
MacDonald	13,930	0	0
JOWETT BROS., Burscough Bridge (accepted)	13,336	6	2
Riley	13,176	4	0

DUNSTABLE.

For erecting Council school for infants. Messrs. GOTCH & SAUNDERS, architects, Kettering.

DREVER, Kettering (accepted)	£2,320	0	0
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HAVANT.

For drainage works in the grounds of the hospital. Mr. A. E. STALLARD, surveyor, Havant.

Neal, Ltd.	£246	0	0
Tucker	225	0	0
Wiggins	208	18	3
Davis	175	18	6
Edwards & Son	172	0	0
Munday	170	15	4
G. & R. Currell	155	0	0
ROGERS BROS., Havant (accepted)	135	5	0

HEYSHAM HARBOUR.

For erection of sawmill. Messrs. HARRISON, HALL & MOORE, architects, Lancaster.

Slater.

Hall & Sons	£219	7	3
Walton	220	0	0
Cross	202	0	0
Cross & Sons	184	7	0
SMITH, Earby (accepted)	162	7	0
Moore	154	13	0

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Dilworth . . . . .	1,091	15	0
Slater . . . . .	1,081	13	0
Waterworth & Sons . . . . .	1,074	8	8
Moore . . . . .	1,048	5	8
Thompson . . . . .	977	15	9
GARDNER, Stoneleigh, Morecambe (accepted)	939	10	0

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Bakes & Overend . . . . .	455	0	0
Pick . . . . .	442	0	0
Huntington . . . . .	433	0	0
Gardner . . . . .	432	7	6
Parkinson . . . . .	429	14	9
Thompson . . . . .	420	0	0
Wilman . . . . .	406	10	0
Moore . . . . .	360	4	5
BREAR, Morecambe (accepted)	353	18	0

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Higginbotham & Sons . . . . .	135	14	0
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Moore . . . . .	129	14	10
Simpson . . . . .	126	3	0
Lambert & Sons . . . . .	125	0	0
Calvert . . . . .	115	0	0
Wilson . . . . .	113	4	0
Rushton & Pinch . . . . .	111	3	6
WHITTLE, Lancaster (accepted)	103	0	0

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A. Andrews . . . . .	1,344	10	0
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Williams . . . . .	1,323	7	0
Stanbury . . . . .	1,307	6	0
Bennett . . . . .	1,296	5	0
Turpin . . . . .	1,287	0	0
Blake . . . . .	1,263	0	0
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Carwitken . . . . .	1,194	5	0
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PAYNTER, Plymouth (accepted)	1,139	15	0
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For erection of Toxteth technical institute, Aigburth Road. J. & G. CHAPPELL (accepted) . . . . . £12,400 0

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Cannon	399 10 0
McLAUGHLIN & HARVEY, Brecknock Road (accepted)	330 0 0

For repaving Crucifix Lane with granite setts. Mr. R. J. ANGEL, borough surveyor.

Section No. 1.

Carey & Sons	£1,131 17 0
Fry Bros.	1,053 5 0
Griffiths & Co.	1,004 5 0
Mowlem & Co.	985 0 0
Wilson	970 15 8
Porter	901 19 0
Surveyor's estimate (accepted)	779 14 7

Section No. 2.

Carey & Sons	337 15 0
Fry Bros.	320 15 0
Wilson	318 10 2
Griffiths & Co.	304 15 8
Mowlem & Co.	298 0 0
Porter	254 15 0
Surveyor's estimate (accepted)	232 6 7

LONDON—continued.

For alteration and additions to premises, Brick Lane and Wentworth Street, E. Messrs. FULLER, HORSEY, SONS & CASSELL, surveyors, 11 Billiter Square, E.C.	
Parrott & Isom	£5,615 0 0
F. & F. J. Wood	3,765 0 0
Taylor Bros.	3,470 0 0
Owers	2,975 0 0
Wontner, Ltd.	2,963 0 0
HAWKEY & OLDMAN (accepted)	2,665 0 0

PLYMOUTH.

For supply and delivery of about 750 yards of 6-inch, 3,000 yards of 4-inch and 250 yards of 3-inch cast-iron pipes. Mr. FRANK HOWARTH, engineer.

Stanton Ironworks	£775 17 4
Cochrane & Co., Cochrane Grove	769 4 3
McVey & Co.	768 18 10
Isca Foundry Co.	767 8 7
Jordans, Ltd.	758 9 3
Needham & Sons	757 7 9
Spittle, Ltd.	735 18 7
Maclaren & Co.	730 17 5
Clay Cross Co.	730 7 9
Cochrane & Co.	729 6 3
Oakes & Co.	718 10 6
STEWART & Co. (accepted)	717 9 10
Watson, Gow & Co.	701 5 9

PURLEY.

For the construction of public convenience. Mr. R. M. CHART, sanitary surveyor, Croydon.

Grace & Marsh	£1,575 0 0
Bacon	1,505 0 0
Smith & Son	1,496 0 0
Laurence	1,480 0 0
Barnes	1,450 0 0
Page & Son	1,419 0 0
EVERETT, Croydon (accepted)	1,350 0 0

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## ROMFORD.

For making-up Cowper and Melville roads. Mr. E. G. BODEN, surveyor.		
Catley . . . . .	£1,607	0 0
Willis & Powis . . . . .	1,498	0 0
Griffiths & Co. . . . .	1,451	0 0
Buxton & Jenner . . . . .	1,428	0 0
Gibbons . . . . .	1,418	0 0
Free & Sons. . . . .	1,333	0 0
J. Jackson . . . . .	1,323	0 0
D. J. Jackson . . . . .	1,268	0 0
Wilson, Border & Co. . . . .	1,245	0 0
WHITE, Hornchurch (accepted) . . . . .	1,228	0 0
Wood & Sons . . . . .	1,225	0 0

## SWANSEA.

For county-court offices.		
Walters & Johns . . . . .	£8,500	0 0
A. & D. Jenkins . . . . .	7,666	0 0
Davies . . . . .	7,500	0 0
Richards . . . . .	6,394	0 0
Marks & Sons . . . . .	6,339	0 0
Bennett Bros. . . . .	5,944	0 0
Davies & Sons . . . . .	5,520	0 0
J. & D. Jones . . . . .	5,449	0 0
Cooke . . . . .	5,141	3 0
Turner & Sons . . . . .	5,143	0 0
Williams . . . . .	5,023	0 0
Lloyd Bros. . . . .	5,005	10 4
Stephens, Bastow & Co. . . . .	4,978	0 0
J. & F. Weaver . . . . .	4,975	0 0
Norman . . . . .	4,934	7 0
Greaves . . . . .	4,542	0 0
Blake . . . . .	4,418	0 0
Colbourne . . . . .	4,259	5 0
PYE, PARKINSON & Co., Swansea (accepted) . . . . .	4,250	6 9

## TRADE NOTES.

A clock tower is being built at Tiverton, Devonshire. It will have a chiming clock with three large dials, by John Smith & Sons, Midland Clock Works, Derby, who made a clock for a similar tower at Torquay several years ago.

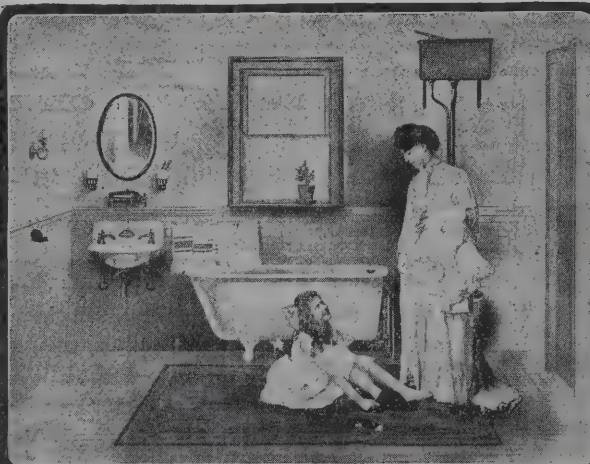
WE are informed that the Kleine Patent Fire Resisting Flooring Syndicate are on the 30th inst. removing from 9 St. Helen's Place to more central and convenient offices. Their address will therefore in future be Museum Station Buildings, 133-6 High Holborn, W.C. The new telephone number will be 3098 Gerrard.

THE Bath Stone Firms, Ltd., have supplied their Monk's Park stone for the completed additions to the Norwich Shire Hall (Mr. A. Trench, architect, Norwich); for the new Inland Revenue Office at Southampton (the Office of Works) and for St. Andrew's Church, Oxford, which is in course of construction, Mr. A. R. G. Fenning, the architect, has employed Farleigh stone for the interior.

MESSRS. CLARK & Co. request us to announce that, in order to meet the rapidly growing requirements of their London business, they have opened a store at King's Cross station, and that they can supply at once from stock at prices giving small quantities the benefit of the truck-load rate of carriage; and that they are prepared to undertake work with Xelite plaster, and to guarantee satisfaction. Messrs. Clark & Co. recently executed work at Windsor and Knightsbridge Barracks for H.M. War Department, and the whole of the Caversham public library, and have several other contracts in hand.

MESSRS. GEORGE MILLS & Co., engineers, Radcliffe, near Manchester (proprietors of the "Titan" sprinkler), have received the following letter from Mr. Thos. C. Keay, 7 Ogilvie Street, Dundee:—"I beg to inform you that on the evening of August 19, about ten o'clock, while one of my apprentices was passing the works, he saw from the windows a flare of light, and, suspecting that something was wrong, he at once communicated with the fireman. While the fireman was getting up towards the gate the gong went off, and by this time a rush of water was coming out of the gateway. They found on entering that one of the sprinklers had gone off right alongside the boiler and had extinguished the fire. This was all the damage, and my claim with the insurance company was only 4/ 13s. I may say that this was one of the most dangerous parts of our works, and it is very gratifying to know that the fire was so quickly arrested and so little damage done, which is strong testimony of the efficiency of your installation."

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"Standard" Porcelain Enamel Ware is moderate in cost, beautiful in its finish and extremely durable. Absolute freedom from cracks or crevices assures the maximum sanitary protection. A bathroom fitted with "Standard" Ware greatly increases property value.

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HODDESDON, HERTS.

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India Office, &c.

English and Swedish Designs.  
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For Index of Advertisers, see page 1



### L.C.C. SCHOOL OF BUILDING.

THE prospectus and time-table for the session commencing September 24 has been issued. The school is in Ferndale Road, the principal, Mr. H. W. Richards, is assisted by Mr. A. R. Sage, and Professor Beresford Pite is director of architecture. The classes are divided into three sections—trades, construction, and architecture and drawing—and will be open from 7 P.M. to 9.30 P.M. on each week day except Saturday. The fee is 10s. for the session, apprentices being admitted free. The school has been established by the Council to enable artisans and others engaged in the building and allied trades to acquire an intimate knowledge of the principles that underlie the processes which they have to carry out in their daily work. Workshops have been provided and equipped for the practical teaching of the several building trades under conditions similar to those met with on buildings and in builders' shops. Great importance is attached by the Council to the practical combination of the studies in the several trades and branches as required by a master builder, foreman or architect, and facilities will therefore be given for combining architectural studies in practical and theoretical work in the workshops, lecture-rooms and drawing offices.

### THE ENGINEERING EXHIBITION.

THE collection at Olympia, while of paramount interest to the engineer and mechanic, has also a few novelties which will undoubtedly interest the architect. The show itself is a fairly good one. Engineering in construction is being brought into a closer alliance with architecture, but it is rather with the mechanical than the constructive side of engineering that the appliances seem to be chiefly concerned. These are many. A great deal of the space is taken up with lathes and drilling-machines. A number of automatic bevel-gear planing and milling machines are to be seen at the stand of Messrs. Pfeil & Co., of Bloomsbury. There is a very fine new type of engine shown by Messrs. Burton. This machine has a new design of feed-box, which enables one to change the speed without stopping the machine. There is also a fine collection of turret and automatic lathes on view. There are, of course, numerous other well-known machine-tool makers exhibit-

ing, but as the exhibition is to remain open for four weeks and many stands are not in a forward condition, we must return to these in detail in a later number. In the hexagon turret lathes displayed by Messrs. Alfred Herbert, Ltd., of Coventry, there are some notable improvements. Every effort has been made to obtain greater power, a wider range of cutting speed and improved facilities for changing gear. Especially noticeable are the businesslike milling and automatic screw-making machines.

Messrs. M. Glover & Co. have a representative display of their patent machinery for sawing, splitting and bundling firewood; also their new patent "Ideal" saw guards. A smart little tool exhibited is their handy pattern shop saw bench.

Messrs. Thwaite, of Bradford, and Messrs. Reavell, of Ipswich, show air compressors which are installed on every warship of the Royal Navy for supplying compressed air for the torpedoes. Messrs. Thwaite show a very clever and ingenious electrically driven water-pump. It is so arranged that the delivery can be varied from zero to a maximum while the pump is running. There is no alteration in the length of the stroke of the pump, and, what is more remarkable, it is claimed that there is no loss of efficiency. Mr. Reavell has devoted a great deal of time to the study of machinery capable of dealing with gas for high pressures. One of his exhibits has been sold to a French firm. Several well-known firms are exhibiting suction gas plants and gas-engines. This method of obtaining power is rapidly becoming more popular, especially for power installations in the country. It is all but impossible in one short notice to convey anything more than a general impression of the exhibition.

PLANS have been filed by Messrs. McKim, Mead & White, architects, for enlarging the Metropolitan Museum of Art, in Central Park, New York. The additions will be two and three storeys high, brick and stone, one annexed to the museum library on the south, 116 by 183 feet; the second to be added to the exhibition halls on the north, 54 by 119, and the third to be 15 feet frontage and 21 feet deep at east of the hall of sculpture. The three additions are to cost 450,000 dols.

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TRADE MARK

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BRADFORD.

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and PRESERVING BUILDING MATERIALS.

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HARTHAM PARK**  
and the PRINCIPAL QUARRIES

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LIVERPOOL.**

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**MANCHESTER**  
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## VARIETIES.

THE sub-committee of the Lancashire education committee have sanctioned the erection of a new elementary day school at Brierfield, to cost 11,000*l.*, and of one for Trawden at an estimated cost of 9,000*l.*

AT Liverpool workhouse committee it was stated that there were four applicants, including one lady doctor, for the post of assistant medical officer, and 270 candidates for the post of engineer at the workhouse.

ON Saturday last, the 21st inst., Mr. Robert W. A. Gelfillan was married to Miss Eleanor Blanche Colcutt, daughter of Mr. Thomas E. Colcutt, president of the Royal Institute of British Architects.

ELECTRICAL works are to be established at Cherbourg at a cost of 40,000*l.* for the purpose of providing power for the lighting of the Arsenal workshops and for charging the accumulators of submarines.

It has been decided to recommend the appointment as electrical engineer to Walsall Corporation of Mr. A. S. Barnard, late electrical adviser to the Ceylon Government and the Colombo municipality, formerly electrical engineer to the Hull Corporation. The salary commences at 400*l.*, rising to 450*l.*

MR. THOMAS WILLIAM MINTON, who was for many years a member of the famous pottery firm of Minton, Ltd., of Stoke-on-Trent, died at Enfield on Tuesday at the age of sixty-three. Mr. Minton was one of the best-known men in the Potteries, and served the office of Mayor of Stoke-on-Trent.

THE Ballymenagh 100-guinea trophy, which has been handed over to the Roads Improvement Association, has been awarded by the judges' committee of the recent tar-spreading competitions, together with their gold medal, to Messrs. R. S. Clare & Co., Ltd., of Liverpool, for their patent tar compo.

AT the last meeting of the Court of Common Council a letter was read from the London County Council to the effect that the new district surveyors in the City under the London Building Act of 1894 were:—Mr. J. Todd, Hamilton House, 149 Bishopsgate Street Within (eastern district); and Mr. C. W. Surrey, 134 Fleet Street (western district).

THE Chichester City Council have resolved that the education committee be instructed to get their architect to prepare a plan for a new school in Tower Street to accommodate as many boys as possible, and prepare a sketch plan for a new school in Little London where the present school stands, and that he be also asked to view any other suitable sites in the vicinity of Little London.

A PAINTER had an escape from death in Campbelltown, N.B., on Friday. He was working on the ledge of a window at the rear of a building in Londrow and fell from a height of three storeys. In his descent he alighted on the roof of an outhouse, which broke his fall somewhat, and he then fell to the ground. He suffered from shock, and his left arm was broken, but after being medically attended to he was able to walk home.

A WORKMAN employed by Mr. W. Everard, builder, was getting out foundations at a depth of 10 feet in Haydn Road, Nottingham, when, after breaking off a huge lump of rock sand with a crowbar he saw a small moving object. Closer examination showed that it was a live crab, the shell measuring 3 inches by 2 inches. It has legs and feelers like the ordinary sea crab, but the shell has sharp ragged edges. It is thought that the crab is three or four thousand years old.

AT a meeting of the lighting sub-committee of the Liverpool tramways committee the superintendent of street lighting reported that he had dealt with thirty-one applications for the testing of consumers' gas pipes and fittings since the last meeting. Twenty-eight were found to be unsound, causing the gas to escape at the aggregate rate of 20½ cubic feet per hour, representing an annual loss with gas at 2*s.* 6*d.* per 1,000 cubic feet of 22*l.* 0*s.* 8*d.*

It was reported in the North Worcestershire and Staffordshire iron trade that the late heavy drop in galvanised sheet-iron prices was having the effect of worsening American competition. The reduction, which was 2*s.* on sheets of thirty-gauge and 1*s.* on twenty-four-gauge, was dictated by the breach by the American makers of an understanding with English firms regarding prices and territories abroad.

As a result of the fall in copper which has taken place during the past three months, the prices of brass and copper tubes and brass and copper wire have been correspondingly

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**Kinnear Patent Steel Rolling  
Shutters.**

**Patent Interlocking Rubber Tiling.**

**B. & S. Patent Folding Gates.**

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**Crescent Patent Expansion Bolts.**

**Kinnear Patent Pressed Radiators.**

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## ILLUSTRATIONS.

UNIVERSITY COLLEGE SCHOOL, FROGNAL, HAMPSTEAD.

A BUNGALOW.

A WEEK-END COTTAGE.

CROXTETH, CLAPHAM PARK, S.W.

HOUSE, NEAR SHANGHAI, CHINA.

FOR CHURCH AND MANSE, WELHOLME ROAD, GRIMSBY.

ed. The Associated Tube Manufacturers have lowered prices during the past week by  $\frac{1}{2}d.$  per lb., making the price of brass solid drawn tubes  $8\frac{1}{4}d.$  and copper  $10\frac{3}{4}d.$  brass has been fixed at  $6\frac{3}{4}d.$  to  $7\frac{1}{4}d.$  per lb., according to quality.

LETTER has been sent by the chairman of the sanitary committee and the medical officer of health of Newcastle-Tyne to municipal and other bodies concerned with government, asking them to appoint representatives and a preliminary conference to be held in London in November next, for the purpose of considering the question of establishment of a permanent union of the sanitary authorities of the kingdom into a supreme national health authority. The object of the proposed health authority is to promote uniformity of action on the part of sanitary authorities generally in furtherance of questions concerning public health of the country.

the International Conference on Tuberculosis which has just been held in Vienna, it was most emphatically urged by each speaker that in all future cases of erection of sanatoriums the following case should be specially borne in mind. An architect in Germany had designed a sanatorium at a cost of 8,000 marks (say, 400*l.*) a bed, but a time afterwards the same architect in the same country had designed and erected precisely the same sized sanatorium at half the cost. The results of the treatment in the two establishments were identically the same. The Conference urged the providing of more sanatoria, but that less money should be spent on their erection and more accommodation be thereby provided.

THE Town Council of Peterhead, N.B., have accepted the offer of Messrs. Shanks & M'Ewan, St. Vincent Street, Glasgow, to carry out the whole of the works in connection with the new water supply scheme for Peterhead. Thirteen tenders were received from contractors in various parts of Scotland, the offers ranging from 33,723*l.* down to 17,530*l.* A condition of the contract is that the new supply has to be made available for the burgh at the end of April 1908. The scheme includes a complete system of gathering works in the Cairn Catla Valley, and the existing storage reservoir at Forehill—a short distance inland from Peterhead—is to have its capacity increased from two million to six million gallons. The engineers are Messrs. Walker & Duncan, C.E., Aberdeen.

THE report of the sub-committee appointed by the rivers committee of the Manchester Corporation to inquire into the case of the men at the Davyhulme sewage works, who were discharged (as the men alleged) on account of their joining a trade union, has been prepared. It states that the men have not substantiated their complaints as to victimisation because of membership of the newly-formed branch of the Corporation Employés' Association. The sub-committee accept the statement of the manager that he did not even know the men were discharged, and that the men finished automatically on jobs being completed. A partial reason for the discharge was that owing to the adoption of the manager's scheme of clinker washing workpeople were displaced. The men discharged will, however, be reinstated as vacancies occur.

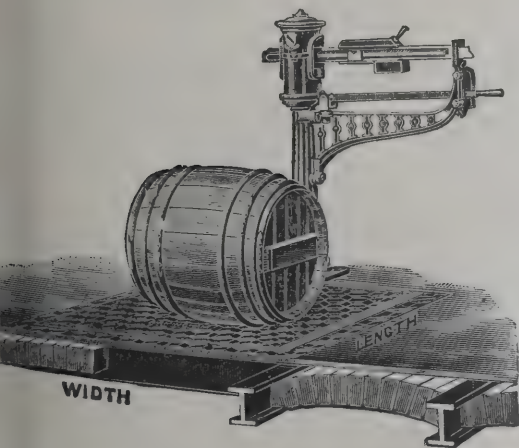
THE works committee of Dundee School Board on Monday approved of plans for the erection of a new school in the northern district of the city to take the place of St. Salvador's Episcopal school, recently given up by the managers. The plans, which were prepared by Mr. J. H. Longlands, architect to the Board, show a building two storeys in height. It contains 24 classrooms, the total number of pupils provided for being 1,270. In the plans provision is made for the construction of a circular bathing chamber, but so far this has not been adopted by the Board, although sanction was recently given for baths in two other schools attended by children of the poorer class. The school is estimated to cost 15,000*l.*



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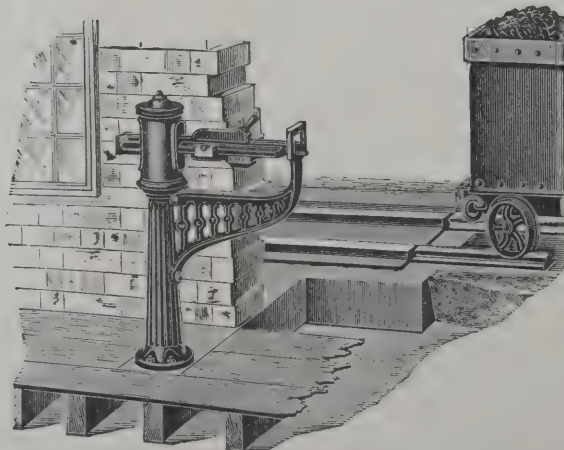


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(NO LOOSE WEIGHTS.)**



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MESSRS. BROWN, BAYLEY & Co., Sheffield, have erected a steel chimney over 100 feet high, raising it in a single piece. The chimney weighs 22 tons, and is 10 feet in diameter at the foot, tapering to 7 feet at the top, and it is said to be the highest steel chimney in Sheffield. Its object is to serve an open-hearth melting furnace of 20-tons capacity, built on steel stanchions and girders instead of brickwork. The chimney was raised by slings of wire rope supported from a high derrick, the base being guided into the flange of a large iron base-plate, to which it was bolted with bolts 32 inches long. It has no supports or stays of any kind, but the brick base goes 20 feet into the ground, and the base-plate is secured to the foundations by eight massive bolts about 16 feet long.

MR. ALBERT HALSTEAD, the United States Consul at Birmingham, has informed the Washington Bureau of Manufactures that a local company engaged in the manufacture of hansom cabs has decided to go out of business because of the immense falling off in the demand for these vehicles. He continues that the cause is the development of underground railways in London and the increased use of motor buses and motor cabs. To this might be added the extension of the street car systems throughout the kingdom. Then, also, the demand for private cabs, which was formerly large, has disappeared, automobiles taking their place. The vehicle was invented seventy years ago by a Birmingham architect, Joseph Aloysius Hansom.

A HANDSOME drinking fountain has been unveiled at the Baltic Mercantile and Shipping Exchange, St. Mary Axe, E.C., by the chairman, Major Bridges Webb. It is surmounted by a life-size figure in bronze, representing a Nymph of Fortune supporting a boat, which symbolises the Baltic. The niche is of alabaster and coloured marble, while the floor is of coloured marble and mosaicwork, with the crest of the Baltic introduced. The work was exhibited this year at the Royal Academy, the sculptor being Mr. E. Whitney-Smith. The casting was done at Burton's Foundry, Thames Ditton, and the architectural work was executed by Messrs. J. Whitehead & Sons, Ltd., Kennington. The fountain, it may be added, was presented to the members of the Exchange by the late Mr. Edward Power, a gentleman who was for many years connected with the

Baltic, and his son, Mr. E. J. Power, one of the directors of that institution.

At the annual meeting of the Scottish Building Federation, held in Dundee, Mr. Patrick Knox, Edinburgh, occupied the chair, and delegates were from Edinburgh, Glasgow, Aberdeen, Dundee, Inverness, and other centres. A resolution was unanimously adopted protesting against the Secretary for State's decision to add a member of the Scottish Building Trades' departmental committee appointed by him to inquire into the system of scaffolding in England and Scotland. It was stated that the committee as at present constituted was not familiar with the customs and practices of the building trades in Scotland, and more particularly with several modes of Scottish scaffolding. The interests of employers in the building trades in Scotland, it was thought ought to have been directly represented on the departmental committee by a Scottish employer familiar with Scottish methods. Grave hardship might result as a consequence of the committee's findings, and the meeting resolved to test against the manner in which employers in the building trades had been ignored, more especially as it was intended to apply certain new scaffolding regulations to Scotland. The secretary was instructed to forward a resolution to the Secretary for State, the Lord Advocate, and the members of Parliament for the towns represented in the Federation. Mr. William Nicoll, Dundee, was elected president for the ensuing year, and Mr. Leslie, Aberdeen, vice-president. It was agreed to meet at the next meeting in Aberdeen.

MR. EDGAR DUDLEY, an inspector of the Local Government Board, held a public inquiry at the Hornsey municipal offices on the 19th inst. respecting an application made by the Borough Council to the Local Government Board for sanction to borrow 39,690*l.* for the purpose of extending their scheme of providing municipal dwellings under Part III. of the Housing of the Working Classes Act, 1901. The Hornsey Borough Council have now 308 dwellings, North Hill, Highgate, and Nightingale Lane, Hornsey, the capital expenditure upon which has been 94,485*l.* The rentals vary from 6*s.* a week for three rooms to 11*s.* a week for seven rooms and a bath-room, and all are

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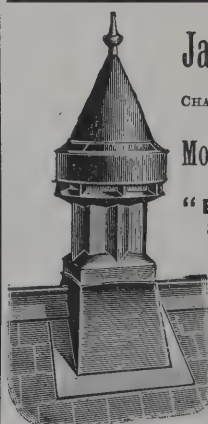
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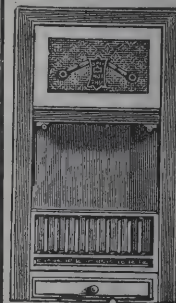
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ly let. The new scheme provides for the erection of additional workmen's dwellings at Highgate upon land freed from the Ecclesiastical Commissioners. There are 22 cottages at 12s. 3d. weekly, 26 at 10s. 6d., 24 at 10s. 2d., 22 at 9s. and 26 at 7s. 6d. The estimated capital outlay for the erection of the cottages, draining, paving and laying-out and sewerage of the roads is 39,690l., which must be added 5,700l., the cost of the land, making a total of 45,390l. The money is to be borrowed for sixty years, and the suggested rentals will provide an income of 3,040l., sufficient to meet the annual repayment of capital and interest, rates, taxes, &c., and to leave a surplus of 9½ per cent. of the rental value for empties and repairs. A number of ratepayers opposed the scheme. It was urged that the Council by this "municipal trading" was entering into unfair competition with existing house property owners, that the more expensive of the cottages would be superior to houses rated at 30l. or 35l. a year, and that there was really no necessity for the scheme.

### "EBONOID."

When flat roofs were first suggested they were looked on as a Utopian. Englishmen had a weakness for Gothic, and the *raison d'être* for Gothic consisted mainly in the display of gabled roofs. Time demonstrated that valuable space was wasted, and that it was possible, not only to employ a flat roof for business purposes, if necessary, but to convert it to a healthful open space. No sooner was the transposition desired than means were devised for meeting all requirements with more or less success. Messrs. Joseph Watson & Co., Ltd., of Carlisle Chambers, Crooms Hill, London, have in their "Ebonoid" a flexible material which is adapted for flat roofs, whether of wood or concrete, which also serves for a number of other purposes. As it is damp-proof it can be used as a roof-garden, and as it is resisting there is no risk in employing it. One firm in London have utilised it to cover nine roofs, another firm in the same town four roofs. In fact, many thousand super-yards have been laid in the United Kingdom and in India. One reason for the success arises from the long acquaintance with construction possessed by the firm. This is seen by the illustrations, which are genuine

working drawings showing all the details, and which would enable any ordinary builder to carry out roofing on the system. The prices are as low as any occupant of a house can desire, for "Ebonoid" can be supplied with fixing material and nails for 1s. 1½d. per superficial yard.

### CHEAPER RATES FOR FOREIGN LETTERS.

THE Post Office announces that the Postal Union Convention concluded at Rome last year comes into effect on October 1 next, when various important changes will be made in international postal arrangements. The postage on a letter from the United Kingdom for a foreign country will be 2½d. for the first ounce and 1½d. for each subsequent ounce. The postage to British possessions generally, to Egypt, and to British ships of war on foreign service, will be 1d. per ounce instead of half an ounce. Reply coupons will be issued enabling the sender of a letter abroad to pay for a reply. As to postcards communications will be allowed on the left half of the front as well as the back. Pictorial cards bearing no written communication will be transmissible at the printed papers rate.

### NEW CATALOGUE.

We have already noticed the "Hatfield" pump of Messrs. Merryweather & Sons, Ltd., which is one of the most efficient hydraulic machines ever invented, more especially for domestic requirements. Not only with its aid is it possible to have an ample water supply for country mansions, but it may be used for a number of houses in villages or on large estates. The motive-power can be derived by gas or oil-engine, or by electric current, or even by wind-power. It is therefore cleanly and occupies a surprisingly limited space when we consider the work it can accomplish. It is also adapted to meet the necessities of ancient mansions like Hatfield House, of large West End mansions, hotels, manufactories, or for use in the Colonies and India. In most parts of the world examples are to be seen at work. In their latest catalogue Messrs. Merryweather show new applications of the "Hatfield" pump, which with the variable stroke mechanism is able to cope with all the difficulties of water supply.

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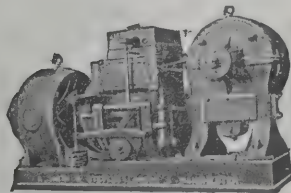
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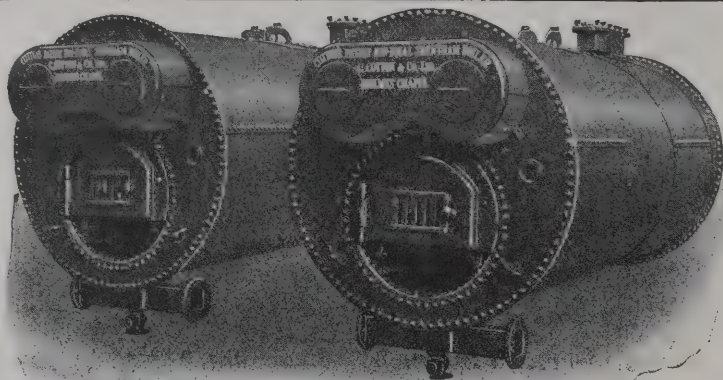


## SMOKE PREVENTION.

At the conference in Llandudno of the Sanitary Inspectors' Association a paper was read by Sir William B. Richmond, R.A., on smoke abatement. He had, he said, lectured and spoken for so many years on the subject of pollution by smoke from factories, upon the selfishness of manufacturers and on the inertness of the British public which permitted the pollution, that every sentence he now used appeared to him to be little else than a collection of platitudes and truisms. But it did not do to let things slide, even when one's mind was made up. It took a deal of trouble and pains to instil higher and more altruistic aims into people who sat still unmoved and unconcerned in an atmospheric *status quo* as long as money poured in, even if in the meantime the sun was being "put out." Coal smoke was merely waste of fuel. It was a destructive and disagreeable agent, and it was as preventable as it was unnecessary. What was wanted to secure its prevention was that public opinion should shake off its inertia, and with one voice proclaim its determination to force the hands of the selfish or thoughtless, and oblige them to cease from abusing their prerogatives of wealth, to abstain from damaging other people's property, destroying beauty, making dirt and obscuring the sun, the giver and disseminator of life. The absurdity of the defence of the nuisance that "smoke and commerce were inseparable" was shown by the fact that every puff of smoke from a chimney-shaft was waste, and it was therefore unbusiness-like to permit it. Those who did permit it were short-sighted as to their own interests and inconsiderate towards others. But man did not live by bread alone. We had in this country great beauty of landscape. Especially had this been so in those districts which had now become squalid and unhealthy owing to the smoke curse. No great change which involved the loss of intelligent hand labour was all for good. Granted that machinery was a necessity, those who employed it should be forced by public opinion, and through that by the law, not to make it a nuisance and to destroy by its fumes and smoke adjacent properties—trees, fruit, gardens, churches, cathedrals and what not. It would be said that a law which compelled the entire abolition of smoke would be

unpopular. No doubt it would be to a rich minority, but would be vastly popular to the majority. It was a sophism to say that such a law would be in restraint of trade. Westminster Abbey was fast decaying from effect upon its surface of coal smoke, and many of cathedrals were in a like plight. The Palace of Westminster itself was fast decaying, and yet we sat still. Parliament did anyhow, and let the evil go on. When the abominable demon of smoke was expelled—and it would be expelled—we determined that it should be—there would be gas on our house tops, trees in all our streets, fountains of silver water bubbling up in our squares. There would be squalor, less drink, more outdoor healthy life, greater sanitation and, above all, a happier people. Science taught yearly more and more of the importance of sunlight, when the man in the street was awake to that he would suffer himself to live in an atmosphere not fit for a human being, or under conditions of dirt against which his stomach should revolt, even at the risk of losing his employment, the money earner for a person or company. Light would give him his proper freedom, upon which as a man he had a right to insist.

Mr. W. Nicholson, sanitary inspector of Sheffield, he estimated that there was in the atmosphere over the islands daily thousands of tons of coal in the form of vapour and of the 150,000,000 tons of coal consumed annually in this country a third might be saved if a sensible and scientific scheme were adopted in the burning of the fuel. Owing to the crusade of the Smoke Abatement Association founded in Sheffield that city, which was formerly so much afflicted, had, owing to the adoption of drastic measures by the corporation, so improved that last year it had 1,437 hours of sunshine, or 368 more than Manchester, 367 more than Bradford, 265 more than Glasgow, 189 more than Leeds, 186 more than Birmingham, 158 more than Edinburgh, 53 hours more than York and 53 more than Bettws-y-Coed. There were several mechanical stokers and other apparatus intended to bring about perfect combustion, and he added that the law against smoke pollution was almost sufficient to bring about the required relief from the nuisance, provided it was properly enforced. He recommended, however, that the law, which now only prohibited "black smoke" should be made to apply also to every kind



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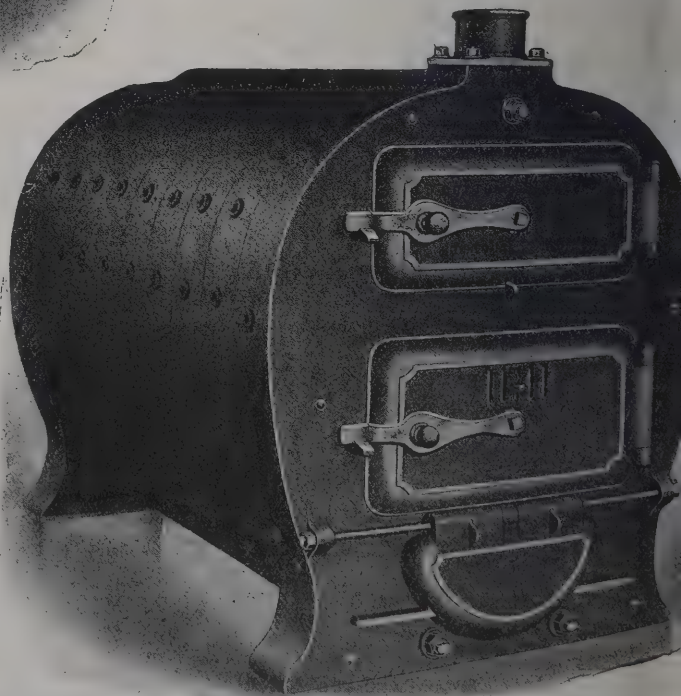
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visible smoke emitted from chimneys, and that domestic fires should be included. The smoke from dwelling-houses, he contended, was due to defects in combustion which might be overcome by the provision of proper grates and by the proper management of the fires.

Mr. Martin asked whether in the matter of smoke prevention the cure might not be worse than the disease. He heard of a case where a gentleman who, desiring that no part of his business should be a nuisance to his neighbours, put in at great expense a smoke-prevention apparatus and also an automatic stoker, but the result was that the air around the factory was charged with fine particles of coal dust, which found its way into the houses and made the neighbourhood more uncomfortable to live in than it was while the smoke was being given off from the chimney-stack.

Mr. Crowden asked whether it was not possible to diminish the smoke nuisance, without using expensive mechanical appliances, merely by having intelligent and painstaking stokers.

Mr. Lindley said that in Batley there were 100 tall chimneys, but the owner of three of the largest mills recently determined that the smoke nuisance should be abated and set the example himself, so that for the past three months his three chimneys had given off no more smoke than an ordinary house fire. There was no doubt that waste of fuel could be prevented by efficient firing, and if the manufacturers could only be convinced that smoke meant waste of fuel, besides shutting out the beautiful sunshine, there would soon be much less of it produced. At Llandudno the destructor was being worked in connection with the electric-light works; the whole of the day load of current for the electric tramway traction at Batley was derived from refuse consumed in the destructors in the morning.

Mr. Hilton pointed out that Liverpool dealt with the smoke nuisance under a special Act of Parliament, which defined the nuisance not as "black smoke," but as "excessive smoke." In Liverpool, too, it was not necessary to give any notice to offenders to abate the nuisance; a summons might be applied for at the first offence. In regard to the important matter of the education of stokers, some of the firms put on one side so much per week as a

premium, which was paid to the stoker as a reward should he so manage the fires that there was no nuisance. Inspectors generally might recommend that practice to the firms in their respective districts.

Mr. Davies (Little Hulton) remarked that the blue fumes which came from retorts were much more destructive to vegetation than black coal smoke. Could anything be done to prevent the mischief they caused?

Mr. Topping said it might be feasible to apply mechanical stokers or other mechanical means of smoke prevention to Lancashire cotton mills, where there was one chimney for a large number of boilers, but in a large iron-works there would be twelve to twenty separate furnaces delivering black smoke into the atmosphere. To apply mechanical appliances to each of these would mean a prohibitive expense.

Mr. Norton related that he issued a summons against a firm for emitting a large volume of black smoke. The manager said to him:—"Had I known what I know now I would have advised my directors not to put this mill in your district, but to take it over the border, where we should not have been troubled with smoke inspectors." That meant that his district was suffering because the authority were doing their duty, whilst other districts would benefit because they were not administering the Public Health Act in the way intended by the Legislature.

On Wednesday evening a serious fire broke out at the plate-glass factory of Messrs. Pilkington Bros., St. Helens, Lancashire. Messrs. Pilkington's two brigades, with the assistance of that belonging to the town, were enabled to confine the fire to the boiler-house and the dynamo-room, which are reported as destroyed. The loss will be a heavy one.

Mr. G. T. JELL, A.R.I.B.A., who for years has been chief of the staff to Mr. William Woodward, has commenced practice on his own account at Carlton House, Waterloo Place, S.W.

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## THE QUEBEC BRIDGE.

A DESCRIPTION in detail of the effect of the collapse of the great Quebec bridge appears in the *Engineering Record*, from which the following extracts are taken :—

At 5.30 P.M., August 29, the whole of the superstructure of the Quebec bridge so far erected collapsed without warning, and seventy-five of the eighty-six men known to be on it were killed. The substructure remained entirely uninjured. The superstructure was entirely wrecked and incredibly distorted. It lies on shore between the piers and under water in the river. The completed south anchor and cantilever arms, one-fourth of the suspended centre span, the centre span traveller, part of the main traveller, one locomotive and two material cars went down. The 215-foot south approach span is intact, and erection had not been commenced on the north half of the superstructure.

The wrecked portion weighed about 17,000 tons. But little of that on the river side of the main pier can be recovered. Most of the anchor arm eyebars have little or no injuries except bending; many are still perfect. Most connections endured when their members were destroyed. Nearly all parts of the structure fell 150 feet or more; some of them fell 400 feet. Many of the heaviest members were completely shattered and deformed by the fall.

No conditions or appearances have so far been observed that may not be satisfactorily attributed to the collapse—that is, nothing is indicative of cause rather than effect, and nothing yet points to the manner of the failure. Except the anchor arm eyebars, most of the truss members visible have been destroyed. Every failure visible can well be attributed to the collapse, and almost any one of them, if occurring before the general collapse, would have inevitably caused it.

All conditions were normal or more favourable than usual when a loud noise and screams were heard and immediately men on shore saw the end of the cantilever descend unbroken almost to the water's edge, the main traveller fall north and the 315-foot centre posts and the anchor arm collapse. Only one man, who was within 75 feet of the anch or pier, succeeded in reaching the approach span. Witnesses estimate the time from the noise till all was over from twenty to forty seconds. None of the witnesses was within several hundred feet, and none

of them, or of the survivors, has yet reported any details of the destruction, which was complete and almost instantaneous.

All the erection foremen were on the bridge, and all perished. They were A. B. Yenser, general foreman; J. L. Worley, foreman of erection; A. H. Birks, resident engineer for Phoenix Bridge Company; James W. Aderholdt, assistant foreman, and C. A. Meredith, rivetting foreman. Of the remaining victims, thirty-five were Indians from Montreal, mostly expert rivetters, twenty-nine were Canadians and the rest were experienced bridge men from the United States. All of the survivors are injured but are expected to recover.

The tremendous distortion and tearing apart of the members of the superstructure subjected the workmanship, design and materials to tests of the utmost severity, and in no case observed was there any indication of poor quality or defect.

Work had recently been somewhat delayed by a scarcity of workmen, and new men had been hired in the United States in accordance with a written agreement with a labour union which fixed their wages and paid their transportation to and from the bridge in case they worked through the season. Some of these men failed entirely to report at the bridge, and others, after working a short time, wished to quit and demanded their return fare. This was refused on account of their not having worked through to the end of the season as agreed, and in consequence a strike was declared. The old employés did not wish to lose time in the short working season on this account and the strike was soon declared off, but bitter feelings were said to exist a few days before the disaster.

At 5.30 P.M. all the erectors and their foremen and the engineer were on the bridge making everything secure for quitting at 5.45. Three four-men gangs of rivetters and one hoisting-engine man were on the anchor arm, and six gangs of rivetters were on the cantilever arm, the erecting gang was busy on the travellers and everything is believed to have been in normal condition. Mr. E. J. Wickzer, an experienced foreman who had been on this bridge three years in charge of the erection of falsework and travellers, was 1,200 feet or more away in the axis of the bridge on the north side of the river, where he was erecting the steel and wooden falsework.

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for the anchor arm. He was watching the foremen directing the fitting of the splices on the 34-ton lower chord pieces still suspended from the traveller, when he heard a very loud noise like the report of a cannon or explosion and saw the end of the cantilever and centre span commence to descend, moving somewhat up and down stream as it did so. As it seemed to approach near the surface of the water the main traveller fell north, the main vertical posts collapsed and the entire structure instantly collapsed and disappeared, the whole taking but a few seconds. This account was corroborated by one of the workmen who was on the south shore about 500 feet west of the bridge and had his attention attracted by a loud explosion. He looked up and saw what seemed to him to be a cloud of smoke and saw the cantilever arm descend and the traveller fall before the collapse of the main post. Other accounts were substantially the same, but it was impossible to secure any statement from the survivors on the structure, who are rumoured to have said that rivet-heads flew off before the disaster.

All of the cantilever arm and suspended span, except a small part of the first panel of the cantilever which remains on top of the main pier, has disappeared under water, which rapidly deepens from nothing at low tide at the foot of the pier to 200 feet or more at the end of the cantilever arm, making it impossible to determine the position or condition of the trusses. The 315-foot main centre posts are each broken in several places, and have their feet on the ground on the south side of the main pier and their tops on the north side with the finials only projecting above the surface of the water. The anchor span, which, of course, was not self-supporting without the reactions from the cantilever span, and, owing to lack of compressive strength in its top chord, must have necessarily collapsed with the failure of the cantilever span, if not before, fell flat on the ground almost in its vertical plane, deviating laterally a surprisingly small amount. The bottom chords and some of the truss members projected in some places a few feet beyond the original planes of the trusses on both sides of the bridge, but the top chords in general moved a little east. There was no connection between the anchor arm and approach span except the four lines of track rails, three of which pulled off from the anchor arm and hung down vertically almost to the bottom of the pier, and the compressed air pipe which

pulled free at one connection near a long transverse arm without displacing the latter. The approach span remained entirely unaffected by the collapse. The anchor pier bent, 95½ feet high from top of masonry to roadway level, has two vertical posts which enclose the anchor eyebars and are 17 feet wide at the base parallel to the bridge axis. These revolved to the north about their lower ends to a position a little beyond the horizontal, and the trusses in collapsing moved still further north until the panel points up to eight (counting from the shore end) at least were 100 feet or more beyond their original positions.

The destruction and mutilation of members was most terrific on the main pier, across which fell the 3,000,000 lbs. vertical bent with 4 by 10 feet four-web vertical posts 315 feet high on centres with stresses of over 10,000,000 lbs. each. Each post was made in five sections and weighed 712,000 lbs., exclusive of the top and bottom pin connection pieces. They were connected by two massive plate girders and three deep lattice girders, all double. The foot of the east truss post, with its shoe and the V-shaped special lower chord section connected to it, fell on the shore side of the pier and formed one leg of a letter N, with the top of the other leg resting against and rising a few feet above the top of the pier, where it was broken through and separated 20 feet or more from the remainder of the post, which formed a letter V on the river side of the pier with the vertex under water and the finial, projecting 40 feet above the pier centre, emerging nearly horizontal and pointing north-east. A portion of the west truss main post extends horizontally across the pier obliquely, from about 1 to 4 feet clear of the east side of the west pedestal and 12 or 15 feet above the masonry. In the middle of this section two or three of the webs are broken through and at one end are rolled up close; the remaining one or two webs are continuous but very badly shattered and twisted. Beyond this place, on both sides of the pier, the lattice bars are destroyed and the post webs mashed up together and bent at right angles, connecting the horizontal part of the post with vertical parts on each side of the pier. The wide, thick web plates and 8-inch flange angles are shattered, twisted and broken, and look like rags. Between the bolsters the twisted and torn steelwork is piled up in a jagged mass about 20 feet high above the bolster tops. In the upper

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part of the wreckage lie the top chords, still connected, and displaced transversely about 8 feet east of their original positions.

Throughout the wreck the eyebars and all connections, except those of the lower chords which were subjected to shearing conditions in the pits, endured remarkably well, but the latticing, even when made with well-riveted large angles, as in the main posts and chords, broke and sheared its rivets in many places, failing to develop the compressive strength of the webs and allowing them to buckle and twist between tieplates where, as a rule, they retained their original cross section. It was observed that in most cases where plates and angles were sheared it was through the rivet holes. In numberless cases very thick plates and angles were sheared, twisted, curled and bent at sharp angles, and their behaviour and the texture of the fracture invariably indicated high-grade steel in which no sign of flaw or other defect was anywhere observed.

That anybody on the bridge should have escaped alive is miraculous, when it is considered that the least distance any part fell was over 150 feet, and that some of them fell over 400 feet, the bulk falling over 150 feet. Notwithstanding, eleven of the men who went down with the steelwork escaped alive, and will probably recover from their injuries. Two brothers were rivetting at the top of post P<sub>1</sub>, over 200 feet above the rocky ground; one was inside the post and the other inside the transverse strut, both holding on rivets. The massive post was bent, crumpled and torn to pieces, and the men escaped. Another rivetter who was also holding on inside the lower chord near the main pier, more than 50 feet above the ground, went down in it and emerged alive. One man on top of the main traveller fell with it about 400 feet into the water and was rescued; another on top of the small traveller fell about 250 feet into the water and was also rescued.

The Canadian Government has appointed a commission composed of Mr. H. Holgate and Mr. Kerry, of Montreal, and Professor Galbraith, of Toronto, to investigate the accident, and every effort is being made by the Quebec Bridge Company and the Phoenix Bridge Company to determine the cause of the disaster and fix the responsibility where it belongs, regardless of who may be at fault. No

facts have been concealed, and every facility was extended for the examination from which these notes have been prepared.

### AN IMAGINARY GRIEVANCE.

It may be remembered that some months back there were allegations about the indifference to have specifications for heating apparatus properly carried out in two of the Board schools of Dundee. During the vacation Mr. Thomas Young, a consulting engineer, was commissioned to examine and test the installation. The following is his report:—

#### *Ancrum Road School.*

In terms of remit, I again visited this school on June 28, 1907, and had the whole of the work measured as actually carried out by Messrs. A. L. Peacock & Co., heating contractors, Dundee. The complete measurement amounts to 864*l.* 3*s.* 7½*d.* Of this amount 165*l.* 13*s.* 3½*d.* is for extra items outside the original heating contract, thus leaving the sum of 698*l.* 10*s.* 4*d.* for the heating contract. The quantities of materials are greatly in excess of what was allowed in the original specification, which accounts for the above amounts. With reference to the following complaints:—

1. Whether a single or double-pipe system has been installed.—There is no question but that a single-pipe system has been installed.

2. That cast-iron tees, bends and connections have been supplied instead of wrought-iron.—The bulk of the tees, bends, &c., used are of cast-iron and not wrought-iron, as specified. I have priced these at cast-iron rates.

3. That cheaper radiators than those specified have been supplied.—A cheaper and different kind of radiator has been used in the air ducts or flues. A greater number, however, have been installed, which brings up the total price to within 1*l.* of those specified.

4. That cheaper valves have been used, and that piping supplied is not the specified size.—The valves specified have been used as far as possible. Those for controlling the radiators in rooms had to be made of a special design, and are more costly than those specified. The dimensions of piping have been altered to suit the installation.

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5. That the following items in specification have not been supplied :—One Evans power pump, belting,  $\frac{1}{2}$  h.p. Crompton motor, three batteries of sanitary pin radiators.—It is true that the above have not been supplied, the architect having considered that these were not necessary. The sum allowed for these items in the tender was 16*l.* 5*s.* Should these be required at a future date they would cost the Board 53*l.*

6. Messrs. Peacock's tender amounted to . £725 0 0  
Deducting the items not supplied,  
pumps, &c. . . . . 16 5 0

Leaving . . . . . £708 15 0

The heating contract has been completed for the sum of 698*l.* 10*s.* 4*d.* This amount included a large number of items not provided for in the original specification. The other items which go to make up the additional 165*l.* 13*s.* 3½*d.* are :—Hat and coat rails, pegs, copper coils and piping for hot water, radiator basis, marble tops, chequered flooring-plates, hire of temporary electric motor, &c.

7. The contract stipulates that the work must be done to the entire satisfaction of the architect. This has been done by the acceptance of the work and materials as carried out, and further that the Board have already expressed themselves satisfied with the architect's explanations. In conclusion I may state that the Board have got a good and cheap installation, and that they are only paying for the quantity and quality of materials supplied.

*Harris Academy.*

As instructed I visited this school on Tuesday, June 4, and made an examination of the heating installation as carried out by Messrs. A. L. Peacock & Co., and remeasurement prepared by Mr. Langlands, architect. Regarding the complaints made, the following summary deals with the points raised :—

1. That a single-pipe system has been erected instead of a double-pipe system, specified in schedule.—The system as carried out is what is known as the single-pipe system, having flow and return mains with single riser to each radiator. The actual quantity of piping, valves, &c., used in carrying out the work has been charged and paid for.

2. That the radiators specified have not been supplied.—The radiators used cost per square foot of heating surface more than those specified.

3. That ordinary asbestos covering on the mains has been used in place of moulded asbestos covering.—Ordinary asbestos covering applied in a plastic state has been used for covering the piping, instead of the moulded asbestos covering specified. This would cost 1*d.* per square foot less than the moulded covering. The plastic covering, so far as efficiency in this installation is concerned, is equal to the moulded covering.

4. That fittings of cast-iron instead of steam quality wrought-iron have been supplied.—Wrought-iron piping has been used throughout, but cast-iron bends, tees, &c., have been used. Although the term "steam quality" is mentioned in the specification, no mention is made as to whether the steam quality refers to wrought-iron or cast-iron. The contractors were therefore entitled to use cast-iron connections provided they were of steam quality. These cast-iron fittings are universally used on the Continent, in America and in this country for similar heating installations.

5. I enclose new measurement, which brings out the total for work done by Messrs. Peacock at 239*l.* 12*s.* 4*d.* They have been paid 245*l.* 13*s.* 3*d.*

6. I consider the Board have got a good installation at a low figure, the materials and workmanship being of high-class quality.

A NEW PROTECTIVE COVERING.

A PAPER was read by Mr. F. J. R. Carulla (Derby) on "A New Blue-black Iron Paint as a Protective Covering" at the Iron and Steel Congress at Vienna.

In the preparation of iron and steel rods for wire-drawing and galvanising, as also in the preparation of plates for tinning, &c., the iron, he said, is kept for a time in a bath of acid to remove the scale. The acid used may be sulphuric acid, when a solution of sulphate of iron (copperas) is produced ; or hydrochloric acid may be employed, when a solution of chloride of iron is obtained.

A number of methods have been devised to utilise these solutions, and it is the object of this paper to bring before

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you the one which appears to be the most valuable when chloride liquors have to be dealt with.

The acids named are not absolutely neutralised by the use that they are put to, so that the liquors are still active, and have to be "killed" before they are subjected to any operation for the recovery of the iron and of the acid in any form.

The sulphate "waste pickle" liquors, as they are termed, are killed or neutralised by the addition of scrap, producing a neutral solution from which copperas in the solid form is obtained, these liquors being one of the main sources of this material. When hydrochloric acid is employed, ferrous chloride is produced, which is not so tractable a salt as the sulphate, owing to its great solubility; and, besides, the demand for it is insignificant when compared with that for sulphate.

The chloride liquors are consequently generally dealt with by adding some base, which, combining with the chlorine, will precipitate the iron as an oxide, and that which naturally suggests itself is lime. This has been employed; but the calcium produced being also a very soluble and deliquescent substance, with little use for it, the process can only be resorted to as a necessity.

The idea occurred to Dr. C. F. Wulffing, for some time a resident in the Swansea tinplate district, that ammonia might be employed to effect the precipitation in question, seeing that the value of the ammonium chloride is greater than that of the ammonia employed.

The great drawback to such a process naturally is that the volatile nature of ammonia requires special attention to be given to the apparatus employed, which must necessarily be closed, and every possible means of escape of the ammonia prevented. Especially is this the case as the liquor has to be blown for a considerable period in the presence of ammonia, some of which the air carries off, and provision has to be made in the plant not to lose this ammonia.

"The necessity for this blowing or oxidation arises from the fact that Dr. Wulffing's main object is to obtain a black oxide of iron, which is only produced after long exposure to the air blast. This oxide, which is obtained as a beautiful blue-black colour, is quite insoluble in water, and when passed into the filter-press leaves a clear solution of

ammonium chloride, which is evaporated and allowed to crystallise."

The blue-black precipitate was magnetic and a valuable addition to the list of pigments that could be employed with advantage for the protection of structural ironwork.

By similarly treating the chloride liquors with other bases a black colour could be obtained, but it was not of the extreme fineness possessed by the substances when ammonia was employed. It was also necessary to consider that absolute chemical purity was unattainable whatever method might be employed. If the process was attempted with lime, some of this, which was a most undesirable impurity, remained behind, the colour produced being besides of poor quality. With ammonia, on the other hand, the black oxide was left with a trace of a double salt. This acted beneficially on the paint, although ammonium chloride by itself would not do so. Structures that had been painted with this blue-black oxide of iron (boiled linseed oil being used in the preparation of the paint) had kept fresh, though exposed to the weather, for nearly two years, still showing a varnish-like surface.

The Sharon Chemical Co., Ltd., to whom Dr. Wulffing had assigned the English patent, were putting up a plant in Derby.

THE Birmingham Board of Guardians have received the sanction of the Local Government Board for borrowing 16,594*l.* for the Guardians' portion of the cost of erecting buildings for epileptic and feeble-minded persons at Monyhull Hall.

On Saturday it transpired that the Ammonia Soda Company intend to erect a large chemical works at Plumbley, near Northwich, at an early date. Boring operations for brine were successful, and the brine shaft recently completed is 7 feet by 7 feet 6 inches and 293 feet deep. It is claimed that the brine is abundant, of the best possible quality and rises to within 60 feet of the surface. It has been tested by a powerful pump and is declared to be inexhaustible. The estate has been taken over by the above company, and some of the contracts for the works have already been let.

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THE

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As Westminster has become one of the most important centres of the professions of Architecture and Civil Engineering, arrangements have been made by Messrs. GILBERT WOOD & CO., Ltd., to establish Branch Offices in that district at 43 OLD QUEEN STREET, S.W., Messrs. W. HAY FIELDING & CO. becoming the representatives for all business purposes.

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**NOTICE TO ADVERTISERS.**

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

**TENDERS, ETC.**

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

BOOTLE (LANCS).—Jan. 31.—The Bootle education committee invite designs for a public elementary school for 1,000 children. Conditions and particulars may be obtained from Mr. J. Henry Farmer, town clerk, Town Hall, Bootle.

CEMAES.—Oct. 15.—The Twrc-lyn Rural District Council invite plans and specifications for a drainage scheme for the village of Cemaes, Anglesey. Competitors are requested to state the remuneration required by them for the plans, specifications and supervision of the work. Mr. Thomas Hughes, clerk, Brynaethwy, Menai Bridge.

DOVER.—Oct. 14.—The committee of the Dover pageant, July 27 to August 1, 1908, invite coloured designs for a suitable double-royal poster (40 inches by 25 inches). There should be some indication of the sea, a ship and Dover as the key of England. Prizes of 10l., 2l. 10s. and 1l. are offered. The prize-winning designs will become the absolute property of the committee. The Secretary, Pageant House, Dover.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

**CONTRACTS OPEN.**

ALRESFORD.—Oct. 10.—For erection of infirmary and other alterations at Alresford Union workhouse, Hants. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

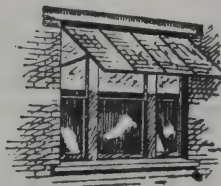
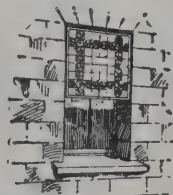
AMBLE.—Oct. 15.—For building farmhouse at Amble Link farm. Mr. R. G. McInnes, agent, Amble, Northumberland.

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**BACUP.**—Oct. 19.—For reconstruction, widening and improvement of the bridge carrying Blackwood Road over the river Irwell at Stacksteads. Deposit 1*l*. 1*s*. Mr. W. H. Elce, A.M.I.C.E., borough engineer, Municipal Buildings, Bacup.

**BASSENTHWAITE.**—Oct. 9.—For alteration and extension of three houses at Castle Hill, Bassenthwaite, Cumberland. Mr. F. O. C. Nash, engineer and surveyor, Cockermouth.

**BEN RHYDDING.**—For erecting and completing a house at Ben Rhydding, Yorks. Mr. W. H. Herbert Marten, architect, Ilkley.

**BEVERLEY.**—Oct. 15.—For erection of a high school for girls in Norwood. Deposit 1*l*. 1*s*. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowldalley Lane, Hull.

**BISHOP'S STORTFORD.**—Oct. 7.—For repairing and painting cottage at waterworks. The Surveyor, 7 North Street, Bishop's Stortford.

**BRADFORD.**—Oct. 10.—For extension to laundry in Barnard Terrace, Usher Street, also shop fittings to new store in Marsh Street, Manchester Road. Mr. Wm. Rycroft, architect, Bank Buildings, Manchester Road, Bradford.

**BRIDPORT.**—Oct. 21.—For erection of a secondary school in St. Andrew's Road. Mr. F. Cooper, architect, 77 East Street, Bridport.

**CANTERBURY.**—Oct. 16.—For alterations and extensions to city police station in Pound Lane. Mr. Arthur C. Turley, A.M.I.C.E., city surveyor, Guildhall Street, Canterbury.

**CHOPWELL.**—Oct. 10.—For erection of ninety cottages at Chopwell, for the Consett Iron Co. Mr. Charles E. Oliver, General Offices, Consett.

**CLEADON.**—Oct. 15.—For erection of new Council school at Cleadon, Durham. Mr. J. H. Morton, architect, 50 King Street, South Shields.

**CONSETT.**—Oct. 10.—For erection and completion of villa, stable, &c., at Blackfyne, Durham. Mr. Thos. H. Murray, architect and surveyor, Consett.

**DEAL.**—For erection of swimming and other baths, concert hall and bungalows, to cost 10,000*l*. Under a city architect. Apply to Councillor H. Barron, Deal.

**DUBLIN.**—Oct. 14.—For construction and erection of a steel umbrella platform roof, 132 feet by 21 feet 6 inches,

at their Clones station, also for supplying and delivering at Drogheda station twenty steel cross girders, weighing rather less than one ton each, for the Great Northern Railway Company (Ireland). Mr. W. H. Mills, engineer-in-chief, Amiens Street, Dublin.

**DUBLIN.**—Oct. 22.—For the superstructure of the college in Upper Merrion Street, and for erection of workshops adjoining. Deposit 5*l*. 5*s*. The Secretary, Office of Public Works, Upper Merrion Street, Dublin.

**HAM.**—Oct. 21.—For erection of a board-room and stable and cart-shed at Ham, Surrey. Mr. H. J. Turner, surveyor, Malthouse Cottage, Ham Common.

**HANLEY.**—Oct. 7.—For following works, for the Corporation:—(1) Etruria Park, shelter and conveniences; (2) Northwood Park, shelter and conveniences. Mr. Joseph Lobley, borough engineer and surveyor, Town Hall, Hanley.

**IRELAND.**—Oct. 14.—For building a dispensary residence and dispensary at Anamoe, for the guardians of Rathdrum Union. Mr. George T. Moore, C.E., 1 and 2 Foster Place, College Green, Dublin.

**KEIGHLEY.**—Oct. 11.—For erection of public urinals in Lord Street. Mr. Walter Fowlds, borough engineer.

**LANCASTER.**—Oct. 10.—For mason, joiner, plumber, slater and plasterer and painter's work required in erection of an entrance lodge at the Scotforth cemetery. Mr. J. C. Mount, borough surveyor, Town Hall, Lancaster.

**LEEDS.**—Oct. 7.—For supplying and fixing library fittings at Central Library and Brownhill Council school. Mr. W. T. Lancashire, city engineer, Municipal Buildings, Leeds.

**LEISTON.**—Oct. 26.—For erection of a higher elementary Council school and cookery, laundry and manual instruction special subjects centres at Leiston, East Suffolk. Deposit 2*l*. The Education Committee, County Hall, Ipswich.

**LONDON.**—Oct. 8.—For erection of two small bath-rooms at the workhouse, Bridport Road, Edmonton, N. Mr. Stuart Hill, architect, 106 Cannon Street, E.C.

**LONDON.**—Oct. 8.—For erection of a tramways electricity sub-station at Lewisham, S.E., for the London County Council. The Highways Section of the Architect's Department, 13 Charing Cross, S.W.

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LONDON.—Oct. 9.—For erection of a school for mentally and physically defective children at Pound Lane, Willesden Green, N.W. Deposit 3*l*. 3*s*. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

LONDON.—Oct. 16.—For erection of pumping station (exclusive of engine work) and works contingent thereto, in connection with the drainage of White Hall Estate. Deposit 2*l*. Mr. C. J. Jenkin, A.M.I.C.E., surveyor, Church End, Finchley, N.

LONDON.—Oct. 15.—For enlargement of County Court at Bloomsbury, W.C. Deposit 1*l*. 1*s*. Mr. H. N. Hawks, I.S.O., H.M. Office of Works, &c., Westminster, S.W.

MANCHESTER.—Oct. 14.—For erection of infants' school and additions and alterations to existing Ardwick Municipal school, Hyde Road. Deposit 2*l*. 2*s*. The Education Offices, Deansgate, Manchester.

MARCH.—For new abutments and repairs to bridge over Middle Level main drain near its junction with the river Ouse. Mr. Alfred Lunn, C.E., Middle Level Offices, Cambs.

MEXBOROUGH.—Oct. 7.—For whole or part tenders in erection and completion of a dual secondary school for 346 at Mexborough, near Rotherham. Deposit 1*l*. 1*s*. Mr. J. E. Knight, architect, 33 College Street, Rotherham.

NEWLYN.—Oct. 5.—For construction of a block of offices on a site adjoining the harbour at Newlyn, Cornwall, for the Newlyn Pier and Harbour Commissioners. Deposit 1*l*. 2*s*. Mr. W. T. Douglas, M.I.C.E., 15 Victoria Street, Westminster, S.W.

PENSTRAZE MOORS.—Oct. 15.—For erection of a farmhouse at Penstraze Moors, Cornwall. Mr. Leonard Winn, architect and surveyor, 27 Boscawen Street, Truro.

PENZANCE.—Oct. 12.—For construction of new floor for bandstand in Morrab Gardens. Mr. Frank Latham, M.I.C.E.I., Public Buildings.

PORTSMOUTH.—Oct. 7.—For erecting, completing and maintaining in thorough repair for six months from completion four new villa blocks and other works in connection therewith at the lunatic asylum, Milton, in the borough of Portsmouth. Deposit 3*l*. 3*s*. Messrs. Rake & Cogswell, architects, Prudential Buildings, Portsmouth.

PORTSMOUTH.—Oct. 21.—For erecting, completing and maintaining in thorough repair for twelve months a concert

pavilion, bars and tea-rooms, shelter pavilion, entrance buildings, kiosks and canopy at the South Parade pier, and the widening of the present pier, including all foundations, piling, lattice girders and other works at the South Parade pier, for the Town Council. Deposit 3*l*. 3*s*. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea, Portsmouth.

RADCLIFFE.—Oct. 7.—For erection of 16 houses (in two tenders) in Old Turk's Road, Lever and Clyde streets. The Radcliffe and Pilkington Co-operative Society's Board-room, Sion Street, Radcliffe, Lancs.

SALTASH, &c.—Oct. 8.—For erection of footbridges (in steel and iron) at Saltash, Gwinear Road and Pewsey stations, for the Great Western Railway Company. The Engineer, Paddington Station.

SAXTON.—Oct. 9.—For pointing to masonry (exterior and interior), opening-out and altering roof, and other work at Saxton Church, near Tadcaster (Church Fenton station). Messrs. R. Lofthouse & Sons, architects, Middlesbrough.

SCAMMONDEN.—Oct. 7.—For erection of a branch store, butcher's shop and dwelling-house at Pole Moor, Scammonden, Huddersfield. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

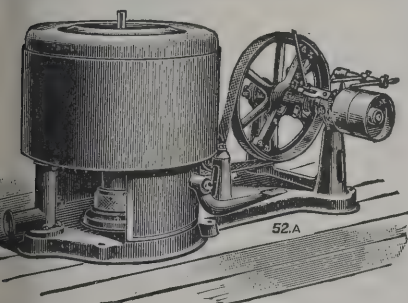
SCOTLAND.—Oct. 8.—For mason, joiner, plumber, slater, plasterer and cementer's work required in connection with additions to Station-hotel, Morar. Messrs. L. & J. Falconer, architects, Fort William.

SCUNTHORPE.—Oct. 17.—For erection of Primitive Methodist church and schools, Frodingham Road, Scunthorpe, Lincs. Mr. Hy. Harper, architect, 54 Long Row, Nottingham.

SEVENOAKS.—Oct. 16.—For heating Union workhouse by low-pressure hot-water system, and erection of boiler-house and chimney, &c. Mr. George F. Carnell, clerk to the Guardians, 130 High Street, Sevenoaks.

SHELFIELD AND SHORT HEATH (STAFFS).—Oct. 12.—For proposed infants' Council school, to accommodate 220 children, at Shelfield, near Walsall, and slight alterations to existing school, and a new Council school, to accommodate 276 children, at Short Heath, near Wolverhampton. Deposit 1*l*. 1*s*. in each case. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

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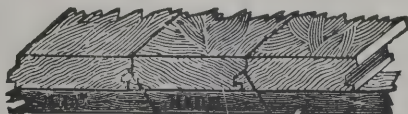
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**STEEPLE LANGFORD.**—Oct. 14.—For alterations and repairs to the East End inn, Steeple Langford, Wilts. Messrs. John Harding & Son, architects and surveyors, 58 High Street, Salisbury.

**SLAITHWAITE.**—Oct. 10.—For various works except carpenter and joiner) required in erection of four dwelling-houses at Lower Rotcher, Slaithwaite, Yorks. Mr. Arthur Shaw, architect, Golcar.

**WAKEFIELD.**—Oct. 10.—For making alterations and additions at the workhouse, Park Lane. Messrs. Simpson & Firth, architects and surveyors, Southgate Chambers, Wakefield.

**WALES.**—For erection of 250 cottages, for the Cymmer Glyncoirw building club. The London, Provincial, South Wales and Continental Engineering and Drawing Office, 159 Cathedral Road, Cardiff.

**WALES.**—Oct. 7.—For erection of additional premises at New Tredegar, also alteration and addition to property at Bargoed. The Committee, Co-operative Society, 54 and 56 Commercial Street, New Tredegar, Mon.

**WALES.**—Oct. 8.—For erection of twenty or more dwelling-houses at Bedlinog. Messrs. Jones & Howard, architects and surveyors, Station Road, Nelson, *via* Cardiff.

**WALES.**—Oct. 9.—For erection of cookery and laundry-rooms, physical laboratory, classroom, &c., for the Managers of the Tasker's Endowed Girls' School, Haverfordwest. Messrs. D. Edward Thomas & Son, architects, 17 Victoria Place, Haverfordwest.

**WALES.**—Oct. 10.—For erection of a lodge, also stable buildings and motor-house, near Llanishen. Mr. G. E. Halliday, architect, 19 Castle Street, Cardiff.

**WALES.**—Oct. 11.—For erection of additions and alterations to the Gwalia hotel, Llandrindod Wells. Deposit 3*l*. 3*s*. Mr. Alfred Swash, F.R.I.B.A., Midland Bank Chambers, Newport, Mon.

**WALES.**—Oct. 11.—For erection of a swimming-bath, hall to seat 1,500, institute and library at Ferndale. Deposit 3*l*. 3*s*. Mr. T. E. Richards, architect, Market Square Chambers, Pontypridd.

**WALES.**—Oct. 12.—For erection of fifty or more houses at Tonmawr. Mr. J. Cook Rees, architect and surveyor, Neath.

**WALES.**—Oct. 14.—For erection of fifty houses or thereabouts at Coed Ely, Tonyrefail. Mr. Arthur Lloyd Thomas architect and surveyor, Church Street Chambers, Pontypridd.

**WALES.**—Oct. 14.—For erection of a school, schoolmaster's house, offices, workshops and cottages in the Elar Valley, near Rhayader, Radnorshire, for the Birmingham Water Committee. Deposit 5*l*. Mr. Herbert T. Buckland architect, Norwich Union Chambers, Congreve Street Birmingham.

**WALES.**—Oct. 19.—For proposed Council school at Rhiw-Syr-Dafydd, near Blackwood, Mon, to accommodate 300 children. Deposit 3*l*. 3*s*. Mr. R. L. Roberts, architect Abercarn.

**WARRINGTON.**—Oct. 11.—For works for the Bolton Council school, Latchford, viz.:—(a) Heating installation by low-pressure hot-water pipes; (b) ventilators; (c) lavatory fittings; (d) railings, gates, &c.; (e) grates, ranges, Leaming ton bars, &c.; (f) tiled dadoes; (g) cloak-room fittings (h) screen, table and platform; and (i) small hand hoist. Messrs. J. E. Wright, Garnett & Wright, architects, 45 Sankey Street, Warrington.

**WENTBRIDGE.**—Oct. 7.—For erection and completion of a mixed school. Messrs. Tennant & Collins, architects and surveyors, Pontefract and at Barnsley.

**WINDERMERE.**—Oct. 9.—For building a residence on the Rayrigg estate. Mr. John Stalker, architect and sanitary engineer, 57 Highgate, Kendal.

**WOODBIDGE.**—Oct. 12.—For erection of a Council school and special subjects centre at Woodbridge, Eas Suffolk. Deposit 2*l*. Mr. Jno. S. Corder, architect, Towle Street, Ipswich.

THE Earl of Mansfield is having his mansion at Ker Wood, adjoining Hampstead Heath, lighted by electricity. A contract has been entered into with the Hampstead Borough Council for the purpose, and electricians are engaged on the installation, which is said to be one of the largest ever undertaken in connection with a private residence in or near London. In this case the electric light is directly to supersede the use of wax candles.

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Anderson . . . . .	489 0 0	485 0 0
D. T. Jackson . . . . .	488 0 0	488 0 0
Burrill . . . . .	470 0 0	470 0 0
Willis & Powis . . . . .	461 0 0	461 0 0
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Minter . . . . .	4,617	0	0
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Cheeseman . . . . .	4,403	0	0
Heylett & Hammond . . . . .	4,297	0	0
Greenfield . . . . .	4,252	0	0
Ellis . . . . .	4,183	0	0
Wallis & Bennett . . . . .	4,070	0	0
Gammon . . . . .	4,075	0	0
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Glendinning . . . . .	3,990	0	0
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Chick, Carden & Co. . . . .	3,891	0	0
Drowley & Co. . . . .	3,799	0	0

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Orrell Brook (concrete) sewer.

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Jackson . . . . .	2,277	12	0
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Balmer . . . . .	1,979	3	3
Marr . . . . .	1,879	6	11
Gale . . . . .	1,736	10	0
MACDONALD, Westminster (accepted) . . . . .	1,692	11	8

Alexandra Drive (pipe) sewer.

Chadwick . . . . .	2,162	6	11
Owen . . . . .	1,951	7	0
Marr . . . . .	1,717	8	10
Annakin . . . . .	1,711	15	11
Jackson . . . . .	1,645	16	0
Balmer . . . . .	1,552	7	8
MACDONALD, Westminster (accepted) . . . . .	1,494	12	4
Gale . . . . .	1,219	0	0

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For making-up Ferndale Road. Mr. RICHARD COLLINS, surveyor.

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Griffiths . . . . .	768	0	0
Bell & Son . . . . .	698	0	0
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Everett & Sons . . . . .	2,572	0	0
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Killingback & Co. . . . .	2,314	16	11
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Saunders, Dovercourt ( <i>provisionally accepted</i> ) . . . . .	586	11	11

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For drainage of Humberstone Avenue. Messrs. BENTLEY &amp; HALL, engineers, Grimsby.

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J. C. Allison . . . . .	292	14	6
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Brown . . . . .	291	11	6
WHITE, Grimsby ( <i>accepted</i> ) . . . . .	277	10	0

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Deacon & Son . . . . .	625	0	0
Fry . . . . .	625	0	0
Haslemere Builders . . . . .	620	0	0
DOUGHTON, Haslemere ( <i>provisionally accepted</i> ) . . . . .	565	0	0
Ticehurst . . . . .	500	0	0
Madgwick . . . . .	484	16	0

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For erection of house. Mr. T. WALLIS, architect, 146A Wardrobe Chambers, Queen Victoria Street, London, E.C.

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Phelps . . . . .	1,974	0	0
Jeal . . . . .	1,790	0	0
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Allen & Sons	1,237	0	0
Bevan	1,172	0	0
Williams	1,145	0	0
Symons & Co.	1,124	18	6
Davies	1,120	0	0
Maggs & Co.	1,102	18	0
Morgan	1,050	0	0
PYE, PARKINSON & Co., Swansea (accepted)	982	16	10

Roads and sewers.

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Evans	360	0	0
Maggs & Co.	313	19	0
Morgan	313	7	0
Williams	307	0	0
Bevan	300	0	0
Pye, Parkinson & Co.	276	7	0
Barnes, Chaplain & Co.	273	10	0
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For erecting parish church. Mr. E. A. JOHNSON, architect, Abergavenny.

BEVAN, Penarth (accepted)	£3,500	0	0
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Chittenden & Simmons	1,250	8	7
Hoffman.	1,192	6	6
Kavanagh & Co.	1,187	0	0
Pearce	1,130	0	0
Wheeler	1,128	0	0
Parry & Co.	1,095	0	0
Etheridge	1,091	7	10
Fry Bros.	1,089	16	4
Mowlem & Co.	1,087	0	0
Dykes	1,082	1	7
Lane	1,071	0	0
Iles	1,068	5	8
POTTER & Co. (accepted)	1,006	18	11

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F. & F. H. Higgs	£1,211	0	0
Patman & Fotheringham	1,181	0	0
Marsland & Son	1,080	0	0

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Bartlett	£7,766	0	0
Berry	7,422	0	0
Pollard	7,376	0	0
Moore	7,362	0	0
Drew	7,328	0	0
Bromage & Evans	6,987	0	0
Gandle & Sons	6,931	0	0
Tovey	6,911	0	0
Merrick	6,892	0	0
Parnell	6,737	0	0
Long & Son, Bath (recommended)	6,437	0	0
Carden & Co.	6,306	0	0

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Dinning & Cooke	189	15	0
Rowlett	168	15	0
Rosser & Russell	167	0	0
Hope & Sons	163	0	0
Spencer	161	10	0
Smith & Co.	156	10	0
Werner, Pfeleiderer & Perkins	152	15	0
Musgrave	149	10	0
Stott & Co.	149	0	0
Pearce & Sons	147	10	0
Ward	145	0	0
Truswell & Co.	140	10	0
SHEEN & WELLS, Sheffield (accepted)	139	0	0
Cook & Sons	136	0	0
Brightside Foundry and Engineering Co.	131	10	0

## SCUNTHORPE.

For erection of higher elementary school and pupil-teachers' centre. Messrs. SCORER &amp; GAMBLE, architects, Lincoln.

Houston & Son	£12,250	0	0
Jarvis & Sons	12,140	0	0
Salmon & Co.	12,078	5	9
Eastwood & Sons	11,630	0	0
Sprokes & Sons	11,600	0	0
Sattinson & Sons	11,494	0	0
Thompson	10,910	13	4
Cuthbert	10,840	0	0
Moss & Sons	10,484	0	0
PARKER & SON, Boston (accepted)	10,105	0	0

## SKELTON-IN-CLEVELAND.

For erection of workmen's club in Airy Hill Road.

Ridsdale	£750	0	0
Calvert	710	0	0
Cook	626	0	0
HASWELL, Guisborough (accepted)	621	16	0

## SOUTHEND-ON-SEA.

For erection of shelters, Southchurch beach. Mr. E. J. ELFORD, borough engineer.

	Wood.	Concrete.
Riley	£180	195
Lisles & Sons	175	185
Stimpson & Chambers	137	165
Guiver	131	166
Wrinch & Sons	125	185
Harbrow	118	134
MacManus	107	114
F. & E. Davey	105	115
Radford & Greaves	105	115
Elvy & Sons	97	114
F. Davey	93	98
FLAXMAN, Southend-on-Sea (accepted) *	79	*84
Parham, Ltd.	75	114

## STANSTED.


For construction of septic tank and filter-bed with distributors. Mr. E. T. WATT, surveyor.

Streeter & Co.	£917	17	9
Muirhead & Co.	895	0	0
Parkinson	847	0	0
Bell & Sons	816	0	0
Read	794	0	0
Jackson	699	19	9
FRENCH, Buckhurst Hill (accepted)	690	0	0

## SUTTON COLDFIELD.

For new road on the Cottage estate. Messrs. MARSTON &amp; MARSTON, engineers.

White, jun.	£2,770	2	11
Trentham	2,677	10	0
Sutherland & Thorpe	2,506	9	5
C. Holloway	2,347	0	0
Carroll, Lewis & Martin	2,296	0	0
Atkins	2,116	5	6
H. HOLLOWAY, Wolverhampton (accepted)	2,097	0	0
Engineer's estimate	2,101	10	6



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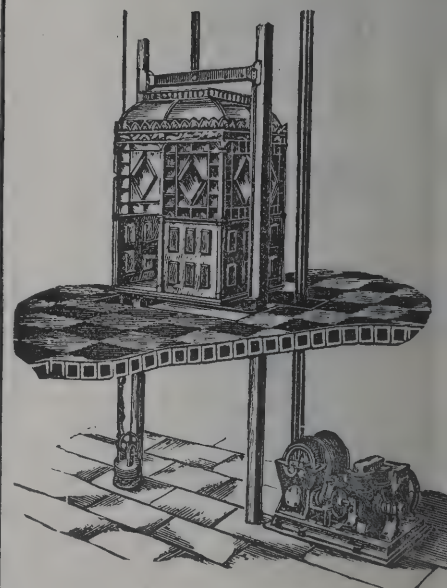
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Farrer . . . . .	£1,320	0	0
Jennings, Ltd. . . . .	1,300	0	0
Coles . . . . .	1,282	9	6
Wilkins & Sons . . . . .	1,247	14	0
Francis . . . . .	1,188	5	5
Marshall . . . . .	1,147	0	0
BLAKE, Plymouth (accepted). . . . .	1,022	0	0

THORNHILL (NEAR DEWSBURY).

For erection of carbide factory.

PICKERSGILL & SONS, Ossett, Yorks, builders, &c. (accepted) . . . . .	£1,124	19	0
Brownlie & Murray, Glasgow, structural engineers . . . . .	620	0	0

TOTTENHAM.

For erection of bottling stores. Mr. H. SEYMOUR COUCHMAN, architect, 522 High Road, Tottenham.

Cubitt & Co. . . . .	£10,273	0	0
Snewin Bros. & Co. . . . .	10,242	0	0
Hawkey & Oldman . . . . .	9,630	0	0
Lascelles & Co. . . . .	9,187	0	0
Carmichael . . . . .	8,997	0	0
Shurmur & Sons . . . . .	8,955	0	0
Patman & Fotheringham . . . . .	8,873	0	0
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TRADE NOTES.

THE contract for the entire warming, ventilation, hot and cold-water supplies and fire mains for the extensions to the Staffordshire county asylum, near Leek, has been placed in the hands of the Brightside Foundry and Engineering Company, Ltd., of Sheffield and London.

A BOOKLET, which is a typographical gem and worth preserving for its execution, has been issued by Messrs. Robert Boyle & Son. It contains numerous testimonies by experts to the qualities of their natural system of ventilation.

MESSRS. WM. POTTS & SONS, of Leeds and Newcastle-on-Tyne, have received instructions to make and fix a large Cambridge quarter-chime clock for the Abbey Church, Monkton Priors, Pembrokeshire, South Wales.

MESSRS. OETZMANN & Co., LTD., have supplied the whole of the stage furnishing for the series of French plays at the New Royalty Theatre for the season which commenced on the 2nd inst. The scenes will sustain comparison with the setting of the Paris theatres.

THE De Laitte Gas Machine Syndicate, Ltd., of 117 Middlesex Street, London, E., have within the past fortnight supplied large De Laitte machines both for the Lancashire and Yorkshire Railway and the Bombay and Baroda Railways.

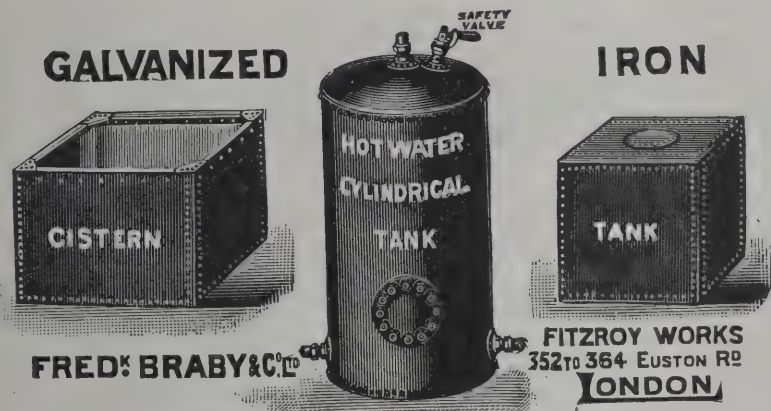
UNDER the direction of Messrs. Greenhalgh & Brockbank, architects, Southend-on-Sea, the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the Bournemouthe Park Road schools, Southend-on-Sea.

THE whole of the stonework for St. Simon's Church, Plymouth, was prepared in the masons' shops of the Bath Stone Firms, Ltd. It is built of St. Aldhelm Box-ground stone for the outside, Monk's Park for the interior and corngrit for the columns. The architect is Mr. Harbottle Reed, of Exeter, and the builders Messrs. Pethick Bros., of Plymouth.

"BUSINESS MAGNETS" is the title of a new catalogue issued by Parnall & Sons, Ltd., Bristol. This is a well-known house as manufacturers of shop fronts and fittings, weighing apparatus and general trade utensils, but the present catalogue is devoted to illustrations of illuminated signs and other advertising novelties calculated to arrest attention and bring trade. Copies can be had free on application from either their registered offices in Bristol, their London offices, 10 Rood Lane, E.C., or from their Swansea address, 12 Alexandra Road.

IN confirmation of our remarks last week concerning the excellence of the "Hatfield" pump, we have received from Messrs. Merryweather & Sons, Ltd., the makers, a copy of a testimonial respecting the same, and the ap-

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pliances supplied to the Western Counties Asylum, Star-cross, near Exeter, sent to them a few days ago by the secretary. It says:—"The fire-extinguishing appliances, hydrants, &c., installed by you at this institution some eight years since have proved satisfactory in every respect, and, although used regularly for practice purposes, have never yet got out of order. I cannot speak too highly of the 'Hatfield' pump which, driven by a stationary gas-engine, is used as a fire-engine and also for pumping the daily supply of water to the top of the building. The triple-barrel arrangement of the pumps and short stroke insures a steady flow of water, whilst the engine has worked smoothly and well and has cost nothing for repairs."

An important combination of structural engineering works has been effected by the purchase and incorporation by Messrs. A. & J. Main & Co., Ltd., Clydesdale Iron Works, Possilpark, Glasgow, of Arrol's Bridge and Roof Works, Germiston, Glasgow. The necessity for a large extension to their productive capacity has been forced on Messrs. Main & Co. by the continued expansion of their business in all parts of the world where steel and iron buildings find a market, and also to enable them to cope thoroughly with the demand for the heavier class of bridge and girderwork, for which the Germiston works have been laid out and equipped. The additional facilities now added to Messrs. A. & J. Main's capacity for dealing with the requirements in structural steel construction may be indicated by a mention of some of the important contracts executed by the Arrol Bridge and Roof Works, viz.:—The Connel Ferry railway bridge, 500 feet cantilever span, over Loch Eive; Widnes and Runcorn transporter bridge, 1,000 feet span, over river Mersey and Manchester Ship Canal; Waverley Bridge and station entrances, Edinburgh; Liffey Viaduct, Dublin. The services of the chief men of Messrs. Arrol's technical and works staff are being retained by Messrs. Main, and the combined businesses will be dealt with by the existing offices, branches and agencies of Messrs. A. & J. Main & Co., Ltd., at home and abroad.

THE Council of the Society of British Gas Industries announce that Sir George Livesey has accepted the presidency of the Society for next year.

### CHEMICALS AND FIRE EXTINCTION.

It must be allowed that there is a prejudice more or less general about the efficiency of chemicals in overcoming fires. That may explain why no less than eighteen tests with several re-tests were gone through by the British Fire Prevention Committee in order to ascertain the value of the "Minimax" extinguishers. The apparatus consists of a vessel in the form of a long cone made of sheet steel and coated with lead. Within it is an exit tube for conveying the jet through the aperture of the nozzle. There is also a metal cage within which is a glass tube hermetically sealed containing acid. In addition is a plunger, which on receiving a blow shatters the glass tube, when the acid combines with the bicarbonate of soda in solution, with which the apparatus is filled. There is no difficulty in quickly setting the appliance in action. The committee employed in their tests materials which are easily ignited, such as hay, loose wool, inflammable materials, wood laths, shavings, celluloid, petrol, vapour, &c. The results in each case are described in red book No. 121, but the following is a summary of the results:—

"The tests demonstrated that the extinguishers brought into action were uniformly efficient in checking a small fire in its early stages, whether applied by parties inexperienced in their use or by parties having expert knowledge of their application (*i.e.* by nominees of the committee or nominees of the testor). In several instances one appliance sufficed to completely extinguish a small fire. Where the material ignited was soft and loose great difficulty was apparent in stopping the smouldering which ensued, the flames, however, being held in check."

It may therefore be concluded that the "Minimax" extinguisher is worthy of reliance, and as such would be a helpful auxiliary in houses, manufactories and stores.

### AN ADAPTOR FOR HYDRANTS.

ANYONE who has observed what takes place at a fire is aware that the members of a fire-brigade require much steadiness, coolness and practice before they are able to make water control the flames. This arises from the excitement of the people who are quickly gathered and who

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FEDERAL SERIES.—SOUTHWARK: THE NAVE FROM THE CHANCEL.

various ways impede instead of aiding the men who have to carry on the combat. With amateurs the preliminary arrangements become still more difficult. And on account wherever apparatus exist for extinguishing fires the men who are likely to take part in the operations should be regularly drilled. Messrs. Featherstone & Co. have invented an automatic adaptor which will facilitate the action of the water and will prevent the confusion which often arises in dealing with a long line of hose. The tests which were carried out in June and July by the British Fire Prevention Committee have been described in the official report. They were made with hydrants fitted with adaptors and hydrants without adaptors, the other conditions being alike. In one case the water acted when the adaptor was closed 8 seconds sooner than with a hydrant alone. In another case there was a difference of 29 seconds. In a third case the difference was 9 seconds. The committee say that "the hydrant adaptors in each case were found to open the valves when the hose was pulled, irrespective of distance, direction and run of hose, and in the major number of the tests it was found that the water could be obtained at the branch more rapidly when the valve was opened by the adaptor than when the ordinary screw-down valve was opened after the hose was run out." By the use of the adaptor any hydrant, cock, or tap may become automatic. As there is no necessity for unscrewing, it is adapted to give confidence and to conquer the nervousness most inevitable when amateurs attempt to grapple with a fire.

## VARIETIES.

THE Preston Town Council, by twenty-nine votes to ten, decided to increase the salary of Mr. James Barron, Ribblesdale engineer, from 450*l.* to 500*l.*

MESSRS. PATMAN & FOTHERINGHAM, LTD., have secured the contract for alterations and additions to be made at 100 and 102 Theobald's Road, W.C., for the Daimler Motor Car Company. Messrs. Briant & Sons are the architects.

THE demand for houses on the estate of the Hampstead Tenants, Ltd., is such that all the houses that can be erected by the company during the next eighteen months have already been taken.

THE Local Government Board has sanctioned the application of the Belfast Corporation for a loan of 75,000*l.* for the purpose of providing additional plant and meters and making extensions in connection with the electric-lighting system of the city.

EXTENSIVE alterations are being carried out at the London Road Girls' school, Southend, for the Southend education committee, from plans prepared by Messrs. Cabuche & Hayward, architects, of Westcliff. Messrs. Jay & Co. are the builders.

THE contract for the erection of a Grammar school for Wirksworth has been let to Messrs. G. Walker & Sons, of Wirksworth. The amount of the contract is over 4,000*l.* The new building is to supersede the present ancient Grammar school. The work will be commenced shortly.

IMPORTANT alterations and improvements in the winter-train service from London to the West of England are announced by the London and South-Western Railway Company, commencing on the 1st inst. Many important changes will also be effected in the South of England service to Bournemouth, Weymouth, &c.

At a meeting of the Warwick Rural District Council held on Saturday plans were informally presented of the proposed Trafford Garden City at Hatton. The scheme contemplates the use of 150 or 200 acres of land having direct access to Hatton station. It is proposed to build seventy-one houses, with church, chapel, hotel, sports ground, dingle and institute.

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## IRON AND STEEL.

MESSRS. HALL & PICKLES, of Manchester, have brought out a new edition of their stock catalogue comprising all varieties of iron and steel used in construction—flats, squares, rounds, girders, joists, rails, &c. One great advantage is that code words are given for each variety, and they are arranged in a way which will facilitate reference. At least one-half of the book is occupied with tables showing the safe loads for various spans of rolled joists, broad flanged and ordinary beams, compound girders, stanchions, &c. The data on which the figures are based are given, and an architect or engineer can without difficulty ascertain whether the loads may be increased or should be diminished. It is a handy volume, well printed and strongly bound. Illustrations are given of the immense and fully-stocked warehouse of the firm in Manchester.

## THE ENGINEERING EXHIBITION.

THE general interest in the large display gathered together at Olympia continues to increase. Ladies as well as gentlemen are eager for explanations, and listen attentively to the details of complex machines explained to them by the attendants at the stands. A very interesting display of drawings and photographs is shown at the Kilowatt Publishing Company's kiosk. Of course, the main features of the Exhibition are, as we have already said, mainly concerned with engineering, but there is yet much to interest the architect. In an array of appliances of this character the larger exhibits are rather apt to overshadow those of less magnitude. It is often the case, however, that contrivances in the smaller displays present more novelty, and are of more service as suggesting ideas, than are the established pieces of mechanism shown on the greater scale. At Olympia, therefore, attention should be directed to these unpretentious, but equally important, exhibits. In our selection it must not be thought that it is made in any invidious manner; when so much claims the attention the most that can be hoped for is a brief description of a few exhibits.

The Pulsometer Engineering Company, Ltd., Reading and London, are showing one of their No. 12 patent Pulsometer steam pumps. This pump, although only 10 feet 6 inches

high, is capable of throwing 150,000 gallons per hour. In order to emphasise the great range of pumps that company make, there are two No. 1 Pulsometer pump close proximity to the No. 12. These little pumps, which are only 17 inches high, have an output of 1,000 gallons per hour. Every size of pump from the largest to the smallest will work suspended on a chain, and requiring no fixing, can be put to work in the minimum of time. Pulsometer Engineering Company have increased the height to which these pumps will deliver, and are selling them at work on 150 feet vertical in single lifts. Two or more pumps can be placed in series the range of heights reached by these pumps is now very great.

Messrs. Murray, Lotz & Co. display a model of the Phoenix patent system, which has been specially designed to reduce the cost of wood construction and to enable wooden structures to be erected expeditiously and without the necessity of employing expensive labour. Buildings and erections executed on this system have a rigidity and durability practically equal to the more expensive steel construction. The connections greatly simplify the general construction and entirely obviate the tedious and costly work of mortising and tenoning the wood. The Phoenix patent connection of the upright standard to its foundation gives the building a stability unapproached in any other wood construction. This not only greatly strengthens the building, but effectively prevents decay through the rotting of the uprights at the point of contact with the ground and makes it possible to utilise cheaper qualities of wood without fear of rapid deterioration. Tenoning and mortising are entirely dispensed with, and as the whole work of preparation consists of cutting the wood to length and boring the bolt holes, it can easily be carried out by ordinary unskilled labourers under the supervision of one capable of ordinary intelligence. When the iron foot connections are once embedded in their foundations and the wood is to length, large portions of the buildings are screwed together on the ground, and with the standards held in position around the lower bolt of the foundation uprights the whole is raised into vertical position with little difficulty. The parts thus erected form in themselves all the necessary scaffolding for fitting up the roof and completing the building. A number of photographs of the Hunt elevating

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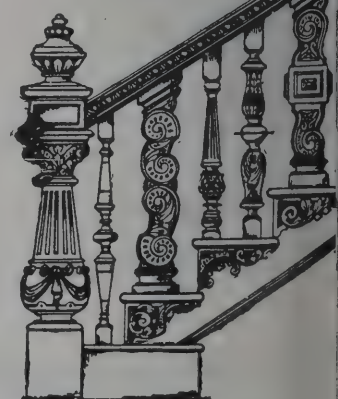
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supporting machinery, industrial railways, &c., for which they are the agents in Britain, are also shown. This machinery, especially the industrial railways and the lifting and discharging bridges, are now very much used, and have proved themselves under all circumstances roughly efficient.

A very important stand is that of *Messrs. Arthur L. & Co.*, of Tower Street, Upper St. Martin's Lane. The well-known specialties of the firm are on view at their stand, which is a centre of interest to architects and engineers. The Kinnear patent steel-rolling shutters, which are shown by them, have a salient feature, distinguishing them from all other shutters, in that the slats are made out of light sheet-steel, the section being designed to give the maximum strength and rigidity with the least possible weight, while forming in the slats themselves an interlocking hinge throughout their length; no hinges apart from the slats themselves being required. Single shutters may be made up to 40 feet in width and any height. A complete shutter is shown fixed at the stand, giving netting 16 feet high by 12 feet wide. The pressed radiators, under the same name, instead of being cast, are pressed of thin sheet metal, specially designed machinery being used to form and join up the sections. As they are of thin metal they produce heat much quicker than cast-iron, occupy half the floor space, weigh less than one-fourth and require only half the volume of water or steam. Those who follow American and Canadian business need not be reminded of the virtues of Cabot's productions. Their rattling and sound-deadening quilt prevents the transmission of sound through walls and floors, and is equally effective as an insulator, keeping out heat and cold. The same house has also creosote stains for exterior woodwork. These give rich colouring effects, and are an excellent preservative of wood. In all other or minor articles for the building trade an extensive variety and assortment is shown. The Burt ventilator is shown in two forms—one with metal top, and the other with glass, making the ventilator an efficient skylight. An important feature is the patent sliding sleeve damper, which ensures that the main shaft to ventilator is always open and unobstructed. The "Crescent" patent expansion bolt is also shown. It is for fastening ironwork to masonry, wood

or brickwork, and gives the strongest possible fixing with less labour than is required where ordinary Lewis bolts are used. The B. & S. patent folding gate is of the collapsible type, but having special features peculiar to itself, which insure the even distribution of pressure applied at any point to open or close the gate. A patent interlocking rubber tiling is exhibited on the floor of the stand. This is noiseless, non-slippery, waterproof and thoroughly sanitary, a solid rubber floor, unlimited in size or shape, having all the durability of the hard tile without its liability to damp. It is a well-devised and interesting display.

Non-explosive air-gas made under the patents of Mr. Cox and protected all over the world is an illuminant of especial value in country houses and institutions, or in all districts where coal-gas is not available. The patent machine produces gas at less than one penny per thousand candle-power per hour. It is absolutely smokeless, odourless, non-corrosive and non-poisonous; quite harmless to ceilings, pictures, furniture, &c., and is pure—a point of great importance to those of delicate constitution who breathe the air of the place illuminated by it. The plant is available for cooking and heating, as well as for lighting, and is easy to work, requiring no skilled labour even to install, and little attention while in operation. The air-gas produced is perfectly safe, and cannot explode or ignite. The principle of the apparatus is providing a mechanical appliance most ingenious. It consists in saturating the ordinary atmosphere with the vapour of a light hydrocarbon, such as petrol, which is in very general use just now, being required in the running of motor cars and purchasable in nearly every district. A small rotary pump is the means employed; this forces the air through a carburetter, in which is an appliance which forces small quantities over a large area, and has also means of regulating the supply and pressure of air and petrol in a uniform manner, and obviates the bugbear of this class of appliance, evaporation and condensation. It appears to us a most useful appliance, by no means large for its work, well devised, and one which will be found specially useful in country houses or in rural districts. The absolutely harmless nature of the apparatus may be gleaned from the fact that Cox's non-explosive air-gas plants are allowed by the insurance company without extra premiums.

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An appliance that will interest the architect particularly is the exhibit of the *Linolite Company*, of Westminster. Their specialty is Tubolite (Tube o' Light), which is a practically continuous straight line of incandescent carbon filament of the usual and well-tried type. The filament is contained, in lengths of about  $8\frac{1}{2}$  inches, in straight glass tubes,  $\frac{7}{8}$  inch in diameter, having one terminal at each end. The standard lamp is 12 c.p. (more would be wasteful, on account of the efficiency of the system), taking 3.75 watts per c.p., and has an average life of 1,000 hours, with a decrease of only 14.5 per cent. of the light in that time. The lamps are placed end to end in a semicircular, channel-shaped, highly-polished aluminium reflector,  $2\frac{1}{4}$  inches wide by 1 inch deep, having an efficiency of 81 per cent., compared with 92 per cent., the efficiency of highly-polished silver, the most nearly perfect (though too expensive) reflector there is. The two edges of the reflector are rolled into small beads, each of which carries one of the wires, which are thus protected from injury. The lamps are held firmly, and in the position for maximum efficiency, in the reflector by aluminium holders, having centre contact plungers.

The light is distributed over an angle of  $140^\circ$  degs. Throughout half of this angle the light is from two to two and a half times as great as the candle-power marked on the lamp, and for  $100^\circ$  degs. it is 50 per cent. to 150 per cent. greater. Compared with an ordinary bulb lamp, fitted with a cone-shaped opal reflector, "Tubolite" throws 57 per cent. more light on to an area 12 feet in diameter for the same expenditure of energy.

The *Colchester Lathe Company*, Hythe, Colchester, show a large selection of high-speed lathes, of latest and improved patterns, in motion. *Cochran & Co., Ltd.*, of Annan (N.B.), have at their stall hand-painted diagrams, photographs and other pictures, illustrating the Cochran patent vertical multitubular boiler. The entire stand is designed to draw attention to the various points of interest in the Cochran type of boiler itself, and also to illustrate various modifications which have been made to suit the type of boiler to different purposes. The *Adjustable Cover and Boiler Block Company, Ltd.*, of 64 Victoria Street, S.W., have a model of a Lancashire boiler, showing the adjustable system of setting with their overlapping seating blocks and removable covers, and those for the minor walls, which method they

claim to be unequalled for effecting economy of efficiency and facility for inspection, with but little inconvenience for properly preparing boiler.

The *Fairbanks Company*, of City Road, E.C., exhibit Yale and Towne electric hoist, which can be hung in position, being suspended from a single hook in the same manner as an ordinary pulley block, and current can be obtained from an ordinary pair of lamp wires; also Yale and Towne triplex blocks, power applied through gears, reducing friction to a minimum, and giving high speed and great efficiency. Separate self-sustaining mechanism, simple and safe, having great advantages of ordinary types, most of these depending on friction which acts against the hoisting of the load as well as preventing from running down. A large number of various exhibits were also gathered together at this stand.

Considerable interest clustered around the stand of *Consolidated Pneumatic Tool Company, Ltd.*, of Pall Mall Chambers, 9 Bridge Street, Westminster, a purely technical exhibit, where in action were shown Boyer and Keller hammers for both stone and metal; Boyer, Keller, "Little Giant" and Whitelaw drills for drilling in metal, tapping, expanding and cutting, reaming, tapping, &c., pneumatic grinder and polisher, air-compressor and receiver, together with all hose pipes, connections, accessories necessary showing the several classes of machines under full working conditions.

*Messrs. L. Sterne & Co., Ltd.*, of Glasgow, London and Paris, exhibit a small cold chamber. The temperature of the room is cooled by one of their "C" type enclosed refrigerating and ice-making machines. The system employed is cold air circulation, the air being forced over cold pipes by means of an electrically-driven fan, simply regulating the "expansion valve" any required temperature can be obtained. Also a self-contained plant (for making 300 lbs. of ice per day of twenty-four hours). This plant is provided with one of their "A" type enclosed refrigerating and ice-making machines. It is supplied complete and is extremely simple to operate. The patent Sterne-Dubern ice-making apparatus enables clear hard ice to be made from ordinary water by rotary agitation. When opaque ice only is required it does not necessitate the rotary agitators.

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Buildings in course of construction—brick . . . . .	75
Fertiliser and phosphate plants, including phosphate mining plants . . . . .	1 00
Smoke stacks—iron—amount not to exceed 5 per cent. of schedule . . . . .	1 00
Tobacco prize-ries and stemmeries, buildings and machinery—brick . . . . .	25
Stock—brick . . . . .	50
Prizeries, warehouses, factories, stemmeries and barns—buildings and machinery—frame or iron-clad . . . . .	75
Stock . . . . .	1 00
Cotton gins—frame or iron-clad . . . . .	50
Churches—with steeples . . . . .	50
Churches—without steeples . . . . .	25
Standing timber—Limit per acre. Minimum claim to be ten times said limit . . . . .	50
Sugar houses . . . . .	50
Mercantile stocks . . . . .	25
Grain elevators, frame or iron-clad flour mills, all cotton compresses and sheds, resort hotels, rice mills, terminal or wharf sheds, and generally buildings of large open area, 7,500 square feet or over, and contents of same . . . . .	40
Cotton-seed houses and hull houses . . . . .	40
All other classes . . . . .	20

STEYNING CHURCH.

The improvements and reinstatements—for that much used word “restoration” does not fairly describe the work which is being done—at Steyning parish church are making great progress. It is now possible, says the *Sussex Daily News*, to see the full beauty of the noble Norman

arcade, for nearly a generation defaced and hidden by the heavy galleries. The south doorway, the upper part of which was blocked, has been opened up to the crown of the arch, and although this alteration shows conclusively that the Norman moulded frame with beakhead ornament is only a frame brought evidently from some other position, the view from the porch into the church, being now uninterrupted, is much improved. By the assiduous energy of Mr. Powell Breach, J.P., who may almost be described as the voluntary clerk of the works, the stone base of the very early font displaced some 40 years since in favour of a highly ornate composition base, has been brought back to the church, and at the suggestion of the vicar, the Rev. A. Congreve-Pridgeon, who has taken a warm interest in the work from the first, the restored font will be erected close by the south-west entrance, a hitherto wasted space in this corner of the church being admirably adapted for a baptistery. The Early Norman window on the north side of the church, not the least of its many interesting features, has had the stone reveals properly treated and now presents its original appearance, and much credit is due to Mr. Frank Duke, the builder, for the very careful way in which he has cleaned and brought into view much old stonework hitherto wholly or partly covered and defaced by modern plaster.

In the course of this work the respond and part of the stone reveal of the very early larger window in the north wall has come to light, and there is little doubt that were it permissible and possible to make a thorough search for missing original details, many would be found concealed behind the so-called improvements of the middle of the last century, when the church suffered much damage by ignorant restoration. One curious example of the manner in which the building was dealt with came to light in the reconstruction of the gallery of the tower, which is now reseated in a more convenient and comfortable way. Here, stowed away under the floor, was found the very handsome brass chandelier by which the church was formerly lighted. With its old wrought-iron hanging rods and well-designed brass arms, this large fitting is now safe from further desecration, although it is easy to see how eagerly it would have been sought for by any dealer in antiquities who knew that it was for these many years lost among the rubbish under the flooring.

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For Index of Advertisers, see page x.



The partial reseating of the chancel and the alteration of the pulpit will also be finished in time for the Harvest Thanksgiving, but the new low screen across the chancel and the two side screens for the aisles have yet to be carried out. By rearranging parts of the seating and filling up some odd spaces, the architect (Mr. C. E. Clayton, of Clayton & Black) expects to be able to give nearly as much accommodation as before the galleries were removed, and if his suggestion were accepted that the church should be reseated throughout with comfortable modern church chairs there would, if anything, be an increase in the accommodation. Altogether the improvements already made cannot fail to gratify those who remember how much this beautiful building was marred by the obstructing galleries and other modern additions.

#### LIGHTNING PROTECTION FOR CHIMNEYS.

STANDARDS for lightning protection for power-plant chimneys in the navy yards have been adopted by the United States Navy Department, the proposed means being varied for different heights of chimneys to cover those found in the different yards. It is specified that the conductors shall each be made up of seven No. 10 copper wires, two in number for chimneys up to 50 feet in height, three for chimneys between 50 feet and 100 feet, and four in number for those higher than 100 feet, in all cases being symmetrically disposed around the stack and forming a cage enclosure. They are to be fastened firmly without insulators to the outside chimney surfaces by bronze anchors, the latter being spaced 10 feet apart and soldered to the conductors at 50 feet intervals. At the bottom of the stack the conductors connect with 3 feet by 3 feet by  $\frac{1}{8}$ -inch copper earth plates buried in the ground below the water line, and at the top to a  $1\frac{1}{2}$  by  $1\frac{1}{2}$ -inch copper ring, to which the discharge tip rods are attached. The latter are of  $\frac{3}{4}$ -inch solid copper, 10 feet in length, spaced 4 feet apart around the circumference of the chimney cap, each terminating in a two-pointed aigrette. The portions of the conductors near the chimney base are to be protected by a  $1\frac{1}{2}$ -inch galvanised iron pipe sheathing, rising 10 feet above the ground level and extending 3 feet below it.

#### SHAM BRITISH CEMENT.

IN his report upon the trade and commerce of Belgium Consul-General Sir Cecil Hertslet again directs attention to the systematic habits of the dealers in Belgian cement in passing off their productions of inferior quality as an article of British manufacture or British origin at exceptionally low prices, which cannot be approached by makers in the United Kingdom so long as they retain the high standard for which British cement is famous. Sir Cecil Hertslet says that the blame cannot be put so much upon the Belgian manufacturers themselves as upon the commission agent and dealers of that class, who furnish any labels that may be required to the makers to attach to the barrels or cask when forwarded from the works, many of which labels are undoubtedly infringements of trade-marks of makers in the United Kingdom. It seems to be difficult for the British manufacturer to trace the fraudulent imitations which are being passed off under his particular brand in the colonies and foreign countries. It would seem, however, that buyers are beginning to realise that much of the cement manufactured in Belgium, described as "Portland" cement and having British names and brands, is not the genuine article, but is in every sense inferior to the British production, and in many cases is not entitled to be called Portland cement at all, according to the accepted standard. Of late there has been considerable reduction of Belgian exports of cement to the United Kingdom and British colonies.

THE gas committee of the Manchester Corporation have decided, subject to the approval of the City Council, to accept the tender of Messrs. Nuttall & Co. for the construction of a tank for the new gasholder which is to be added to the gasworks at Bradford Road. The sanction of the Council was given some months ago for these new works. The cost of the tank will be between 30,000*l.* and 40,000*l.* but that of the tank and holder combined will be not less than 100,000*l.* The capacity of the new holder will be 10,000,000 cubic feet. The largest holder at present in use in Manchester will hold 7,000,000 cubic feet. When the new one has been completed it will be the second largest in the United Kingdom.

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**BUILDING IN GLASGOW.**

ACCORDING to the annual statement of Glasgow Dean of Guild, there were granted 461 linings during the year, or licenses to build, against 449 for the previous twelve months, being an increase of 12. The district in which the greatest activity had prevailed was Queen's Park, where 21 linings were granted, none of which, he was happy to say, were for single apartments. They comprised 19 houses of two apartments, 170 of three, 18 of four, 38 of five and 41 of six. The value amounted to 120,230*l*. Maryhill came next with 137 houses of three apartments, 17 of four, 26 of five and 23 of six, the value being 111,860*l*. The Eastern District followed. There the single apartments reached the highest figure, the number being 102. In addition, linings were granted for 212 houses of two apartments and 85 of three, the total value amounting to 31,600*l*. The Western District had been practically at a standstill, there having been only one lining added to the roll in its case. That was for 21 houses of two apartments and 20 of three, the value being 7,000*l*. The Central District occupied the same position, only one lining for dwelling-houses having been granted. These houses numbered nine, consisting of two apartments, and were valued at 1,270*l*. In the Northern District, on the other hand, there had been an entire absence of enterprise in house building. They had not had a single lining for that district during the twelve months. In the case of public buildings there had been an increase over the preceding year of 100,000*l*. There had been an increase in the number of linings granted for warehouses, stores and workshops, the number being 133, against 99; but there had been a great shrinkage in the value, the figures being 241,000*l*. for the previous year and 119,000*l*. for this, making a falling away of 122,000*l*. Churches, halls and schools had declined both in number and value, the former being 9, against 20, and the latter 10,130*l*., against 133,535*l*. New streets had been granted during the year amounting to 5,461 lineal yards. They had also had important work carried out under decree of the Court at the instance of the Procurator-Fiscal affecting streets, &c., which amounted in value to 3,824*l*. The result of the year's work was that although the number of cases dealt with had been in excess of those of last year, the total

value of the linings granted was the smallest of any year since 1890—less than last year by 542,282*l*., and just a little over one-third of the value of the linings granted in 1901. The figures for 1905-6 were 1,440,387*l*., and for 1906-7 898,105*l*., the difference being 542,282*l*. Of this sum 260,572*l*. was due to fewer dwelling-houses being built. The most satisfactory fact in connection with the review of the year's work was that the applications for houses of two rooms headed the list, and that the number of applications for houses of one apartment was the lowest since 1886.

**TRAFFIC REGULATION.**

ON the 3rd inst. the presidential address was delivered by Mr. W. Noble Twelvetrees at the meeting of the Civil and Mechanical Engineers Society. The subject selected was "London Street Traffic Regulation," and especially arrangements for avoiding the intersection of traffic by a gyratory system, which would make a circular route compulsory. The application was shown by plans of the crossings in the Metropolis where traffic is most often delayed. In the course of his address, Mr. Twelvetrees said the system was first proposed by Mr. Holroyd Smith ten years ago. His idea was that the central plateau should be intersected by two roadways each wide enough for a single line of traffic, the object being to enable fire-engines or public processions to go straight through in any direction. This suggestion is ingenious, but it is problematical whether the theoretical saving of time in the case of fire-engines would be secured in practice, and there would always be risk to foot passengers occupying the central refuge, especially to those incapable of realising quickly that the emergency roads were about to be invaded.

The proper use of the central areas is to provide halting places for foot passengers choosing to pass through vehicular traffic, and provide appropriate sites for drinking fountains and public monuments, while in suitable positions they could be planted with trees or partly converted into gardens. In many places, as already suggested, the central areas would afford admirable sites for underground railway stations, with circular galleries and radiating subways for foot passengers. In other places, again, the central portion



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of the circular refuge might be excavated and walled round, so that the opening would give light and air to a central hall connected by subways with the foot pavements around the street junction. At the same time, excellent accommodation could be made for lavatories, boot-cleaning and hair-dressing rooms, and other conveniences likely to be of general utility.

In the address the object has been not only to demonstrate the advantages of the gyratory system for ordinary vehicles and tramway traffic, but to point out various places where the system could be adopted in a tentative manner, so as to afford opportunities for observing its effect before undertaking projects of a similar character where considerable expenditure of public money would be unavoidable. As a direct practical suggestion Mr. Twelvetrees proposes to the City Corporation that the experiment should be made forthwith at Ludgate Circus, to the Commissioner of Police that it should be tried at Oxford Circus, and to the London County Council, acting in co-operation with the Commissioner of Police, that it should be adopted at St. George's Circus after reorganisation of the tramway lines in that area. These experiments would cost very little, and the results attained would probably pave the way for one of the most important series of improvements hitherto undertaken in the Metropolis.

### CAST-IRON AND MALLEABLE CAST-IRON.

THE first meeting of the autumn session in connection with the Staffordshire Iron and Steel Institute took place at the Institute, Dudley, on Saturday night, when the newly-elected president (Mr. Robert Buchanan) delivered an address. He remarked, says the *Birmingham Daily Post*, that a little reflection would show that in the world as a whole there were no definite periods of time which might be called the ages of stone, bronze, or iron, though for certain countries such definitions might be correctly applied. Proof existed that each age overlapped into the succeeding one. It was very remarkable that the production and utilisation of cast-iron came very late in the life history of metals. Iron and steel had been produced directly from

iron ores thousands of years before cast-irons came into notice as a metal of utility. It was very probable that cast iron had often been made before its utility was perceived. The inception and development of the blast furnace had a most important result. So far as the Western world was concerned it caused wrought-iron and steel to be produced by the indirect method of first making pig-iron. The direct methods of producing iron and steel still lingered in India, Africa and other parts of the world, where the poverty of the workers and the ignorance of mechanical appliances, and possibly their prejudices, caused them to adhere to the old time-honoured method. The iron and steel, however, produced by these crude methods were still unsurpassed in quality by the very best produced in the Western world with all the science and mechanical appliances they had at their command. The President proceeded to enumerate some of the leading events in the history of cast-iron production in England. Coming to 1619 he remarked that in that year Dud-Dudley, one of the great pioneers of iron manufacture and one of the most pathetic figures in English industrial life, by the influence of his father, obtained from King James a patent to make iron by a new method. He made pig-iron at Pensnett and refined it at Cradley Forges. By a combination of ironmasters interested in the making of charcoal-iron he got out of his works at Pensnett and Cradley, and began again to make pig-iron in furnaces at Himley. Not having a forge and the necessary refining furnaces for treating the pig-iron for the production of bar-iron, he was under the necessity of selling his pig-iron to the charcoal ironmasters, who by some means got the Himley furnace into their hands, with the result that Dudley built a new and larger furnace near Sedgley. This furnace was 27 feet square and built of stone, and produced seven tons per week, which Dud Dudley states was the greatest quantity of pit coal iron that had ever been made in that period in Great Britain. With a period of 250 years to bridge it was difficult to know the whole man, but enough was known of Dud Dudley to show that his was a most fascinating character. His declared intention was to build up again the iron trade of England by the use in iron-making of the small coal which was being thrown aside as waste material at the collieries. It was reserved for one of a later generation

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living in happier times and under more favourable conditions, to succeed where he failed. A study of the life of Dud-Dudley, however, left us with the knowledge that early in the seventeenth century in South Staffordshire a great man was born. He lived and worked, triumphed and failed, fought and suffered, and exhibited through all an invention, perseverance, patriotism and fortitude which compelled admiration. Coke as a fuel for blast furnaces still held the field, and was likely to do so, but the reciprocating engine of James Watt was gradually being ousted from its place by the gas engine using blast furnace gas. Thus, as the production of pig-iron increased and its cost declined, so the foundries increased in number and capacity and their products reached all parts of the world. The proper working of cupolas was a subject which was receiving from foundrymen in general a considerable amount of attention, but there were still a considerable number of them who had the haziest ideas as to what was taking place as smelting proceeded. In regard to malleable cast-iron, this industry, which was an important one in South Staffordshire, would in his opinion truly advance when those practising it came out in the open and told of their failures. He was content that they should keep their success to themselves. Judging the heat of the annealing oven by the human eye was subject to too many causes of inaccuracy of vision to be reliable. He urged the importance of using scientific accessories for this work. It would readily be granted that a continuous supply of young skilled foundrymen, able to take the places of those passing out of the business by death or other causes, was of enormous importance. It was to the foundries engaged in engineering work or to "jobbing" foundries that they must look for the supply of skilled men. Technical schools and colleges had sent a great message for the foundry worker, and especially for the foundry foreman or manager, but for training in practical work they were inadequate. It should be realised by all proprietors of foundries and all having authority in them that the proper training of the apprentice was a measure of the highest economy and an important step in self-preservation. In this country it was invariably the case that foundries were designed by people who knew nothing of foundrywork, and

were so self-satisfied as to be able to do without the help of those who did know. The result in many cases was what might be mildly described as a miserable failure. Changes of method of work could only be wholly successful when they allowed the workman, as well as the capitalist, to better his position. Wide and sustained recognition of this fact was the only way to get the whole-hearted co-operation of workmen when changes of method of work became necessary. They were now at a transition period for many foundries. The plants which for a great number of years had been engaged in casting parts of reciprocating engines had had to tackle the problems and difficulties of the steam turbine. He had no expectation that the practical foundryman of to-day and of bygone days was likely to be surpassed in the future. What he hoped to see was a higher type of foremen and managers. In conclusion, he said he was sure that that Institute was fostering and increasing this desire for higher knowledge, and as far as lay in its power satisfying it.

### FRENCH BETON.

THE American Consul-General, R. P. Skinner, of Marseilles, gives the following account of the preparation of béton, which has long been a favourite material in France :—

Lime béton has been in longer and more general use than cement concretes. It was a first-class material when made with ordinary quicklime, and since hydraulic lime has been used it is better. It is a cheaper composition than cement béton or concrete, easier to work, and if the initial load be not too great it is for nearly every purpose just as good. A good lime béton can be obtained by mixing mortar and stones, gravel or cinders, mortar and good-sized stones making the best composition. Probably one-half of the houses in Marseilles have been built of this material, and thousands of the older buildings many hundred years old are held together by ordinary lime. Walls built of quicklime béton must be laid up slowly, but with hydraulic-lime béton they can be erected as fast as masons can work. The solidity of lime-béton construction is shown by the sea

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walls and docks in Marseilles, where masonry of this kind may be seen both above and below sea water, the most difficult test to which building material can be subjected.

The lime is weighed out to the cubic unit of sand and the two dry mixed. Water is added slowly with a sprinkler and the plastic consistency tested by forming a ball with the hand, which should exude a slight moisture, and being laid aside should neither flatten nor crack open. A mortar of 500 kilos (1,102 lbs.) of lime to 1 cubic metre (1,308 cubic yards) of sand, mixed and beaten dry, has more resistance than an equal quantity of pure lime. A house-building mortar contains from 440 to 551 lbs. of lime per cubic metre (1,308 cubic yards) of sand. This is sufficient also for small arches and viaducts. For tunnels, foundations and viaducts of considerable height the proportion of lime is increased by 110 lbs., while for important arches and dams subjected to pressure the amount of lime per unit of sand is from 661 to 771 lbs.

Stones or other cheap material are mixed with the mortar, thus constituting the béton. Cinders, coke and furnace slag may be substituted for stones in ordinary house and wallwork. If broken stone is used, the pieces are from 0.78 to 2.36 inches in length. The proportions are usually two parts of stone for one of mortar for work under water; in open-air work the proportion of stone may be increased. For open-air work a coker or mould is built, into which the béton is poured in horizontal layers from 8 to 12 inches thick and then rammed. A layer of béton cannot be distributed above another which has already set until its surface has been picked and washed and finally given a coat of cement and water of the consistency of cream.

In both France and Germany a light-weight béton is made of cinders. Buildings several storeys in height can be erected of this cinder béton, which can be laid as in the other cases cited or treated like armed cement. One-storey structures require no anchorage bars. Several very large factories have been built at Lyons of this béton. Sometimes the cinders are worked into blocks and laid up like cut stone. In all cases the cinders must be screened and then mixed at the rate of one cubic yard of cinders to one-half cubic yard of hydraulic mortar, composed of 440 lbs. of hydraulic lime to 35 cubic feet of sand, or the lime can be

replaced by 330 lbs. of Portland cement. The proportion of mortar can be shaded slightly if the materials are good.

The striking economies effected in France are obtained by the free use of cheap local material, whatever it may be, and by the equally free use of lime where cement probably would be used in the United States. If the work be carefully planned and performed, hardly more lime is needed than if cement were used; and whereas a good Portland cement now costs from 10.22 dols. to 10.60 dols. per ton in Marseilles, an equally good hydraulic lime costs but 6.35 dols. per ton. In the rural districts the peasants use any kind of lime, and they build houses which last hundreds of years. Buildings constructed with béton can be completed by a coating of lime or cement mortar, which, being laid on and lined, gives a finish that loses little by comparison with cut stone and effectually prevents the absorption of moisture.

A CORPORATION brick-making plant has been formally installed at Nelson, Lancs, by which a waste product at the refuse destructor works will be utilised. The plant has a producing capacity of 15,000 bricks weekly. The bricks are made out of the clinker produced by the furnaces at the refuse destructor. About 8 per cent. of lime is added to the clinker after it has been placed in a grinding machine. It is ground to a powder and thoroughly sieved. It is then conveyed into a steam mixer, and the lime having been slaked the compound is allowed to stand in a silo for a time. This mixture is much the same in consistency as blue loam. The next process is the pressing and moulding, for which there is a special machine, and the bricks are finally baked for eight hours in a large chamber, which is heated to 120 deg. Fahr. The price of the bricks thus made is said to be 18 per cent. less than that of common bricks. The cost of the new undertaking is about 3,000*l.*, and in connection with it there is a solder recovery plant and a tin baling press. The solder extractor is a furnace in which the disused tins which come to the refuse destructor are placed. Solder is extracted to the extent of 50 lbs. per ton of metal used, and there is ready market for it at 8*d.* per lb. After the solder has been extracted the tins are placed in a large press and pressed into bales, which are disposed of at the rate of 12*s.* 6*d.* per ton.

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THE

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FRIDAY, OCTOBER 11, 1907.

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**NOTICE TO ADVERTISERS.**

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

**TENDERS, ETC.**

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

ALTRINCHAM.—Oct. 21.—Proposed secondary school for Cheshire County Council. Architects desiring to compete should send their names by above date to Mr. J. Howarth, clerk, Education Offices, Market Street, Altrincham.

BOOTLE (LANCS).—Jan. 31.—The Bootle education committee invite designs for a public elementary school for 1,000 children. Conditions and particulars may be obtained from Mr. J. Henry Farmer, town clerk, Town Hall, Bootle.

CEMAES.—Oct. 15.—The Twrc-lyn Rural District Council invite plans and specifications for a drainage scheme for the village of Cemaes, Anglesey. Competitors are requested to state the remuneration required by them for the plans, specifications and supervision of the work. Mr. Thomas Hughes, clerk, Brynaethwy, Menai Bridge.

DOVER.—Oct. 14.—The committee of the Dover pageant, July 27 to August 1, 1908, invite coloured designs for a suitable double-royal poster (40 inches by 25 inches). There should be some indication of the sea, a ship and Dover as the key of England. Prizes of 10l., 2l. 10s. and 1l. are offered. The prize-winning designs will become the absolute property of the committee. The Secretary, Pageant House, Dover.

LONDON.—Oct. 14.—The Acton District Council invite architects who have been in practice for at least seven years to send in to Mr. Wm. Hodson, clerk, 242 High Street, Acton, W., before Oct. 14, designs for erection of the proposed Council offices, at a cost not exceeding 18,000l. An assessor will be appointed, and premiums of 100 guineas, 50 guineas and 25 guineas will be awarded for the designs selected by the Council after their consideration of the assessor's award. Particulars can be obtained upon the payment of 10s. 6d.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

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## CONTRACTS OPEN.

AMBLE.—Oct. 15.—For building farmhouse at Amble Link farm. Mr. R. G. McInnes, agent, Amble, Northumberland.

BACUP.—Oct. 19.—For reconstruction, widening and improvement of the bridge carrying Blackwood Road over the river Irwell at Stacksteads. Deposit 1*l*. 1*s*. Mr. W. H. Elce, A.M.I.C.E., borough engineer, Municipal Buildings, Bacup.

BASINGSTOKE.—Oct. 21.—For installation of low-pressure hot-water apparatus at new Council schools. Deposit 2*l*. 2*s*. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

BELPER.—Oct. 22.—For erection of a galvanised corrugated iron building about 1½ miles from Belper goods station. The building to be 90 feet by 36 feet, capable of holding 600 people; at the rear, scullery (24 feet by 12 feet) and kitchen (13 feet by 18 feet). Mr. R. B. Muir, secretary, Belper River Gardens, Belper, near Derby.

BEVERLEY.—Oct. 15.—For erection of a high school for girls in Norwood. Deposit 1*l*. 1*s*. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowldalley Lane, Hull.

BRADFORD.—For erection of mill and warehouse in Longside Lane. Messrs. James Young & Co., architects, 62 Market Street, Bradford.

BRAUNTON.—Oct. 17.—For roofing buildings, &c., at Bearcharter Farm, Braunton, Devon. Messrs. Sanders & Son, auctioneers, Barnstaple.

BRIDPORT.—Oct. 21.—For erection of a secondary school in St. Andrew's Road. Mr. F. Cooper, architect, 77 East Street, Bridport.

BURY.—Oct. 21.—For alterations and additions to baths superintendent's house, St. Mary's Place. The Borough Engineer's Office, Bank Street, Bury, Lancs.

BURY.—Oct. 15.—For building vaults (single and double) required during next twelve months. The Borough Engineer's Office, Bank Street, Bury, Lancs.

CANTERBURY.—Oct. 16.—For alterations and extensions to city police station in Pound Lane. Mr. Arthur C. Turley, A.M.I.C.E., city surveyor, Guildhall Street, Canterbury.

CLEADON.—Oct. 15.—For erection of new Council school at Cleadon, Durham. Mr. J. H. Morton, architect, 50 King Street, South Shields.

DARLINGTON.—Oct. 19.—Separate tenders for each trade are invited for erection and completion of ten houses in Fulford Place, Harrowgate Hill. Apply 128 Thompson Street West, Darlington.

DUBLIN.—Oct. 14.—For construction and erection of a steel umbrella platform roof, 132 feet by 21 feet 6 inches, at their Clones station, also for supplying and delivering at Drogheda station twenty steel cross girders, weighing rather less than one ton each, for the Great Northern Railway Company (Ireland). Mr. W. H. Mills, engineer-in-chief, Amiens Street, Dublin.

DUBLIN.—Oct. 22.—For the superstructure of the college in Upper Merrion Street, and for erection of workshops adjoining. Deposit 5*l*. 5*s*. The Secretary, Office of Public Works, Upper Merrion Street, Dublin.

GLASGOW.—Oct. 14.—For (1) digger, brick and mason; (2) wright, glazier and ironmongery; (3) plumber; and (4) roof tiling and rough castwork of bowl house to be erected in Ruchill Park. The Office of Public Works, 64 Cochrane Street.

GRANGE-OVER-SANDS.—For erection of stables, harness-room, carriage-house, &c. Messrs. J. W. Grundy & Son, architects and surveyors, Ulverston.

HALIFAX.—Oct. 12.—For alterations at Phoebe Lane Mills. Messrs Samuel Robinson & Sons, architects, Cheap-side, Bradford.

HALIFAX.—Oct. 18.—For mason and bricklayer, carpenter and joiner, plumber, slater and plasterer, concreter, iron-founder, rolled steel, patent glazier and painter's work required in extensions to shed, &c., at Ladyship Mills. Messrs. Joseph F. Walsh & Graham Nicholas, architects and surveyors, Museum Chambers, Halifax.

HULL.—Oct. 17.—For erection of science buildings at Hymers College. Deposit 1*l*. Mr. John Bilson, architect, 23 Parliament Street, Hull.

IRELAND.—Oct. 14.—For building a dispensary residence and dispensary at Anamoe, for the guardians of Rathdrum Union. Mr. George T. Moore, C.E., 1 and 2 Foster Place, College Green, Dublin.

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IRELAND.—Oct. 24.—For making alterations and additions to Banking Company branch premises at Rathfriland, co. Down. Messrs. Græme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

LEISTON.—Oct. 26.—For erection of a higher elementary Council school and cookery, laundry and manual instruction special subjects centres at Leiston, East Suffolk. Deposit 2*l*. The Education Committee, County Hall, Ipswich.

LEPTON.—Oct. 14.—For erection of a two-storey mill at Whitley Willow Mills, Lepton, near Huddersfield. Mr. J. Berry, architect and surveyor, 3 Market Place, Huddersfield.

LONDON.—Oct. 15.—For enlargement of County Court at Bloomsbury, W.C. Deposit 1*l*. 1*s*. Mr. H. N. Hawks, I.S.O., H.M. Office of Works, &c., Westminster, S.W.

LONDON.—Oct. 21.—For building staircases and alterations at public baths at Forest Hill, for the Lewisham public baths committee. The Town Hall, Catford (Surveyor's Department).

LONDON.—Oct. 29.—The London County Council invite tenders for new elementary school for 1,116 children at Wandsworth. Terms and conditions and official forms on application to the Architect, Education Offices, Victoria Embankment, London, W.C.

MANCHESTER.—Oct. 14.—For erection of infants' school and additions and alterations to existing Ardwick Municipal school, Hyde Road. Deposit 2*l*. 2*s*. The Education Offices, Deansgate, Manchester.

PENSTRAZE MOORS.—Oct. 15.—For erection of a farmhouse at Penstraze Moors, Cornwall. Mr. Leonard Winn, architect and surveyor, 27 Boscawen Street, Truro.

PENZANCE.—Oct. 12.—For construction of new floor for bandstand in Morrab Gardens. Mr. Frank Latham, M.I.C.E.I., Public Buildings.

PORTSMOUTH.—Oct. 21.—For erecting, completing and maintaining in thorough repair for twelve months a concert pavilion, bars and tea-rooms, shelter pavilion, entrance buildings, kiosks and canopy at the South Parade pier, and the widening of the present pier, including all foundations, piling, lattice girders and other works at the South Parade pier, for the Town Council. Deposit 3*l*. 3*s*. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea, Portsmouth.

PORTSMOUTH.—Oct. 30.—For erection of additional blocks, maternity ward and other works at the workhouse infirmary. Deposit 2*l*. 2*s*. Messrs. Rake & Cogswell, architects, Prudential Buildings, Commercial Road, Portsmouth.

ROTHBURY.—Oct. 14.—For either or both of following contracts in connection with a water supply at Rothbury, Northumberland:—(Contract No. 1) the construction of a concrete service tank of 20,000 gallons capacity, collecting wells, pump-house, pump well, &c., and about 533 lineal yards trenching; (No. 2) the providing and erecting of oil-engine, double-ram pump with all accessories, and the providing, laying and jointing of about 533 lineal yards of 3-inch cast-iron pipes. Mr. C. Franklin Murphy, A.M.I.C.E., Lloyd's Bank Chambers, Morpeth, or Newcastle House, Rothbury.

SCOTLAND.—Oct. 21.—For works required in connection with the erection of new cattle market at Gorgie, as follows:—(1) Builder and bricklayer; (2) joiner; (3) slater; (4) plumber; (5) cattle pennage, steel roofing, iron fencing, &c., at cattle byres; (6) steel roofing over cattle pennage. Public Works Office, City Chambers, Edinburgh.

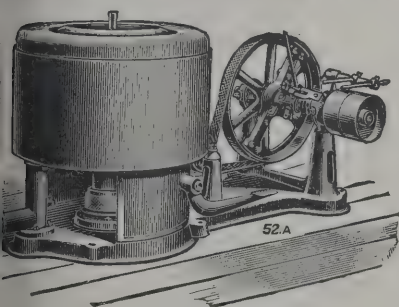
SCUNTHORPE.—Oct. 17.—For erection of Primitive Methodist church and schools, Frodingham Road, Scunthorpe, Lincs. Mr. Hy. Harper, architect, 54 Long Row, Nottingham.

SEVENOAKS.—Oct. 16.—For heating Union workhouse by low-pressure hot-water system, and erection of boiler-house and chimney, &c. Mr. George F. Carnell, clerk to the Guardians, 130 High Street, Sevenoaks.

SHELFIELD AND SHORT HEATH (STAFFS).—Oct. 12.—For proposed infants' Council school, to accommodate 220 children, at Shelfield, near Walsall, and slight alterations to existing school, and a new Council school, to accommodate 276 children, at Short Heath, near Wolverhampton. Deposit 1*l*. 1*s*. in each case. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

STEEPLE LANGFORD.—Oct. 14.—For alterations and repairs to the East End inn, Steeple Langford, Wilts. Messrs. John Harding & Son, architects and surveyors, 58 High Street, Salisbury.

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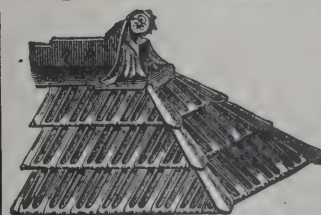
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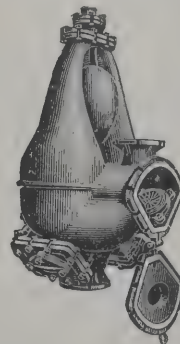
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WABERTHWAITE.—Oct. 15.—For building out-offices at the Waberthwaite and Corney school. Waberthwaite Rectory, Cumberland.

WALES.—Oct. 12.—For erection of fifty or more houses at Tonmawr. Mr. J. Cook Rees, architect and surveyor, Neath.

WALES.—Oct. 14.—For erection of fifty houses or thereabouts at Coed Ely, Tonyrefail. Mr. Arthur Lloyd Thomas, architect and surveyor, Church Street Chambers, Pontypridd.

WALES.—Oct. 14.—For erection of a school, school-master's house, offices, workshops and cottages in the Elan Valley, near Rhayader, Radnorshire, for the Birmingham Water Committee. Deposit 5*l*. Mr. Herbert T. Buckland, architect, Norwich Union Chambers, Congreve Street, Birmingham.

WALES.—Oct. 16.—For erection of additional buildings to the technical college, Swansea. Deposit 3*l*. 3*s*. Mr. Wm. James, secretary, the Technical College, Swansea.

WALES.—Oct. 19.—For proposed Council school at Rhiw-Syr-Dafydd, near Blackwood, Mon, to accommodate 300 children. Deposit 3*l*. 3*s*. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Oct. 21.—For erection of a parish hall, Cwmpark. Mr. Jacob Rees, architect, Pentre.

WALES.—Oct. 21.—For carrying-out extensions, alterations and repairs at the following Council schools, Monmouthshire:—Earlswood, near Chepstow, erection of new classroom, &c.; Goytre, near Pontypool, ditto; Garnfach, Nantyglo, erection of two new classrooms and other work; Dukestown, Tredegar, alterations; Sirhowy, Tredegar, asphaltal playgrounds and pointing boundary walls; Mynyddbach, near Chepstow, gravelling playground and repairs; Lower Cwmyoy, Abergavenny, erection of boundary wall; St. Dials, Cwmbran, new windows and builders' work in connection with the installation of heating apparatus; New Tredegar Town, New Tredegar, ditto. Mr. C. Dauncy, secretary, County Council Offices, Newport, Mon.

WALES.—Oct. 23.—For erection of two houses at Vaynor Road, Porth. Mr. James T. Jenkins, architect and surveyor, Porth, Rhondda.

WALES.—Oct. 29.—For erection of a metal workshop at Porth County school. Deposit 1*l*. 1*s*. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WASHBOURNE BARTON.—Oct. 12.—For slate roof on Washbourne pound-house. Mr. Peeke, Washbourne Barton, Harbertonford, Devon.

WERNETH.—Oct. 22.—For construction and erection of a bridge over Stock Lane, Werneth, Oldham, for the Lancashire and Yorkshire Railway Co. The Engineer's Office, Hunt's Bank, Manchester.

WOODBIDGE FARWAY.—Oct. 17.—For construction of a bridge and approaches at Woodbridge Farway, Devon. Mr. John Ford, architect, Lower House, Branscombe, Axminster.

WOODBIDGE.—Oct. 12.—For erection of a Council school and special subjects centre at Woodbridge, East Suffolk. Deposit 2*l*. Mr. Jno. S. Corder, architect, Tower Street, Ipswich.

It is reported that the Lambeth borough treasurer has discovered that a local contractor neglected to pay the current rate of wages, and the Borough Council has accordingly decided to retain 27*o*l., this being the difference between the amounts the men should have been paid and the sums actually received by them. On previous occasions the Council have taken similar drastic measures with other contractors who have not paid their men the rate of wages scheduled in the conditions of contract, and it is computed that considerably over 1,000*l*. has been extracted in this manner by means of penalties.

For the convenience of passengers about to travel to the Riviera, the South-Eastern and Chatham Railway have arranged with the French railway companies for a first-class carriage, with Lits salon accommodation, to run daily from Calais to Marseilles, Cannes, Nice, Monte Carlo, Mentone and Ventimiglia, in connection with the Dover boat train leaving Victoria and Holborn at 11 A.M. Intending visitors to Vienna and Trieste are informed that a through sleeping-car will run daily from Calais without change of carriage.

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Miles . . . . .	4,221	9 6
Wade . . . . .	4,015	3 3
Green & Sons . . . . .	3,836	4 4
Green & Sons (ten streets) . . . . .	3,009	12 3
Wade (two streets) . . . . .	825	11 0

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For the extension of the burial-ground. Mr. J. HOUSTON, architect.		
MILLER & SONS, Cowdenbeath (accepted) . . . . .	£1,383	19 9

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For erection of accommodation for able-bodied inmates at the workhouse. Messrs. W. H. WARD, architects.		
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Langley . . . . .	3,082	0 0
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Rowbotham . . . . .	2,922	0 0
Whitehouse & Sons . . . . .	2,861	0 0
Turton . . . . .	2,850	0 0
Atkinson . . . . .	2,848	0 0
Pattinson & Sons . . . . .	2,839	8 0
Robinson . . . . .	2,838	0 0
Crane, Ltd. . . . .	2,828	18 0
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Hopkins . . . . .	2,750	0 0
Dallow & Sons . . . . .	2,745	0 0
Barnes . . . . .	2,731	0 0
Crowder . . . . .	2,677	0 0
Johnson . . . . .	2,667	0 0
Webb & Son . . . . .	2,651	15 0
Smith . . . . .	2,623	0 0
Fenwick, Ltd. . . . .	2,595	0 0
SWIFT, Birmingham (accepted) . . . . .	2,490	0 0
Architect's estimate . . . . .	2,820	0 0

BOURNEMOUTH.

For providing and laying 42-inch cast-iron outfall, &c. Mr. F. W. LACEY, borough engineer.		
HARRISON & Co., Birmingham (accepted) . . . . .	£6,369	0 0

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For supplying and fixing boundary fencing at small-pox hospital. Mr. E. H. BRIGHT, surveyor.		
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Hurst Ironworks Co. . . . .	107	10 0
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Norton Bros. . . . .	79	10 0
PORTWAY & Co., Sudbury (accepted) . . . . .	62	10 0

CHERITON.

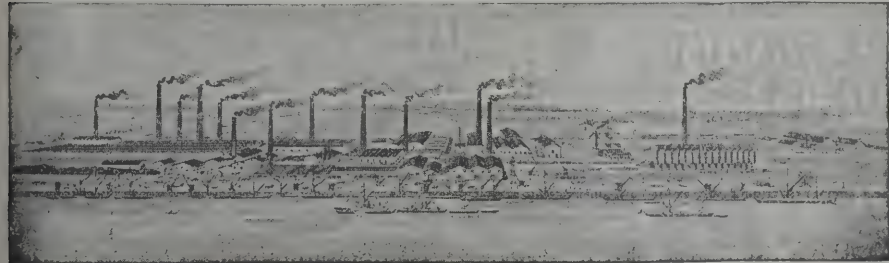
For construction of sewerage works in the parish of Cheriton Fitzpaine. Mr. W. F. SIDDALLS, engineer, Tiverton.		
Manning . . . . .	£721	11 6
Berry . . . . .	630	0 0
Gillard & Son . . . . .	562	17 0
Shaddock . . . . .	494	13 0
Prior & Knowles . . . . .	490	10 0
Steer & Pearce, Plymouth (accepted provisionally) . . . . .	458	14

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For erection of a public elementary school in Love Street. Mr. H. BESWICK, architect.		
PETERS & SONS, Rochdale (accepted) . . . . .	£10,110	0 0

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Watson & Sons . . . . .	1,965	0	0
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McLaren . . . . .	442	1	6
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Norris . . . . .	3,143	10	0		87	10	0
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Bansford . . . . .	3,099	0	0		87	10	0
Henson . . . . .	3,050	0	0		85	0	0
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Cutler & Sons	338	0	0
Jerram	334	0	0
Billins	320	5	0
Richards	320	0	0
Powley Bros.	296	0	0
Rice & Sons	281	10	0
WRIGHT & Co., Chelsea (accepted)	253	0	0
Gray	250	5	0
Dow & Co.	178	9	4

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Jarman, Daws & Co.	414	0	0
Measor & Sons	406	17	0
Cutler & Sons	398	0	0
Poore & Son	391	10	0
Collinson	375	0	0
Powley Bros.	359	0	0
Robinson	330	0	0
Wilson	330	0	0
Heath	329	0	0
Burns & Co.	308	18	0
Hidden	300	0	0
Ferris Bros.	290	0	0
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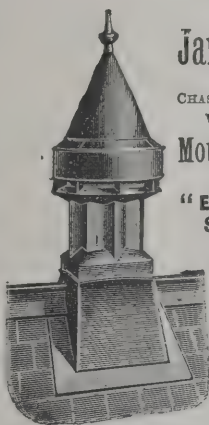
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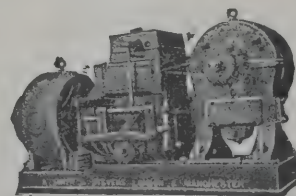
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*Accepted tenders.*

Stewart, Keith, mason . . . . .	£893	0	0
Cormack, Keith, carpenter . . . . .	804	0	0
Lyon & Sons, Elgin, plumber . . . . .	380	0	0
Aberdeen Electrical Engineering Co., Aberdeen, heating . . . . .	265	0	0
Rust, Huntly, plasterer . . . . .	180	0	0
A. & R. Wright, Keith, slater . . . . .	92	10	0
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Gibbons . . . . .	1,377	0	0
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Anderson . . . . .	1,181	0	3
Jackson . . . . .	1,094	19	9
Buxton & Jenner . . . . .	1,078	0	0
Iles . . . . .	1,060	0	0
Galer . . . . .	1,052	5	6
TAYLOR, Chadwell Heath (accepted) . . . . .	922	19	0

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Smith & Coventry Ltd. . . . .	800	0	0

*One high-speed vertical milling machine.*

Muir & Co. . . . .	459	10	0
Ward & Co. . . . .	405	0	0
Smith & Coventry . . . . .	300	0	0
Buck & Hickman, Ltd., London (recommended) . . . . .	292	10	0

## LONDON—continued.

For construction of the portion (section 3) of the new northern low-level sewer between Stepney and Trafalgar Square. (As the result of representations made by the Dean and Chapter of St. Paul's Cathedral, the proposed route of the sewer in the vicinity of the cathedral was altered in order to obviate all question of damage to that building. It is estimated that the cost of construction has been increased by 2,000*l.* as a result of this alteration.)

Whyte & Co., Ltd. . . . .	£475,190	19	9
Coles . . . . .	424,915	7	11
Westminster Construction Co., Ltd. . . . .	423,518	0	3
Price & Reeves . . . . .	403,738	5	7
Muirhead & Co. . . . .	372,893	10	4
Perry & Co. . . . .	359,646	0	0
Scott & Middleton, Ltd. . . . .	355,707	7	6
Pearson & Son, Ltd. . . . .	348,025	0	4
Neal, Ltd. . . . .	330,083	4	11
Cochrane & Sons . . . . .	313,205	3	1
Kennedy, Ltd. . . . .	299,953	7	0
Leslie & Co., Ltd. . . . .	299,635	0	0
Kelletts, Ltd. . . . .	296,759	12	11
Mowlem & Co., Ltd. (recommended) . . . . .	261,599	0	0
Chief engineer's estimate . . . . .	299,800	0	0

For (1) the groundwork, walling and general laying-out of the estate garden on the Tower Gardens section of the L.C.C. White Hart Lane estate, and (2) the work of completing the surfaces of the carriageways and footways on section B of the estate.

*Groundwork, walling and general laying-out of the estate garden.*

Roberts & Co. . . . .	£3,350	0	0
Coxhead . . . . .	2,860	0	0
PULFORD, Wood Green (accepted) . . . . .	2,764	0	0

*Completing the surfaces of the carriageways and footways on section B.*

Knifton . . . . .	4,723	0	5
Bloomfield . . . . .	4,443	0	0
Grounds & Newton . . . . .	4,279	4	11
COXHEAD, Leytonstone (accepted) . . . . .	4,164	0	0

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**Standard Sanitary Mfg. Co.**  
22 HOLBORN VIADUCT, LONDON, E.C.

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HODDESDON, HERTS.

Contractor to H.M. Government,  
India Office, &c.

English and Swedish Designs.

Gymnastic Section Book 2, Information and Plans Gratis.

For Index of Advertisers, see page X.



LONDON—continued.

For erection of the Tooting tramways sub-station, London County Council.

Schedule of Prices.

Lovatt, Ltd. . . . .	£4,715	0	0
Holloway Brothers (London), Ltd. . . . .	4,580	0	0
J. & C. Bowyer . . . . .	4,497	0	0
Kirk & Randall . . . . .	4,387	0	0
Wall, Ltd. . . . .	4,353	0	0
Works committee estimate. . . . .	4,330	0	0
F. & H. F. Higgs . . . . .	4,251	0	0
Munday & Sons, London (recommended) . . . . .	4,153	13	3
Architect's estimate . . . . .	4,337	0	0

For repainting the engine and boiler-houses, liming station &c, at the Barking outfall works.

Webb . . . . .	£235	0	0
Symes . . . . .	233	0	0
Measor & Sons . . . . .	224	9	11
Proctor & Sons . . . . .	220	9	2
Bull . . . . .	216	0	0
Stokes & Sons . . . . .	215	13	0
HARRIS, North Woolwich (accepted) . . . . .	208	0	0

For repairs and painting the pontoons of the Charing Cross river repairing depôt, London County Council.

Piper . . . . .	£340	5	4
Mills & Knight . . . . .	278	3	4
Groves, Stockwell Street, Greenwich, S.E. (recommended) . . . . .	199	0	0
Drever (withdrawn) . . . . .	124	17	4

For erection of day-room and workshed at St. George's workhouse, Mint Street, S.E. Mr. A. J. WADE, architect, Kilburn.

Shelbourne & Co. . . . .	£630	0	0
Dearing & Son . . . . .	535	0	0
King & Son . . . . .	525	0	0
J. & W. Drake . . . . .	498	10	0
Johnson . . . . .	496	0	0
W. & T. Cooper . . . . .	494	18	6
Richardson . . . . .	451	0	0
Lamplough . . . . .	439	0	0
MILLS & SON, Blackheath (accepted) . . . . .	359	0	0

LONDON—continued.

For the erection at Colney Hatch asylum of superstructure of additional buildings to accommodate 310 patients and the necessary staff in place of the temporary buildings (which housed 320 patients and staff) which were destroyed by fire in 1903.

Miskin . . . . .	£30,898	0	0
Spencer, Santo & Co. . . . .	30,560	0	0
Coles . . . . .	29,962	8	7
Waring & White . . . . .	29,578	0	0
McCormack & Sons . . . . .	29,479	0	0
Rowbotham . . . . .	29,318	0	0
Davies . . . . .	29,165	8	10
Wall . . . . .	28,873	0	0
Foster & Dicksee . . . . .	28,791	0	0
Willcock & Co. . . . .	28,717	3	0
Lovatt . . . . .	28,524	0	0
Nightingale . . . . .	28,332	0	0
Perry & Co. . . . .	28,327	0	0
Ekins & Co. . . . .	28,299	0	0
Leslie & Co. . . . .	27,997	0	0
Holliday & Greenwood . . . . .	27,700	0	0
Kirk & Randall . . . . .	27,483	0	0
Chessum & Sons . . . . .	27,463	0	0
Cracknell . . . . .	27,414	0	0
Wallis & Sons . . . . .	27,365	0	0
Patman & Fotheringham . . . . .	26,973	0	0
Lawrence & Son . . . . .	26,972	0	0
Rowley Brothers . . . . .	26,954	0	0
Pattinson & Sons . . . . .	26,872	0	0
Fairhead & Son . . . . .	26,398	0	0
Lawrance & Sons, City Road, N. (recommended) . . . . .	26,310	0	0
Moss & Sons, Ltd. . . . .	26,122	16	11

For the supply and fitting-up of the steam boilers required for the new buildings, Colney Hatch.

Hodge & Sons . . . . .	£1,610	0	0
Galloways . . . . .	1,516	0	0
Clayton, Son & Co. . . . .	1,488	0	0
Yates & Thom . . . . .	1,420	0	0
Adamson & Co. . . . .	1,398	0	0
SPURR, INMAN & Co., Wakefield (accepted) . . . . .	1,355	0	0

C. B. N. SNEWIN & SONS, LTD.

MAHOCANY, WAINSCOT, AND TIMBER MERCHANTS, BACK HILL, HATTON GARDEN; & RAY ST., FARRINGTON ROAD, LONDON, E.C. Telephone 274 Holborn.



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LONDON DEPÔTS: G.W.R. WESTBOURNE PARK. L&S.W.R., NINE ELMS SW. 132 GROSVENOR RD, PIMLICO.

MANCHESTER TRAFFORD PARK.



## LONDON—continued.

For the repair of the granite paving and channelling of Blackwall Tunnel and its approaches, London County Council.

Griffiths & Co. . . . .	£4,958	19	6
Fry Bros. . . . .	4,813	2	4
Mowlem & Co. . . . .	4,270	0	0
Muirhead & Co. . . . .	3,937	19	1
ANDERSON, Poplar ( <i>accepted</i> ) . . . . .	3,778	4	1
Chief engineer's estimate . . . . .	4,000	0	0

For the supply of 126 yards of boundary fencing to be erected on the concrete wall along Colney Hatch Lane.

McVey & Co. . . . .	£106	17	9
Rowell & Co. . . . .	106	1	0
Hill & Smith . . . . .	102	7	6
BAYLISS, JONES & BAYLISS, Cannon Street, E.C. ( <i>accepted</i> ) . . . . .	101	6	6

For the erection of an organ in the chapel at Long Grove asylum.

Lewis & Co. . . . .	£530	0	0
Hill & Son . . . . .	475	0	0
Norman & Beard . . . . .	430	0	0
Bishop & Son . . . . .	389	0	0
GRAY & DAVISON & EUSTACE INGRAM, LTD. ( <i>accepted</i> ) . . . . .	354	10	0

For construction of roads and sewers, for the Golders Green (Finchley Road) estate. Mr. H. J. S. ABRAMS, surveyor, 8A Canfield Gardens, N.W.

Kavanagh & Co. . . . .	£2,450	0	0
Neave & Son . . . . .	2,345	0	0
Adams . . . . .	2,179	0	0
Brummell . . . . .	1,799	0	0
Rogers & Co. . . . .	1,780	0	0
GIBBONS ( <i>accepted</i> ) . . . . .	1,661	0	0

## LUDLOW.

For erection of receiving ward, nurses' rooms, laundry, boiler-house, &c. Mr. J. BUTTERS, architect, Ludlow.

Bryan . . . . .	£1,555	0	0
Pace . . . . .	1,360	0	0
Turford & Southward . . . . .	1,357	0	0
SPEAKE ( <i>accepted</i> ) . . . . .	1,317	0	0

## LUDLOW—continued.

Heating and hot-water supply.

Haden . . . . .	£254	0	0
Main . . . . .	253	10	0
Spry & Co. . . . .	239	19	6
Beavan . . . . .	222	10	0
Bryan . . . . .	200	0	0
Dawson . . . . .	198	0	0
SCULL BROS. ( <i>accepted</i> ) . . . . .	162	1	0

For new premises in Frog Lane. Mr. J. BUTTERS, architect, Ludlow.

Ward . . . . .	£430	0	0
Bowdler . . . . .	420	0	0
Bryan . . . . .	398	0	0
Speake . . . . .	397	0	0
TURFORD & SOUTHWARD ( <i>accepted</i> ) . . . . .	360	0	0
Architect's estimate . . . . .	375	0	0

## MANSFIELD.

For laying the Clipstone water main.

Revised tender.

ASHLEY ( <i>accepted</i> ) . . . . .	£11,197	0	0
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## NORFOLK.

For new cloak-rooms, &c., at Southery schools, Norfolk. Mr. HERBERT J. GREEN, architect and diocesan surveyor.

Roper . . . . .	£588	9	8
Collins . . . . .	525	0	0
Shanks . . . . .	488	0	0
Porter, Southery ( <i>accepted conditionally</i> ) . . . . .	448	15	0

## NEWBURY (BERKS).

For erection of elementary school. Mr. S. J. LEE VINCENT, borough surveyor.

Adey & Co. . . . .	£10,468	0	0
James . . . . .	10,228	0	0
Houghton & Co. . . . .	9,971	0	0
Bance . . . . .	9,598	0	0
Elms . . . . .	9,500	0	0
Hoskings Bros. . . . .	9,500	0	0
Chivers . . . . .	9,400	0	0
ELMS BROS, Stockcross, Newbury ( <i>accepted</i> ) . . . . .	9,069	0	0

# Arthur L. Gibson & Company.

**Kinnear Patent Steel Rolling  
Shutters.**

**Patent Interlocking Rubber Tiling.**

**B. & S. Patent Folding Gates.**

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NEWLYN.

Building hall and classrooms for St. Peter's, Newlyn.

Masonry.

Engenja . . . . .	£350	0	0
in . . . . .	332	10	0
Weeks & Son . . . . .	312	0	0
LARY, Buryas Bridge (accepted) . . . . .	261	1	6

Carpentry.

ggs Bros. . . . .	280	0	0
gge . . . . .	240	7	6
borne . . . . .	212	10	0
AKE, Tolcarne (accepted) . . . . .	225	0	0

PORTSMOUTH.

he erection of the new blocks at the borough lunatic  
asylum, exclusive of the provision of hot-water apparatus  
for heating and of roadmaking.

reetland . . . . .	£22,025	0	0
ard . . . . .	20,734	14	2
armouth . . . . .	20,470	4	7
aner . . . . .	20,070	17	6
therup . . . . .	18,847	0	0
ter . . . . .	18,083	0	0
rke . . . . .	17,795	6	8
vett . . . . .	17,658	12	4
ockerell, Portsmouth (recommended) . . . . .	17,389	0	0

SHIPSTON-ON-STOUR.

rection of cottage residence. Mr. A. E. ALLEN, archi-  
ect, Banbury.

rtwell . . . . .	£455	0	0
ams . . . . .	423	0	0
ARD, Shipston-on-Stour (accepted) . . . . .	375	0	0

ST. ALBANS.

For road works. Mr. H. F. MENCE, surveyor.

Mann . . . . .	£844	10	0
Brown . . . . .	840	0	0
Powdrill . . . . .	740	2	6
Trueman, Ltd. . . . .	739	0	0
Bell & Sons . . . . .	733	0	0
Free & Sons . . . . .	720	16	0
Deamer . . . . .	709	1	8
WILLIAMS, St. Albans (accepted) . . . . .	591	18	1

STAFFORD.

For the erection of an isolation hospital in Tithe Barn Road.

ADAMS & PEMBERTON (accepted) . . . . .	£2,249	13	0
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STANION (KETTERING).

For sinking well, construction of a reservoir, supply and  
laying of cast-iron mains, &c., at Stanion.

Knox . . . . .	£1,671	4	8
Haycock & Sons . . . . .	1,632	7	0
Payne . . . . .	1,344	6	0
Smart . . . . .	1,317	14	7
Wilmott . . . . .	1,280	0	0
Freeman . . . . .	1,245	14	10
Drever . . . . .	1,226	8	0
Bolton . . . . .	1,225	0	0
Panter & Son . . . . .	1,198	4	6
Chamberlain . . . . .	1,170	0	0
MANTON, Kettering (accepted) . . . . .	1,150	0	0

TAMWORTH.

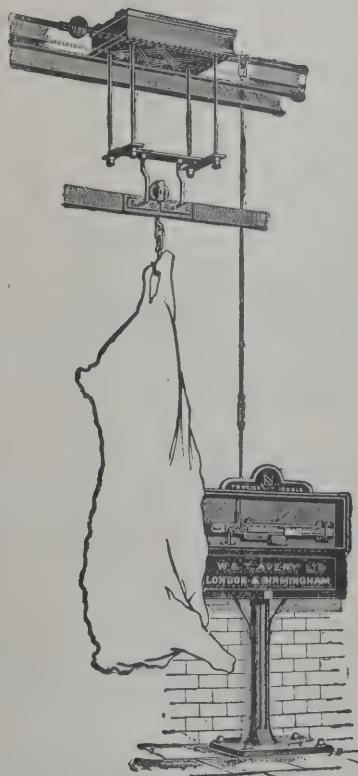
For providing and delivering at Tamworth station 470 tons  
of cast-iron pipes. Messrs. BRADSHAW & CLARSON,  
engineers.

Holwell Iron Co. . . . .	£2,493	7	6
Clay Cross Co. . . . .	2,372	10	11
Oakes & Co. . . . .	2,362	14	9
Staveley Coal and Iron Co. . . . .	2,331	19	11
Cochrane & Co. . . . .	2,328	5	5
Blakeborough & Sons . . . . .	2,317	15	0
STANTON IRONWORKS Co., Nottingham (ac- cepted) . . . . .	2,247	12	5



**ABATTOIR**  
**Overhead**  
**Weighing**  
**Machine.**

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**WHOLESALE MEAT**  
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**AND ABROAD.**

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500, 700, 1,000, & 2,000 lb.

*Graduated to suit*  
*Customers' . . .*  
*Requirements . .*



## TRADE NOTES.

THE heating of the extensive locomotive building works of the Vulcan Foundry, Ltd., Newton-le-Willows, the cubical contents of which amounts to nearly 5,000,000 cubic feet, has been entrusted to Messrs. E. Oldroyd & Co., Ltd., Crown Works, Leeds.

THE clock in the celebrated twisted steeple of Chesterfield is now undergoing a thorough renovation and alteration. The dials have been repaired and repainted, and the alterations to the clock are being carried out by John Smith & Sons, Midland Clock Works, Derby.

THE Electric and Ordnance Accessories Company, Ltd., of Stellite Works, Cheston Road, Aston, Birmingham, have just been awarded a gold medal by the New Zealand International Exhibition. In their exhibit a special feature was made of the Stellite telephones and telephone accessories, in addition to their general electrical manufactures. The exhibit was in the hands of their sole agents for New Zealand, Messrs. C. A. Hamlin & Co., of Auckland.

MESSRS. GEORGE MILLS & Co., engineers, Radcliffe, near Manchester (proprietors of the "Titan" sprinkler), have received the following letter from Messrs. The Radcliffe Spinning Co., Ltd., New Road Mill, Radcliffe:—"We beg to inform you that a fire broke out in one of our mule rooms on September 13, and almost instantly the whole room seemed to be one flame of fire, our workpeople having to get down the staircases and fire escapes as best they could. The sprinklers you erected some few years ago came into operation at once and rendered most valuable service, and it is a pleasure to us to give this testimony to their very prompt action, and to say further that had it not been for the sprinkler the whole of the mill would have been burned down."

ORLEANS HOUSE, Twickenham, which possesses some historic interest, was offered for sale on Monday, but as the highest bid was 18,500l. the property was temporarily withdrawn.

MR. W. BOYD, the first mayor of Wallsend, has given instructions through his architects, Messrs. Liddell & Brown, to Messrs. Wm. Potts & Sons to erect an illuminated clock at Wallsend town hall. Messrs. Potts are also making a

clock for the Bradford Grammar school and for buildings.

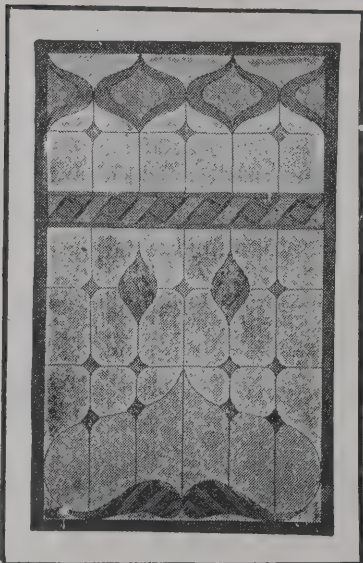
PRELIMINARY to their futile attempt to reascend the airship at the Crystal Palace on Tuesday last, Mr. Capper and Mr. Cody went up the North Tower by means of Waygood's lift, accompanied by our representative in order to take an observation of the meteorological conditions and were much gratified with the fine view obtainable from that elevated position, extending over the counties of Surrey and Kent.

At a meeting of the Infirmary site committee of the Manchester Corporation on Monday it was stated that T. E. Collcutt had accepted the committee's invitation to visit Manchester and give his opinion on the question whether it is possible to adapt the old Infirmary building for use as an art gallery and a public reference library. Mr. Collcutt proposes to make his inspection of the buildings on Tuesday and Wednesday next.

THE foundation-stone of St. Alban's Church, Bournemouth, was laid on October 8 by the Lord Bishop of Southampton. The cost of the work to be carried out at present will be 7,435l. We shall publish in next week's issue the design from the architect's drawing, by which it will be seen that Bournemouth is to have another example of church architecture. Mr. G. H. Fell Prynne, F.R.I.B.A., 6 Queen Anne's Gate, Westminster, S.W., is the architect, and the builders Messrs. Bowmans, of Stamford.

A NEW parish hall at Long Ditton, Surrey, was opened last Saturday by the Bishop of Kingston. The hall, which has accommodation for 400 people, is 72 feet 6 inches long by 36 feet wide, including a platform 15 feet 6 inches long. At the side of the hall away from the road an ante-room 14 feet 6 inches long by 12 feet wide is provided, lavatory, &c. The heating, by means of hot-water radiators, has been carried out by the London Warming and Ventilating Company, and the electric lighting by the Surrey Electricity Supply Company. The walls are of red brick to match the adjoining parish room and workmen's club, the roof is covered with Broseley tiles. The architect was Mr. A. J. Style, F.R.I.B.A., of 3 Victoria Street, Westminster, and of Thames Ditton, and the contractor Frank Hawkey, of Surbiton.

## "CLOISONNE GLASS"



A decorative material transparent and opaque. Weather-resisting

The CLOISONNE GLASS CO.

40<sup>F</sup> Berners St. Oxford St. London W.

Branch Office: 23 Old Queen St., Westminster, S.W.

prices from 3/- per square foot

Production 1906, 24,000 square feet. New Catalogue out.

## "THE BANQUET."

The well-known and beautiful Chromo-Lithograph by the late H. STACY MARKS, R.A.

Size Thirty-nine Inches by Fifteen Inches. Price One Shilling and Sixpence.

Free by post, carefully packed inside patent roller.

Gilbert Wood & Co. Ltd., 6-11 Imperial Buildings, Ludgate Circus.



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THE "SAMSON"

SOLID BRAIDED SASH LINE.



Size No. 8. Diameter 1/2 in. Will outwear a hollow-braided line twice its diameter. Du of the so-called sash lines are called THE PRICE. IT IS SPECIFIC Best Architect IT IS USED by Builders.

WM. E. PECK &

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## EXCELSIOR HARD BLUE STONE

principally used for Headstones, Grave Curbs, Fonts, Tracery Work, Steps & Landings, quays.

JAMES AKEROYD & SONS, Ltd., Woodkirk, near Dewsbury.

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Your Enquiries

For CONSTRUCTIONAL STEEL WORK, ROOFING, STORAGE TANKS.

CLAYTON SON & CO., Ltd., LE



## VARIETIES.

Hull electric-light committee have decided to apply loan of 31,200*l.* to meet the requirements of the committee for the next three years.

HE Alloa School Board have unanimously adopted a plan, prepared by Messrs. Kerr & McCulloch, Alloa, for a school to accommodate 800 pupils at an inclusive cost of 100,000*l.*

HE housing committee of the Swansea Corporation estimate that twenty-six houses in Colbourne Terrace have been let at 6*s.* 6*d.* per week. The contract price was 205*l.* per house and the actual cost 209*l.*

HE Newport Parliamentary committee recommend that provision be made to the Local Government Board for a loan to borrow a further sum of 10,000*l.* required for the purposes of the Transporter bridge.

HE Leeds Distress Committee have decided to apply to the Local Government Board for a grant of 1,000*l.* to be used in wages to men employed on afforestation work in Vashburn Valley.

HE Thrapston Council school managers have adopted a plan prepared by Mr. J. T. Blackwell, architect, Kettering, for a new school. The plans provide for 150 children—infant department 125, infant department 25. The estimated total cost, including site, building, furniture and architect's fees, was stated to be 3,000*l.*

INTERESTING experiments in tree-felling by electricity have been made during the past day or two on the Antrim Estate, Belfast. The rope was tied round the tree, and the end was then attached to an electric tram, which was in motion, and with astonishing ease the tree was cut down to the ground.

HE Royton District Council have decided to erect public baths on the land owned by the Council in Park Street, at a cost of between 4,000*l.* and 5,000*l.* The baths will comprise a plunge bath of the regulation size and twelve slipper baths. They will be the first public baths erected in the district.

THE diamond jubilee of the opening of the Roman Catholic cathedral of St. George, Southwark, will be celebrated by the completion of the tower and spire of the edifice designed by Pugin's designs, somewhat modified. The cathedral is

built on the site of the old St. George's Fields, where in 1780 Lord George Gordon assembled his followers.

A SITE has been taken at the Garden City, Letchworth, Hertfordshire, for the erection of cottages with a central cooking-hall for cooks and domestics, all tenants to share in the expense, the object being to save wives the "worry and expense of preparing meals," and to give servants "greater freedom and new dignity to their calling."

THE Mayor of Blackburn was recently invited by the Post Office authorities to open the new building in state, and it was intimated that the Postmaster-General would attend the function. His Worship, however, intimated that, in view of the inadequate and unsatisfactory building the Department had erected, he must decline to be associated with its opening.

THE Local Government Board has notified its intention to hold a public inquiry respecting the excess expenditure of 18,350*l.* on the Tottenham municipal buildings, for which the District Council proposes to raise a loan. The Ratepayers' Association has engaged professional assistance in the examination of the many documents relating to the erection of the buildings.

PLANS have been prepared for the erection of about 100 miners' houses in the neighbourhood of Summerlee Street, Cuthill, for the Prestongrange Coal Company. These are to be commenced immediately. The fields are cleared of their corn crops. During the last two years hundreds of miners' houses have been put up in the neighbourhood of Prestonpans.

AXMOUTH BRIDGE, near the mouth of the Axe (Devonshire) has been thrown open for the use of the public. For thirty and a half years a toll has been levied on all using the bridge. A gift of 2,200*l.* towards the purchase of the bridge and toll-house by Mr. and Mrs. Stephens, of Stedcombe Manor, Axmouth, made the removal of the toll possible.

A REPORT has been presented to Leith Town Council regarding the proposed extension of the electric tramway system to the suburban districts. A conference is to be invited with the Edinburgh Corporation with the view of having certain portions of the work undertaken jointly by Edinburgh and Leith. The cost of the scheme is estimated at 76,000*l.*

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THE Roads Improvement Association are completing the arrangements for the deputation that will wait on the Government early next session to press for the formation of a Central Roads Board and the grant of 1,000,000*l.* for road improvements throughout the country. The Association maintain that the advantages to be obtained by the control of the roads by a central authority would be a reduction in cost, better roads, a fair apportionment of cost and less dust.

THE Scarborough Royal Albert Drive committee report that the Local Government Board has given their sanction for the borrowing of 21,556*l.* for the carrying out of the work of the drive. It was also reported that Sir William Matthews, the engineer who was called in by the Corporation, will visit Scarborough at an early date and inspect the work done by the contractor at the sack-dam section to see whether it is in accordance with the award.

MESSRS. CAMMELL, LAIRD & Co. it is reported, intend shortly to lay down extensive electrical plant at their Clyn Colliery, near Swansea. The firm will manufacture their own motors, dynamos, &c., and, besides providing power and light, will gradually introduce an electrical system of haulage. Plans are also being considered to develop the adjacent large area of coal, the lease of which the company have recently taken over.

At a service in St. Stephen's parish church, Norwich, three new bells were dedicated and the south-east chapel reopened after having been entirely reroofed; the decayed oak timbers of the old roof were found to be in such a condition as to necessitate their removal. The reconstruction work was carried out under the superintendence of Mr. Arthur J. Chambers, architect, the builder being Mr. J. S. Smith of Norwich. The casting and hanging of the bells was entrusted to Messrs. Geo. Day & Son of Eye.

A SPECIAL meeting of the Belfast Corporation was held recently for the purpose of considering the question of a new abattoir. Plans were submitted for an establishment sufficient to meet the requirements of the next fifty years, which it was estimated would cost 33,000*l.* or 34,000*l.* After over two hours' discussion the market committee were authorised to submit alternative plans of modern accommodation at the Stewart Street site, the total cost not to exceed 30,000*l.*

THE Stirling Water Commissioners have unanimously agreed to the construction of a new 15-inch water between the reservoirs and the town at an estimated cost of 10,500*l.* It was reported that the powers for the execution of the work would expire in August 1908. An additional will obviate all causes of complaint, it is thought, until when loans of 26,250*l.* will expire, and when the commissioners will be in a position financially to consider the question of an additional reservoir.

THE death is announced of Mr. James Watherston, the firm of John Watherston & Sons, builders, Edinburgh, at the age of seventy-six. Mr. Watherston was identified with the building trade in the city for over a quarter of a century, and his firm erected many of the big warehouses. In the early seventies he was a member of the Edinburgh Dean of Guild Court, and he often gave evidence in valuation cases, considerable weight attaching to his opinions by reason of his extensive experience.

For nearly a year past the Bermondsey Borough Council have been carrying out a system of filtration and aeration with the object of saving the heavy expense of water for public swimming-baths. A bath has been used by 300 persons during the last ten months, and the medical officers report that the filter has been doing its work effectively. In future, however, the Council does not propose to continue the use of the water for so long as ten months, but to renew it twice during the summer and once during the winter.

THE main generating plant on the *Mauretania* consists of four turbo-generating sets supplying continuous current at 115 volts. Each set has a normal capacity of 375 kilowatts, or a total of about 2,300 horse-power. This power is used not only for lighting, but also for driving fans for producing the forced draught at the boilers (about 900 horse-power alone being required for this purpose), for ventilation, for driving lifting tackle and working the passenger and freight elevators, for driving refrigerating machinery and many other services.

THE contract for the erection of the chancel and bays of the nave of the new church of St. Agnes, Reddish, has been let to Messrs. George Macfarlane & Manchester. September next is the time specified for completion of this portion of the work. The price is

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ool, and seating accommodation is to be provided for 50 people. The second part of the building is to be provided with when sufficient money has been raised to enable the scheme to be completed by the erection of two more bays.

Two curious claims for damages have been brought against the West Riding of Yorkshire authority. One claimant asks the County Council to pay the cost of repainting a motor-car alleged to have been damaged by works of spraying on the Ripon and Harrogate main road. The committee repudiate the claim. The other claimant asks compensation for damage to a horse alleged to be due to spraying on the Skipton and Otley main road. The committee also declined to recognise liability in this case.

THREE blocks of working-class dwellings erected at Sheriff Brae by the Leith Town Council having already shown a deficiency of 494*l.* on the working, the treasurer's committee have been asked to inquire into the matter. It has been suggested that the Council might dispose of the property, even at a loss, rather than be forced to take this paper after the property depreciated in value. The blocks—three in number—which were erected as an experiment, cost 14,000*l.*, including 3,000*l.* for the site. They were intended to accommodate people living in the slums, but it is said that this class of tenant has not taken advantage of the provision made.

At a meeting of the Hungerford Rural District Council was decided that the plans, scheme and estimate for the drainage and sewage disposal works for the town, as prepared by Mr. H. H. Humphreys, be adopted, and that application be made to the L.G.B. for permission to raise a loan of 12,059*l.* 19*s.*, repayable during a period of thirty years. The question of drainage of Hungerford has occupied the attention of the Council for some years. The Council has been twice summoned for pollution of the river and other streams, and only recently were served with another summons. When the case was last before the magistrates the Council were fined 50*l.*

THE following is a copy of a letter received by Mr. J. Macdonald, M.P., secretary to the Labour Party, from the secretary to the United Operative Bricklayers' Society, Trades Hall, Sydney:—"The Sydney Labour Council have requested me to communicate with you re

state of trade in Sydney, so that intending emigrants may not be misled by fictitious advertisements and reports appearing in the English papers. I can assure you that it does not warrant any influx of bricklayers, as those that are here are not fully employed, and there are a few arriving from South Africa and sister States every week."

THE new waterworks at Walshaw Dean, belonging to the Halifax Corporation, have been formally opened. The construction of the works has taken seven years, and the total cost is about 300,000*l.*, a much higher sum than was originally estimated. A large part of the increased expenditure is stated to be due to the trenches having to be dug to a much greater depth than was anticipated to make the embankments of the reservoirs watertight. Extra cost has also been incurred in removing the peat, or in "beaching," as the work is termed. The three reservoirs will have a total capacity of 640,000,000 gallons, and will yield Halifax a daily supply of 2,500,000 gallons.

THE first public sitting of the departmental committee appointed by the Vice-President of the Department of Agriculture and Technical Instruction, for the purpose of inquiring into matters relating to afforestation in Ireland, was held at 4 Upper Merrion Street, Dublin, on the 3rd inst. The terms of reference of the committee are to inquire into and report upon the following matters relating to the improvement of forestry in Ireland, viz. (1) the present provision for State-aid to forestry in Ireland; (2) the means whereby in connection with the operation of the Land Purchase Acts existing woods may be preserved and lands suitable for forestry acquired for public purposes; and (3) the financial and other provisions necessary for a comprehensive scheme of afforestation in Ireland.

A SPECIAL committee appointed by the Accrington Town Council to consider the question of the lack of sufficient dwelling-houses in the borough reports that builders who have been in the habit of erecting new houses in the past have of late found it more difficult to sell newly-erected cottages than formerly. The prices of building materials and labour have advanced by quite 15 per cent., and owing to the small return on the outlay there is very little purchasing of house property for investment. "People," the builders argue, "can get a better return for their money in other directions." The committee, however, unanimously



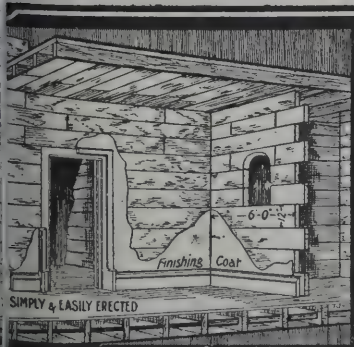
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decline to recommend the adoption by the Council of a municipal housing scheme. It was ascertained that up to six months ago there were empty houses in the town, and it is not expected that the very brisk trade which accounts for the present demand can be permanent.

At the last monthly meeting of the Street Noise Abatement committee it was stated that the following protest from the City of London Club had been forwarded to the City authorities and to the police:—"The committee of the City of London Club, Old Broad Street, consisting of 800 members, hereby protest against the noise and smell caused by motor omnibuses in passing through Old Broad Street, and earnestly request that the Chief Commissioner of Police and the proper authorities will take measures to diminish this nuisance." At the same meeting it was mentioned that it was proposed to ask the members of Parliament for the City to introduce a short Bill respecting "street noises" at the earliest opportunity, as every week was adding to the depreciation of property in all thoroughfares where undue noise prevailed.

LAST week the new Swansea Corporation waterworks at Cray, in Breconshire, the construction of which has cost over half a million, were opened. The area of the gathering ground is 2,680 acres, and by means of a dam 1,250 feet in length one thousand million gallons of water is collected for the use of Swansea and those localities on the way who agree to take the water. The depth of water at the dam is 100 feet. Connecting the reservoir with the twenty-four miles of pipes leading to Swansea is a tunnel under the Bwlch Mountain 4,777 yards in length. The tunnel is 5 feet high and 3 feet 6 inches wide, and the number of bricks used in the construction is three millions and a half. Cray is situated at an altitude of 1,000 feet above the sea. The whole of the works have been designed by Mr. R. Wyrill, Swansea Waterworks engineer, the consulting engineers being Messrs. G. H. Hill & Son, Westminster, S.W.

AMONG wills recently proved is that of Mr. George Coffin, of Eastfield, Festing Road, Southsea, Hants, builder (net personalty nil), amounting to 214,367*l*.

## THE ENGINEERING EXHIBITION.

CONTINUING our brief review of some of the exhibits at the Engineering Exhibition at Olympia we observe that Mr. James D. Prior, of the "Empire" Works, Hollis Street, Birmingham, gave at intervals explanations of heating specialties, the Venetian fire-grate with patent Venetian regulating bars and draught-controlling door. This burns either fast or slow, and the fire will burn all night without attention. By the Venetian system, too, an ordinary sitting-room grate gives a bountiful supply of water for baths, lavatories, &c., also warming other rooms by radiators and hot-water pipes. It is automatically changeable from an open or slow fire into a closed burning fire as required, and will burn all night without attention. A notable feature is also the skirting radiator fixed to skirting boards of bedrooms, each of which has a powerful heater, projecting only  $\frac{3}{4}$  inch into the room. The tubes are copper or brass, and may be heated by a kitchen range without discolouring the bath water. Many other appliances are on view.

Messrs. Lee, Howl & Co., Ltd., 110 Cannon Street, London, and Tipton Engineering Works, Tipton, Staffs, have heated furnaces and pumps of considerable effective power, and economy in work.

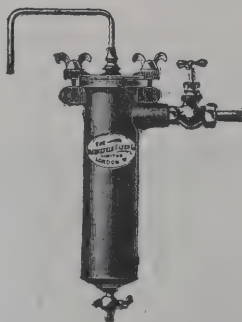
Messrs. Richard Hornsby & Sons, Ltd., of Grantham, London, have here a gas-engine and suction plant. The engine is coupled direct to a Lancashire dynamo by flexible coupling, and is driven by gas from a generating plant of their own manufacture. The unique feature of the engine is its simplicity, especially in the design of the valves which are all in sight and can be easily got at from outside and without taking anything to pieces. The engine draws in the gas as it is required from the generator, and when the engine is not running there is no gas being made, and none is ever under pressure. The engineering arrangement excited a great deal of interest and comment.

The "Stanlock" system of heating and ventilating factories and buildings by means of separate units is shown by the Standard Engineering Company, Ltd., Leicester. This system has been adopted by some of the leading engineering firms in this country, who have recently built

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ks in the provinces. No overhead air pipes and no underground ducts are employed in this system. Both heating and ventilation are perfectly evenly distributed, any section of a building may be completely controlled independently of any other section of the same building. The apparatus involved is inexpensive, simple and efficient. Successful waterproofing for bridges, tunnels, foundations, &c., is shown by the *Gibson Waterproofing Company*, of 10 and 21 Tower Street, Upper St. Martin's Lane, London. The system consists in the use of a thin material, absolutely impervious to water, flexible, tough, elastic, proof against deterioration through age and specially fitted to withstand the injurious action of water and all underground conditions. As many sheets, or layers, of this impervious membrane as may be required are cemented together, and the stratum of waterproofing is so arranged as to be independent of the surface waterproofed, which may vibrate, rattle, twist or crack, expand or contract, without injury to the membrane protecting it; exactly as the hide of a hand or the skin of one's hand is free and independent of the surrounding tissue, so that it may readily and fully yield to every movement. The principle of flexibility, coupled with independence of movement, distinguishes the system from the old-school practice of using a more or less rigid material and sticking it fast to the surface to be waterproofed. It is a well-thought-out and effective system.

At a meeting at Clonmel last week of the South Kerry County Council the question of the surveyor's remuneration for an increase of salary was again under consideration, the Local Government Board having asked them to take it up. It was resolved "that the Council approve of the finance committee's recommendation not to increase the already increased salary of the county surveyor, as this question was fully considered. The increase of salary was refused, and subsequently when the county surveyor asked for a second increase, and that the Council considered the veiled threat of the Local Government Board to make an inquiry in the matter as an indication of its bias, pressed its determination to resist any unwarrantable interference with their right to manage their own affairs."

## NATURAL AIR GAS.

A REMARKABLE and ingenious adaptation of modern principles to lighting has been inaugurated at the Engineering Exhibition. Although several kinds of machines have been from time to time exploited, by this system for the first time air has been automatically and uniformly carburetted with a non-condensable proportion of hydrocarbon vapour. This with a machine that will adjust the supply under varying demands, fluctuations of temperature and during indefinite periods of time. The gas produced is non-explosive and has both heat, with an incandescent mantle of special pattern, and light.

When used with an incandescent mantle, however, the effect far surpasses the ordinary incandescent gas or electric light. This light is of a most beautiful colour, pure and "sunny," free from objectionable green and ultra violet rays. Another point is that the air in the room is not deprived of its oxygen, as is the case with coal gas, acetylene and other methods of lighting and heating. All the air required for complete combustion is supplied through the pipes by the apparatus. It has no objectionable fumes like coal or any other gas, as the products of combustion contain no sulphur, ammonia, phosphoretted or sulphuretted hydrogen, so common with and inseparable from coal gas and acetylene. The machinery for producing the air gas, which we understand is made under Glassgoe's patents, is novel and ingenious, and we are not surprised that the directors of the undertaking are loud in their praises and confident in recommending their system for public and private use.

## NEW CATALOGUES.

An interesting and useful catalogue dealing with reinforced concrete and steel construction has been issued by Messrs. D. G. Somerville & Co., which contains a great deal of information of value to those engaged in designing and constructing buildings by these methods. Messrs. D. G. Somerville & Co. have carried out a large number of contracts in ferro-concrete, and by the experience thus gained have learned that no one system is the most suitable for every

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purpose, but being licensed contractors for no less than six proved systems of reinforcing concrete are able to apply what is the best to each case.

Fireproof construction, although now generally adopted throughout a building, is in many cases confined to floors and roofs. Of these they have numerous types. Their hollow reinforced concrete tile construction forms a light yet strong floor, the main feature of this system being the hollow concrete tiles or tubes. The tiles are specially manufactured at their Southall works, and are composed of clinker concrete reinforced with steel rods, the tiles being laid between rolled steel joists or reinforced concrete beams, spaced at equal intervals and grouted in between the webs of the beams with concrete. Owing to the large air space obtained constant ventilation is given, and the air spaces deaden any sound from passing through. A contract on this system has just been completed at Messrs. Sandersons' new premises in Berners Street, W.C. This building was constructed on the American principle, a steel frame first being erected. The height of the steel stanchions was 100 feet from the foundations, these being formed in reinforced concrete. The lower floors are used as stores and business premises, the upper being planned as residential flats. In order to isolate the business and residential portions the hollow system of reinforced concrete floors was employed, with entirely satisfactory results. A feature of the show-rooms on ground floor is the central reinforced concrete dome, 33 feet square, with glass top. The sides of the dome in all cases cantilever from the main walls of the building, thus obviating the necessity for any supporting columns.

Another building constructed by Messrs. Somerville is the new premises at Paddington for the National Telephone Company. Here again the steel-frame construction was employed, the hollow reinforced concrete tile system being used throughout the floors and roofs. As floor space was a great consideration no centre columns were used, although the width of the building was 35 feet, heavy girders of this span being employed, supported by steel stanchions built into the outside walls. The roof of this building was of rather unusual design, being an elliptical arch springing from the side walls, the rise in the centre being 17 feet and clear span 35 feet, no tie rods being used.

Each principal weighed 3 tons, being built up on site in three sections. All steelwork in this structure was clothed in reinforced concrete for fire protection. In addition to this building Messrs. Somerville have since completed two other similar buildings for the National Telephone Company.

Another contract carried out by Messrs. Somerville Co. shows the value of their hollow tile system as a sound proof medium, the entire railway cutting between James's Park and Victoria stations on the District Railway being roofed in. The sound of the trains since the completion of the work has been entirely deadened and the vibration reduced to a minimum, so much so that men's cubicles are being erected on the finished surface of the roof. Probably, from an engineering point of view, the most interesting piece of work carried out by this firm is the reconstruction of the town quay for the Southampton Harbour Board. This contract presented many engineering difficulties, as most of the work could only be constructed at low water. Several ingenious devices were employed which facilitated the work, among them the strengthening of the existing screw piles. These, amounting to nearly 200, each 30 feet long, were left in position, and concrete slabs were sunk round each through the mud to a solid foundation. Each section was forced into position by screw jacks, the mud being then forced out by water pressure and replaced by concrete, the whole forming a solid shaft 19 inches square. Mr. E. Cooper Poole, the harbour board engineer, is the patentee of this system of strengthening existing iron and timber piles. The contractors used the existing pile as a fulcrum to jack on to the concrete pile thus further facilitating the work. The piles then being brought up to the existing deck level, a new deck was formed in reinforced concrete, the whole being a monolithic mass. The deck before being taken over was tested at 10 cwts. per square foot, which load was twice the calculated safe load, no appreciable deflection being noticeable. Two heavy goods lines of railway were constructed on this deck and the whole finished in wood-block paving. Messrs. Somerville carrying out the whole of the work.

Among other contracts carried out by this firm in steel and concrete may be mentioned Chelsea town hall and Messrs. Rumpelmeyers's new premises St. James's Street.

## OUTSIDE FIRE ESCAPE STAIRCASES



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MARSDEN TILES, LTD., of Burslem, have supplemented their catalogue by some separate sheets of Marsden tiles and slab panels. They also present briquettes in all colours, which can be applied to the construction of fire places with semicircular, segmental and flat arches, by which many pleasing effects can be produced, from dull glazed to rich lustrous. The slabs are adapted to the Queen Anne, Sheraton and Adams styles. Numerous as are the patterns of the tiles, there are no reproductions among them which are familiar, with one exception, that of simple fleur-de-lys. All the others are remarkable for their novelty, both in form and colour. It is not often so many gratifying examples of artistic invention and so strict exclusion of commonplace forms are to be found in a limited space. Messrs. Marsden's work deserves recognition and patronage, for it is manifest they encourage skilled artists, and adopt styles which are in keeping with decorative principles.

THE new catalogue issued by Marion & Co., Ltd., would have amazed Daguerre and Fox-Talbot. Neither of them could have imagined that so many appliances would come into the aid of a photographer and enable effects to be produced utterly beyond what was possible with their simple appliances, although directed by science and ardour. Everything requisite for the most advanced photography is in Messrs. Marion's catalogue. Cameras for all classes of work, lenses, dark-room lamps and sundries, appliances for printing, mounting and retouching; chemicals, albums, frames and much else will be found in the pages. Architects and engineers should also consider the various apparatus for copying plans; they are to be had at different prices according to sizes, the climax being found in the continuous rotary electric copying machine, which, amongst its advantages, makes prints of any length in one continuous piece, thus dispensing with the usual unsightly joints in drawings of large size, such as are required for railway plans and profiles and designs for bridges, ships, constructional work, &c.

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## THE LATE JAMES BEATY.

MR. JAMES BEATY, one of the most widely known builders and contractors in Carlisle and the neighbourhood, died on September 29 at his residence, The Grange, Carleton, says the *Carlisle Journal*, after an illness which had lasted for some time, but from which no fatal results had been anticipated. He was sixty years of age, and was the youngest of four brothers, all of whom were engaged in the building trade. The parents lived at Hutton Row, under Sir Henry Vane, as builders and contractors. James served his apprenticeship with his father as a builder, and when out of his time he went for improvement to Barrow and Manchester, after which he returned to Hutton Row and joined his father and three brothers, John, Peter and Thomas, as a partner in the building business. When the Midland Railway Company carried out the extension of their line from Settle to Carlisle the firm obtained the contract for all the building required on a section of the work. After the contract had been completed the father severed his connection with the firm, and in 1877 the four brothers

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migrated to Carlisle and commenced business in the city as Beaty Brothers. Mr. James Beaty, soon afterwards withdrawing from the firm, commenced brick-making at Curthwaite, and lived there for some time. Succeeding Mr. Charles Armstrong as owner of the Kingstown brickworks, he left Curthwaite and came back to Carlisle and devoted himself with characteristic energy to the manufacture of bricks at Kingstown, enlarging and improving the plant and introducing modern methods of brick manufacture. He carried on this business throughout the remainder of his career. In addition to the business of brick manufacture he also carried on the business of a builder, and so extensive were his operations in that capacity that at the time of his death it could be said of him that he had probably built more houses in Carlisle and the neighbourhood than any other man. His biggest job as a builder was perhaps the theatre in Lowther Street. He erected the Home for Incurables in Wigton Road, and put up several schools in country districts near the city. The nature of the mark which he has left in the city may be imagined when it is stated that he built more or less extensively in the following streets:—Warwick Square East and Aglionby Street, Lawson Street (Newtown), Montreal Street Boundary Road, Goodwin Terrace, Esther Street, Brunton Avenue, Eldred Street, Toronto Street, Northumberland Road, Carlton Gardens (Stanwix), Lyon Road (Silloth), &c.

### LIVERPOOL MASTER BUILDERS' ASSOCIATION.

The forty-first annual general meeting of the Liverpool Master Builders' Association was held in the board-room of the Association, 24 Sir Thomas Street, on the 3rd inst. The chair was occupied in the earlier proceedings by the retiring president, Mr. William Bullen, and there were present many past-presidents, officers and members. The annual report dealing with various matters of importance to the trade, and the treasurer's statement of accounts for the past twelve months, were read and approved, and copies ordered to be supplied to every member, also to the various kindred master builders' organisations and all the local architects.

Mr. A. L. Haugh was elected president for the ensuing

twelve months, and he then took the chair and thanked meeting for his election. Mr. Charles Tomkinson, senior past president, proposed a hearty vote of thanks. Mr. William Bullen, the retiring president, who had occupied the chair two years in succession, during which years very many important matters had been dealt with and over 200 new members admitted to the Association. Mr. Tomkinson, acting as chairman of a special committee which had been appointed by the Association, asked Bullen to accept as an appreciation of his most valuable services, an illuminated address, and also asked Mrs. Bullen, through him, to accept a present from the Association in form of a silver rose bowl and side ornaments. Mr. J. S. Brown, a past president, in seconding the resolution, spoke very highly of the valuable services rendered by Mr. Bullen to the Association, and looked forward to the time when Mr. Bullen would occupy the chair of the higher branch of the builders' organisations to which this Association was affiliated. The resolution was carried unanimously. Bullen, in reply, accepted the gifts, and stated that the work had been a pleasure to him, and he was very pleased indeed that his endeavours were appreciated by the members.

The following further officers were then elected:—Frank Griffiths, senior vice-president; Mr. R. A. Art Costain, junior vice-president; Mr. Charles Tomkinson, treasurer; Messrs. H. E. Dallow and J. Sirett Brown, honorary auditors. Thirty-six members were then elected to form the Council for the ensuing twelve months. The Council is divided up into six trade committees representing the following branches:—Bricklayers, masons, plasterers and slaters, carpenters and joiners, painters, plumbers, glaziers and electricians' committees, each of these committees consisting of six members. A new rule was unanimously passed allowing the electricians six representatives on the Council instead of three as previously. On the proposition of Mr. William Bullen, seconded by Mr. Ernest Henshaw, supported by Mr. Charles Tomkinson, it was carried unanimously that the best thanks of the meeting be tendered to Mr. Bertram B. Moss, the secretary for his services during the past twelve months. A number of matters of general interest were discussed under "general business," and the meeting terminated with a vote of thanks to the chairman.

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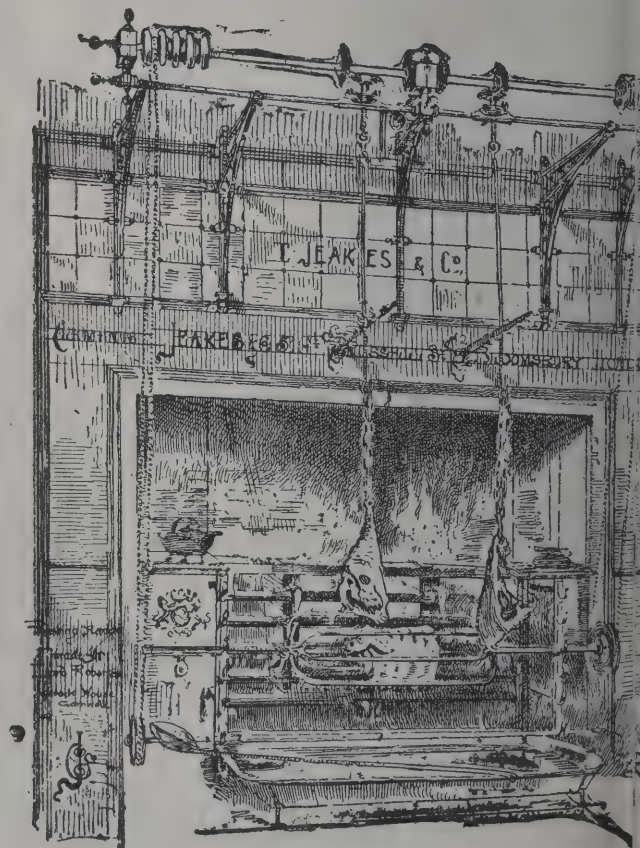
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THE  
**Architect and Contract Reporter.**

FRIDAY, OCTOBER 18, 1907.

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**NOTICE TO ADVERTISERS.**

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

**TENDERS, ETC.**

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

ALTRINCHAM.—Oct. 21.—Proposed secondary school for Cheshire County Council. Architects desiring to compete should send their names by above date to Mr. J. Howarth, clerk, Education Offices, Market Street, Altrincham.

HERTFORD.—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500l. Premiums of 50l. and 20l. will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

ACCORDING to an American consular report a law has been passed for the institution of an electric post in Naples, Milan and Rome, and the Italian Minister of Posts and Telegraphs has nominated a commission to arrange for the opening of bids for the installation of the service. The electric post, it is stated, is an invention of a Neapolitan, Baron Piscicelli-Taeggi, who has also patented it in America, and the invention renders possible the transmission of mails from one point to another with great speed. It is planned to reserve the electric post for the mails which have greater need of celerity, such as the transportation of special delivery letters and local telegrams to and from the central office and the sub-stations, as well as late matter, which could be sent from the central office to the railway station ten minutes before train time. The principal tube will be the one which connects the central office with the railway station, and if the service in the cities proves a success it is the ultimate intention to inaugurate a similar service between the principal cities in Italy. It is estimated that in this way the time between Naples and Rome can be reduced from five to two hours.

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## CONTRACTS OPEN.

**BACUP.**—Oct. 19.—For reconstruction, widening and improvement of the bridge carrying Blackwood Road over the river Irwell at Stacksteads. Deposit 1*l*. 1*s*. Mr. W. H. Elce, A.M.I.C.E., borough engineer, Municipal Buildings, Bacup.

**BASINGSTOKE.**—Oct. 21.—For installation of low-pressure hot-water apparatus at new Council schools. Deposit 2*l*. 2*s*. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

**BEDMINSTER.**—Oct. 23.—Separate tenders for the builder and plumber's work connected with erection of a Council school at Merrywood, Bedminster. Mr. H. Dare Bryan, architect, 4 Unity Street, Bristol.

**BELPER.**—Oct. 22.—For erection of a galvanised corrugated iron building about 1½ miles from Belper goods station. The building to be 90 feet by 36 feet, capable of holding 600 people; at the rear, scullery (24 feet by 12 feet) and kitchen (13 feet by 18 feet). Mr. R. B. Muir, secretary, Belper River Gardens, Belper, near Derby.

**BRIDLINGTON.**—Oct. 22.—For further repairs and pointing on the workhouse premises. Mr. Geo. Hankinson, clerk, Long Lane, Bridlington.

**BRIDPORT.**—Oct. 21.—For erection of a secondary school in St. Andrew's Road. Mr. F. Cooper, architect, 77 East Street, Bridport.

**BURNLEY.**—Oct. 19.—For the erection of tramway cash and parcel offices, St. James's Street. Forward names to Mr. G. H. Pickles, borough engineer, town hall, Burnley.

**BURY.**—Oct. 21.—For alterations and additions to baths superintendent's house, St. Mary's Place. The Borough Engineer's Office, Bank Street, Bury, Lancs.

**DARLINGTON.**—Oct. 19.—Separate tenders for each trade are invited for erection and completion of ten houses in Fulford Place, Harrowgate Hill. Apply 128 Thompson Street West, Darlington.

**DUBLIN.**—Oct. 22.—For the superstructure of the college in Upper Merrion Street, and for erection of workshops adjoining. Deposit 5*l*. 5*s*. The Secretary, Office of Public Works, Upper Merrion Street, Dublin.

**DUBMIRE.**—Oct. 29.—For erection of Council school at Dubmire, near Fence Houses, Durham. Messrs. J. Potts & Son, architects, 57 John Street, Sunderland.

**FARNWORTH.**—Oct. 25.—For the labour and material required in erection of public offices. Deposit 2*l*. Mr. W. J. Lomax, architect, 11 Fold Street, Bolton.

**GILLINGHAM.**—Oct. 22.—For erection of three cottages at Gillingham, Kent. Mr. Walter C. Stunt, Lorenden, Faversham.

**GOLCAR.**—Oct. 26.—For the erection of stables, &c. Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

**HALIFAX.**—Oct. 21.—For pointing the church spire in Stoney Royd cemetery. Mr. James Lord, borough engineer, Town Hall, Halifax.

**HAM.**—Oct. 21.—For erection of a board-room and stable and cart-shed at Ham, Surrey. Mr. H. J. Turner, surveyor, Malthouse Cottage, Ham Common.

**HEMSWORTH.**—For the erection and completion of three shops and houses, also slaughter-house, out-offices, &c., at Hemsworth collieries, near Wakefield. Messrs. Garside & Pennington, architects and surveyors, Pontefract and Castleford.

**IRELAND.**—Oct. 24.—For making alterations and additions to Banking Company branch premises at Rathfriland co. Down. Messrs. Græme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

**IRELAND.**—Oct. 25.—For erection of a parochial National schoolhouse at Larne, co. Antrim. Deposit 1*l*. 1*s*. Messrs. S. P. Close & Son, architects, Donegall Square Buildings, Belfast.

**IRELAND.**—Nov. 8.—For the supply and erection of low-pressure hot-water heating plants in connection with the heating of divisions Nos. 1, 2, 3, 4, 5, 6, 7 and 8 of the Ballinasloe district lunatic asylum. Deposit 1*l*. 1*s*. Mr. G. B. Meenan, consulting engineer, 5 Charleville Road, Rathmines, Dublin.

**KEIGHLEY.**—Oct. 23.—For the erection of a detached house at Woodville Road. Mr. David W. Weatherhead, architect and surveyor, Low Street, Keighley.

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**LANCHESTER.**—Oct. 23.—For erection and completion of bath-rooms, lavatories, dining-room, &c., at Maiden Law sanatorium. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

**LEEDS.**—Nov. 4.—For extension of Tower works, for Messrs. Harding, Richardson, Rhodes & Co. Mr. W. Bakewell, F.R.I.B.A., architect, Leeds.

**LEISTON.**—Oct. 26.—For erection of a higher elementary Council school and cookery, laundry and manual instruction special subjects centres at Leiston, East Suffolk. Deposit 2*l*. The Education Committee, County Hall, Ipswich.

**LONDON.**—Oct. 21.—For building staircases and alterations at public baths at Forest Hill, for the Lewisham public baths committee. The Town Hall, Catford (Surveyor's Department).

**LONDON.**—Oct. 29.—The London County Council invite tenders for new elementary school for 1,116 children at Wandsworth. Terms and conditions and official forms on application to the Architect, Education Offices, Victoria Embankment, London, W.C.

**LONDON.**—Oct. 30.—For erection of a post office at Blackheath. Deposit 1*l*. 1*s*. Mr. J. Wager, H.M. Office of Works, Westminster, S.W.

**MANCHESTER.**—Oct. 21.—For the heating and hot-water supply at Monsall hospital extension. Deposit 1*l*. 1*s*. The City Architect, Town Hall, Manchester.

**PORTSMOUTH.**—Oct. 21.—For erecting, completing and maintaining in thorough repair for twelve months a concert pavilion, bars and tea-rooms, shelter pavilion, entrance buildings, kiosks and canopy at the South Parade pier, and the widening of the present pier, including all foundations, piling, lattice girders and other works at the South Parade pier, for the Town Council. Deposit 3*l*. 3*s*. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea, Portsmouth.

**PORTSMOUTH.**—Oct. 30.—For erection of additional blocks, maternity ward and other works at the workhouse infirmary. Deposit 2*l*. 2*s*. Messrs. Rake & Cogswell, architects, Prudential Buildings, Commercial Road, Portsmouth.

**SCOTLAND.**—Oct. 21.—For reinforced concrete foundations of generating station, pump-room, &c., at Carolina Port, Dundee. Mr. Jas. Thomas, city architect, 91 Commercial Street, Dundee.

**SCOTLAND.**—Oct. 21.—For works required in connection with the erection of new cattle market at Gorgie, as follows:—(1) Builder and bricklayer; (2) joiner; (3) slater; (4) plumber; (5) cattle pennage, steel roofing, iron fencing, &c., at cattle byres; (6) steel roofing over cattle pennage. Public Works Office, City Chambers, Edinburgh.

**SCOTSWOOD (NEWCASTLE-ON-TYNE).**—Oct. 21.—For erection of twelve houses in flats, including iron railings in front of same, on the Blackett Ord Estate. The Blaydon Co-operative Society, Blaydon-on-Tyne.

**SEAHAM.**—Nov. 4.—For construction of a steel and timber lifeboat house and slipway at Seaham. Mr. John Smith, hon. secretary, Harbour Master's Office, Seaham, Sunderland.

**SOUTHBOROUGH.**—Oct. 28.—For construction of new tanks, bacteria bed and sprinkler, for the Southborough Urban District Council, Kent. Deposit 10*s*. 6*d*. The Engineer's Office (Mr. William Harmer), 137 London Road, Southborough.

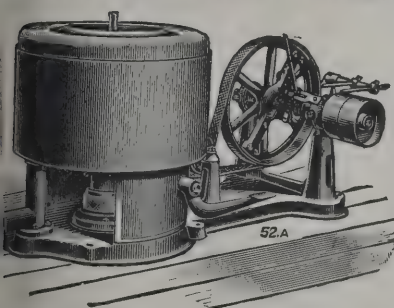
**SOUTHAMPTON.**—Oct. 29.—For enlargement of the post office. Deposit 1*l*. 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

**STONE.**—Oct. 26.—For erection of proposed isolation hospital at Yarnfield, near Stone. Forward names to Mr. W. Watkyn Wynne, clerk to the Board, Stone, Staffs.

**THRYBERGH AND MEXBOROUGH.**—Oct. 25.—The West Riding education committee invite whole or separate tenders in connection with the following works, viz.:—New infants' school at Thrybergh (builder, joiner, slater, plumber, plasterer, painter); Doncaster Road provided school, Mexborough—Heating (builder and heating engineer). Deposit 1*l*. in each case. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

**TWICKENHAM.**—Oct. 24.—For erection of an infectious diseases hospital, comprising administrative block, scarlet-fever block, isolation block, laundry, disinfecting station, mortuary and other works in connection therewith, on land at the corner of Nelson Road and Hospital Bridge Road.

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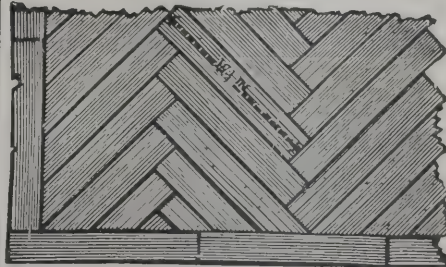


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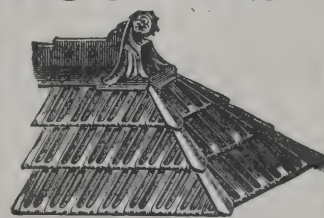
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WALES.—Oct. 19.—For proposed Council school at Rhiw-Syr-Dafydd, near Blackwood, Mon, to accommodate 300 children. Deposit 3*l.* 3*s.* Mr. R. L. Roberts, architect, Abercarn.

WALES.—Oct. 19.—For erection of two houses at Goodwick, Pembrokeshire. Mr. Hugh J. P. Thomas, architect and surveyor, 9 Victoria Place, Haverford West.

WALES.—Oct. 19.—For alterations to the Aberporth school, Cardigan. Send names to Mr. Donaldson or to Mr. L. Lewis, architect and surveyor, Priory Street, Cardigan.

WALES.—Oct. 21.—For erection of a parish hall, Cwmpark. Mr. Jacob Rees, architect, Pentre.

WALES.—Oct. 21.—For carrying-out extensions, alterations and repairs at the following Council schools, Monmouthshire:—Earlswood, near Chepstow, erection of new classroom, &c.; Goytre, near Pontypool, ditto; Garnfach, Nantyglo, erection of two new classrooms and other work; Dukestown, Tredegar, alterations; Sirhowy, Tredegar, asphaltting playgrounds and pointing boundary walls; Mynyddbach, near Chepstow, gravelling playground and repairs; Lower Cwmyoy, Abergavenny, erection of boundary wall; St. Dials, Cwmbran, new windows and builders' work in connection with the installation of heating apparatus; New Tredegar Town, New Tredegar, ditto. Mr. C. Dauncy, secretary, County Council Offices, Newport, Mon.

WALES.—Oct. 23.—For erection of two houses at Vaynor Road, Porth. Mr. James T. Jenkins, architect and surveyor, Porth, Rhondda.

WALES.—Oct. 24.—For additions and repairs to the Council school at Croesgoch, in the parish of Llanrhian, Pembrokeshire. Mr. D. E. Thomas, architect, 17 Victoria Place, Haverfordwest.

WALES.—Oct. 24.—For erection and completion of business premises, 72 Llewellyn Street, Pentre. Mr. W. D. Morgan, architect, Post Office Chambers, Pentre, Rhondda.

WALES.—Oct. 25.—For building a house on Gwbert Road, Cardigan. Mr. L. Lewis, architect and surveyor, Cardigan and Fishguard.

WALES.—Oct. 26.—For erection of two cottages at Pantygraigwen, Pontypridd. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

WALES.—Oct. 26.—For erection of twenty-four villas behind the Avenue, Pontypridd. Mr. Arthur Lloyd Thomas, architect, Church Street Chambers, Pontypridd.

WALES.—Oct. 26.—For alterations and repairs to the National school, Aberystwyth, and the Penparke school. Mr. G. T. Bassett, architect and surveyor, 17 Terrace Road, Aberystwyth.

WALES.—Oct. 29.—For erection of a metal workshop at Porth County school. Deposit 1*l.* 1*s.* Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Oct. 30.—For building Tabernacle Congregational church, schoolroom, &c., at Ebbw Vale, Mon. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Oct. 30.—For erecting a house on the Bryn-y-Neuadd estate, Llanfairfechan, North Wales. Mr. C. H. Dorman, 53 Abington Street, Northampton.

WALES.—Nov. 6.—For erection of the Bethlehem Welsh Congregational church, Eyre Street, Splotlands, Cardiff. Deposit 2*l.* 2*s.* Messrs. Habershon, Fawcner & Co., architects, Tredegar Estate Offices, 14 Pearl Street, Roath.

WERNETH.—Oct. 22.—For construction and erection of bridge over Stock Lane, Werneth, Oldham, for the Lancashire and Yorkshire Railway Co. The Engineer's Office, Hunt's Bank, Manchester.

WOODHALL SPA.—Oct. 28.—For construction of works near Woodhall Spa, Lincs., comprising a new engine-house, 24 feet by 18 feet inside, concrete intake and tank about 3,500 lineal yards of cast-iron pipes, 6 inches in diameter, from the new engine-house to the existing reservoir, together with machinery foundations, pump well and other works connected therewith. Deposit 2*l.* 2*s.* Messrs. James Mansergh & Sons, engineers, 5 Victoria Street, Westminster.

The erection of a new public elementary day school at Brierfield, Lancashire, has been decided upon. It will cost about 17,700*l.*

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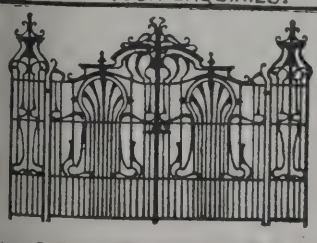
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Saunders . . . . .	1,835	0	0
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Mason . . . . .	902	17	2
C. Trentham . . . . .	800	0	0
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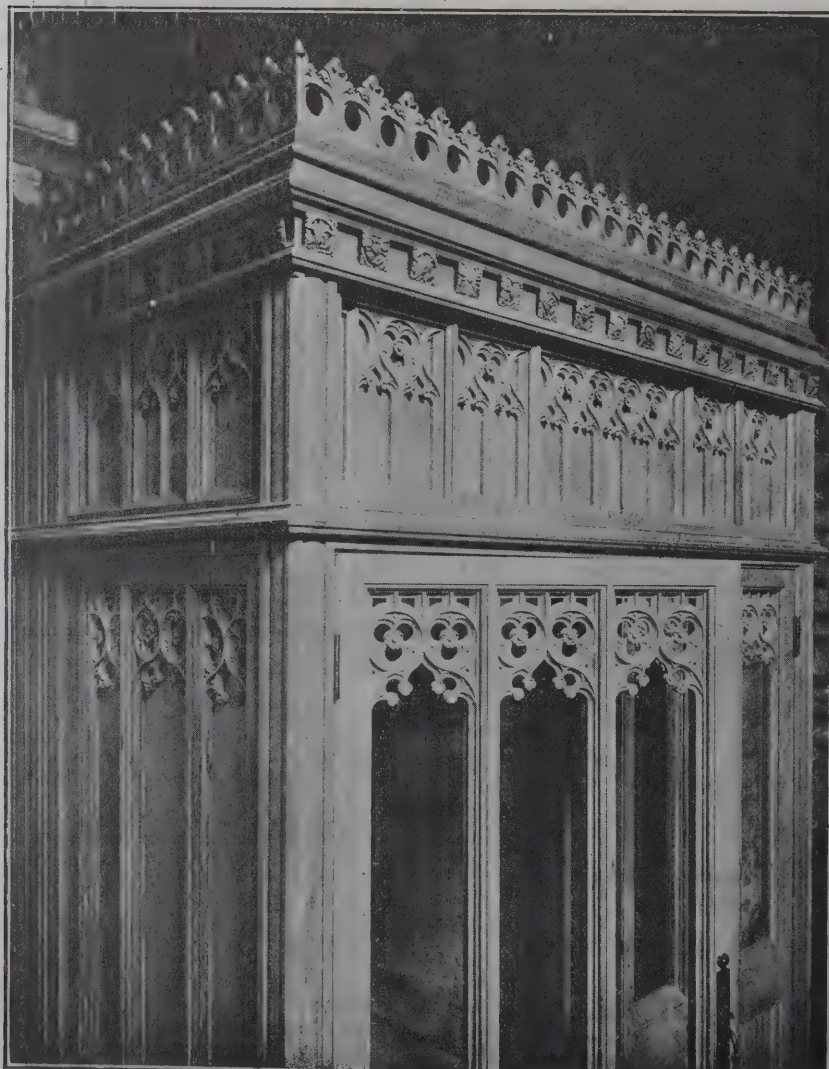
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## TRADE NOTES.

MESSRS. PATMAN & FOTHERINGHAM, LTD., have been successful in obtaining the contract for the new College for Teachers of Domestic Subjects in Fortune Green Road and Hillfield Road, Hampstead, N.W., for the National Society. Messrs. Beazley & Burrows are the architects.

UNDER the direction of Mr. F. R. Bates, architect, Newport (Mon), the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the Brynmawr County schools.

THE British Flooring Co., of 152 Gray's Inn Road, London, W.C., who have several large contracts in hand for London, Birmingham, Wishaw, Sheffield, Wokingham, Brighton, &c., have appointed Mr. A. J. Vellacott, of Canada House, Baldwin Street, Bristol, as their representative for the West of England and South Wales.

WE understand that several "Secret Charge Weighing Machines" have recently been despatched to Rhodesia, different parts of Australia and Spain by Messrs. W. & T. Avery, Ltd., Soho Foundry, Birmingham. These machines are finding much favour where the different mixtures of a charge are required to be kept secret.

THE furniture employed in "The Sugar Bowl" at the new Queen's Theatre, Shaftesbury Avenue, was supplied by Messrs. Oetzmann & Co., Ltd. Besides that used in the reception-room and other interiors, it comprises cane, wicker and rustic furniture for the garden scene.

THE Bath Stone Firms, Ltd., have supplied the stone used in St. Stephen's Church, Swansea; the parish hall, Bishopston, Bristol; and the mission room, St. George's, Bristol.

A LARGE three-dial striking clock has been fixed at the Corporation Tramways Offices, Monkwearmouth, Sunderland, by Messrs. J. B. Joyce & Co., Whitchurch, Salop. The firm erected a large clock at the parish church, Sunderland, many years ago.

THE additions to the fever hospital, Falkirk, are being warmed and ventilated by means of Shorland's patent Manchester stoves, with descending smoke flues, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

THE Wedgwood School of Art, Burslem, which was erected at a cost of about 8,500*l.*, was opened on Thursday, October 10, by Mr. S. Gibson, the mayor of Burslem. The constructional steelwork, fire-resisting floors, wood-block floors and asphalt flats throughout were supplied and fixed by Messrs. Homan & Rodgers, of Manchester.

## DE LAITTE GAS.

WE published a description of the De Laitte system of producing an illuminant gas from oil on the 6th ult. and also of the gas plant by which thirty lights can be supplied although space occupied is only 2½ feet by 2½ feet by 4 feet. The limits of our space did not permit us to enter into all the details of the invention. On that account it has been supposed that in referring to the Glasscoe's patents last week we ignored what had been and is still done by the De Laitte plant. We were not comparing the two lights, and in both descriptions the aim was to suggest the essential qualities of what is obtainable by each process. With that intention there was no mention of oil or oil-gas in last week's notice. We are aware of the chemistry of gas-lighting, and from experience know that when dealing with any stage of the process, unless with the aid of chemical formulæ, which are liable to be misunderstood by the majority of readers, some liberality of interpretation must be allowed.

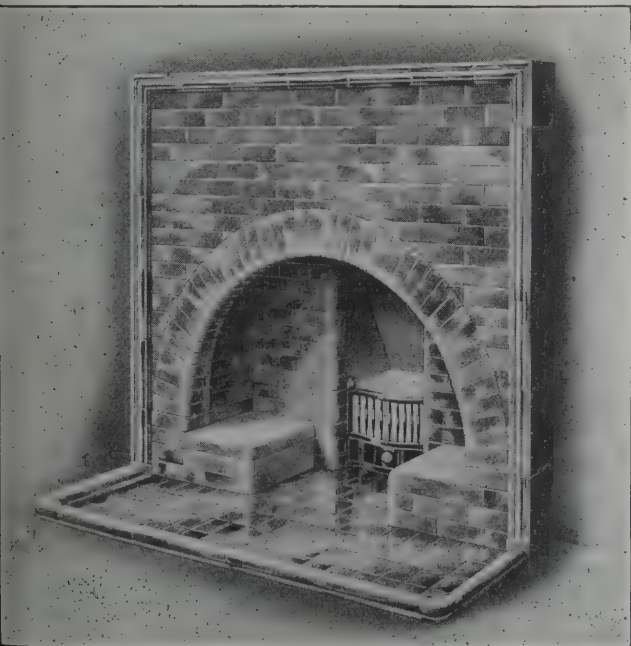
THE water committee of the Perth Town Council unanimously recommend the Council that the following works should be carried out in order to insure a satisfactory water supply on a practical and permanent basis, the total cost to reach about 15,000*l.*:—(1) New reservoir at Burghmuir, probable cost 6,264*l.*; (2) pump main for Burghmuir reservoir, probable cost 1,636*l.*; (3) extension of arm of filter tunnel and filter bed, above Perth bridge, probable cost 600*l.*; (4) extension of main filter tunnel, probable cost 600*l.*—total cost of above works, 9,100*l.* The enlargement of the Viewlands reservoir was also recommended, that work to be carried out at a later stage at a probable cost of 6,200*l.*

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## VARIETIES.

THE directors of the London and Lancashire Fire Insurance Company have declared an interim dividend of 6s. per share (being at the same rate as the last interim dividend), payable on November 1, 1907. A similar interim dividend will also be paid on the shares of this company to be allotted to the shareholders of the Standard Marine Insurance Company, Ltd., as soon as practicable after the registration of their names in the shareholders' register of the London and Lancashire Fire Insurance Company.

THE Stepney Borough Council have decided to apply to the London County Council for sanction to borrow 57,000*l.* with which to undertake an extension of the electricity works, a step necessitated by the increased demand for current.

THE estate of the late Mr. S. J. Waring, of Liverpool, has been sworn at 78,785*l.* gross, the net personalty being 63,086*l.*

THE Kilmarnock Town Council have agreed to send modified plans for an infectious diseases hospital at an estimated cost of 14,748*l.* to the Local Government Board for approval.

THE monastic architecture of Burmah is aptly described and admirably illustrated in a well-written article entitled "The River of Pagoda Land," by C. E. Russell, which appears in the current issue of *Harper's Monthly Magazine*.

A RATEPAYERS' meeting, held at Matlock Bath on Tuesday, approved a scheme to put into operation Parliamentary powers to erect a pump-room and baths connected with the famous thermal springs there, and to build a pavilion, &c., costing 20,000*l.*

THE Southwark Borough Council are planting 166 trees in various streets in the borough. Some three years ago a forest nursery was laid out at the dust depôt, near Seven-oaks. Five hundred lime saplings were planted, and when developed sufficiently were transplanted to the local boulevards.

THE Dublin Corporation on Monday resolved "that in all contracts entered into by this Council a provision be included that trades union labour shall be employed in the carrying

out of such contracts; that all workmen in the service must be members of the trades unions attached to their several employments; and that instructions to this effect be forwarded to the secretaries of the standing committees for the instruction of the officers working under such committees."

MR. M. K. NORTH, one of the inspectors of the Local Government Board, attended on Tuesday at the Council House, Birmingham, and held an inquiry relative to the application of the City Corporation for sanction to borrow 81,900*l.* for the purpose of their electrical supply undertaking, 4,879*l.* for purposes of street improvement, 5,550*l.* for works of sewerage, and 1,600*l.* for the purchase of land in the urban district of King's Norton and Northfield, for the extension of Cannon Hill Park.

THE Local Government Board have declined to sanction a loan of 6,000*l.* for the erection of a town hall at Harwich on the ground that it is not necessary to erect a new structure, as all requirements could be met by making some internal alterations of the present Guildhall and erecting a courthouse and other offices on land adjoining, which has been acquired by the Corporation. The Council propose to send a deputation to interview the President of the Local Government Board on the subject.

APPLICATION is being made to the Local Government Board by the Beckenham Urban District Council for sanction to raise a loan of 1,000*l.* for the enlargement of the refuse destructor. In 1901, the first year of working, 6,507 tons of refuse were dealt with, and last year the amount had increased to 8,050 tons. It is proposed to add two cells to the existing three, and this it is estimated will meet the present difficulty and provide ample provision for the next five years.

A CONFERENCE of local authorities in the Black Country held in Birmingham last week decided to form an association, to be known as the Association of Midland Local Authorities, "principally for the purposes of developing local industries and promoting education and the public health and welfare, provided always that such an Association shall not in any way limit or control the right of any local authority to act independently of the Association in regard to any other matter referred to it."

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THE Ealing Metropolitan Borough Council have adopted a minute and recommendation of the works committee as to the National Registration of Plumbers furnishing the authorities and the public with a recognisable qualification or the plumbers they employ, coupled with a guarantee of the direct responsibility of registered plumbers for the due efficiency of their work, and referred the matter to the borough surveyor with a view to obtaining the necessary information as to registration lists.

MESSRS. LIPTON, LTD., have taken very large and commodious premises in a frequented portion of the Boulevard Haussmann, Paris, and will shortly inaugurate their spacious Salons de Thé." The decoration and furnishing is being done by Messrs. Waring & Gillow, Ltd., of Paris, and the installation of the tea and pastry kitchens, &c., by various Parisian contractors, all under the direction of Mr. 'ye-Parminster, architect, of Paris. The pastry ovens have been supplied by Messrs. Fletcher, Russell & Co., of London.

THE Middlesbrough Town Council have passed a resolution requesting the plans committee to prepare such amendments and additions to the building by-laws as will (1) permit the withholding of a certificate of habitation for any house until proper approaches have been made, (2) enable the Council to exercise control over the planning of new areas, (3) and generally promote the erection of more healthful dwellings. An addition was proposed to the effect that where it was found that the clauses mentioned could not be obtained without Parliamentary powers, that the matter be considered by the general purposes committee with a view to a petition being sent to the Local Government Board in favour of such powers being obtained, and this was agreed to.

THE Beath School Board have agreed to proceed with the erection of a school at the west end of Stenhouse Street, Cowdenbeath. Doubt had been expressed as to the advisability of erecting the building on a site where there was a possibility of danger from the underground workings. Such a contingency has been guarded against by the manner in which it is proposed to lay the foundations. The building will be one of two storeys, in the uppermost of which the Fife mining classes will be accommodated. Mr. Wm. Birrell, architect, Kirkcaldy, has been entrusted with the preparation of the plans for the new school.

It is probable that the electrification of the East London tramways along the Whitechapel and Mile End Roads will soon be undertaken. Hitherto the great stumbling-block has been the Stepney Borough Council, which would on no account agree to the installation of the overhead trolley system of traction. Since then, however, the County Council has proposed putting down the surface contact system. The works committee have intimated to the London County Council that they have no objection to any system of electric traction (other than the overhead) with the safety and stability of which the Board of Trade are themselves absolutely satisfied.

At a meeting of the executive of the Scottish National Exhibition held in Dowell's Rooms, Edinburgh, it was reported that the value of the space actually let amounted to 4,506*l.*, but every available foot had been applied for, and it is feared that many interesting exhibits may be crowded out. It has been decided, however, to recommit to the building committee the plan of the machinery hall, with powers to increase the size of the building considerably at a limited cost. Good progress has already been made with the industrial hall, the contractor for the work having been decided on some little time ago. The fine arts building and the concert hall will next be proceeded with, the plans of the latter having been completed.

THE plans for the new 10,000,000 dols. steel plant for the Minnesota Steel Company, Duluth, Minn., U.S.A., have been announced. The plant will be located on the Spirit Lake site, consisting of over 1,600 acres of land. The plant will include two blast furnaces; 160 by-product coke-ovens, with a capacity of 120 tons per day; seven open

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MR. J. H. WORMAN, the United States consul at Three Rivers, in a report says that one of the most serious of the results due to the Quebec bridge disaster will be the delay caused in the completion of several railway connections badly needed for the opening up of the Lake St. John region and the territory to the north of it. He adds:—"Various industrial enterprises projected in this belt, enriched by vast forests yet untouched and streams affording water-power of priceless value, will have to be deferred for a year or more, as transportation facilities are wanting." The American concern in charge of the construction states that it will take two years to regain the condition that existed before the accident.

At the meeting last week of the Metropolitan Water Board it was reported that the tender of the Thames Ironworks, Engineering and Shipbuilding Company, Ltd., amounting to 49,653*l.*, for the provision of pumping machinery, &c., at Walton had been accepted by the works committee. That committee reported that the chief engineer to the Board had certified that Messrs. Pethick Bros. were not proceeding with their contract for the construction of filter-beds and other works at Long Ditton with such diligence as would insure their completion within the specified time, and the Board decided to determine the contract. Three of the beds should have been completed in July, and it was stated that at present not a single one was ready—a fact which would have placed the Board in a difficulty had the summer been dry.

THE streets and buildings committee of the York City Corporation report that the sub-committee appointed to consider the question of the proposed new street from Pavement to Piccadilly had considered the whole question with regard to the property to be acquired, and in certain instances had been able to obtain a reduction of price asked for, also that they had spent a considerable time in

inspecting the route, and had decided not to proceed present with the widening of the existing street called Piccadilly. The sub-committee also stated that they had considered the question as to what the surplus land would realise and also the net cost of the scheme. The committee eventually decided to report to the Council that the gross cost of the scheme would be about 40,000*l.*, and the net cost between 23,000*l.* and 24,000*l.*

THE United States Consul stationed at Bamberg, Germany, in a report says that the over-supply in the labour market has disappeared, and a scarcity of help has set in. Such a condition has not existed since 1900, and only in 1899 was the scarcity of labour felt more than now. Nearly all the important iron industrial centres report a shortage of workers. The building branch alone suffered a relapse in activity, due mainly to inclement weather, stress in the money market and strikes. The mining business has improved so much that employment has been found for many unemployed building men, yet the mines are nowhere sufficiently employed.

SEWAGE purification works for Galston, N.B., will formally opened on Tuesday. The work was rendered necessary by pressure from the County Council, who insisted upon proper measures being adopted by the burghs in the upper reaches of the Irvine to prevent the pollution of the river. The works are situated at Goatfoot Rows, about a quarter of a mile below the town, and at present are arranged to purify the sewage from a population of 5,000. Sufficient space is, however, provided in the site to allow of the capacity being doubled. The treatment adopted is the modern bacterial system of liquefying or septic tanks and percolating bacterial filters. The tanks are three in number and have a holding capacity of 150,000 gallons. The outlets of the three tanks are all discharged into one chamber, in which a mercurial-balanced valve, actuated by a float, intermittently delivers the liquid to the three filter tanks. The whole scheme is designed on automatic principle. The work was carried out by Mr. James Steel, contractor, the engineers being Messrs. Elliott & Brown, C.E., Nottingham.

A REPORT on their proceedings under the Conciliation (Trades Disputes) Act, 1896, has been issued by the Board.

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f Trade. In accordance with custom it deals with the work of two years—from July 1, 1905, to June 30, 1907—and gives particulars of each case in which the assistance of Board of Trade arbitrator has been sought. The results are summarised in a brief introductory note by Mr. A. Wilson Fox. The number of cases dealt with in the two years covered by the report was fifty-one, of which no fewer than twenty-three occurred in the last six months of the period (January to June 1907). The number of cases in which stoppage of work occurred was sixteen. Of the fifty-one cases dealt with in the two years under review, fourteen arose in the building trades.

His Honour Judge Shand delivered judgment on the 5th inst., at Liverpool County Court, in the case of Edward Hute, a joiner, living at Birkenhead, and the Liverpool Cotton Association, Ltd., which was a claim under the Workmen's Compensation Act. It appeared that on May 22 last the applicant was engaged fixing picture moulds in the new Cotton Exchange at Liverpool, being then in the employ of the respondents. He was standing on a plank between two trestles when the plank canted and he fell, juring his right ankle and knee and breaking his left leg, and was incapacitated from work for some time. The only question for the decision of the Court was whether the fixing of the picture moulds was an employment on in or about a building which exceeded 30 feet in height, and was being constructed or repaired by means of a scaffolding. His Honour held that the putting in of the picture moulds as an integral part of the structure of the building and something in the nature of construction, and he therefore gave an award in favour of the applicant.

Mr. ALBERT HALSTEAD, United States Consul in Birmingham, has reported to his Government that two Americans who have been employed in a tube factory in the vicinity of Birmingham have patented an improved method for the manufacture of welded iron and steel tubes. It is claimed that the patent, which is already in successful operation in the district, not only assures a more perfect weld, but permits of great economy in the making of tubes. The process consists of blowing cold air, or air and gas, upon the edges of the steel or iron strip which is to be welded. In practice the air blast alone is used, because it is regarded as better, but a combination of air and gas can also be

employed. The effect of the air blast upon the iron or steel bar, which is drawn through the furnace at what is regarded as welding heat, is similar to that of blowers on coal or wood—it more than doubles the temperature of the edges. The air blast while heating the edges of the strip to a greater temperature, through the mixture of the oxygen in the air with the impurities in the steel and iron, leaves a perfect edge. The process can also be applied to the method of manufacturing butt-welded iron and steel tubes by squeezing the edges of the heated strip or skelp together with tongs as it is drawn from the furnace. This invention is said to obviate the loss that sometimes occurs when the strip buckles because too hot, or is burned by the excessive heat.

THE cement industry in Japan has made marvellous progress of late years. Since the early years of Meiji down to 1880 the annual importation of the commodity averaged about 150,000 yen in value, but now about 450,000 yen worth of home product is being annually exported. A cement factory was first established in Japan in 1871 by the now defunct department of public works, but it was not until 1882 that a private factory was installed at Osaka, this being followed by the installation of the Onoda cement factory in 1883, and two years later by the Asano cement factory which succeeded to the Government enterprise in Tokio. In 1883 the Hashimoto cement factory was inaugurated in Fukugawa, Tokio, and the Aichie cement factory came into existence two years later, closely followed by the factories set up in Shidzuoka, Osaka and other prefectures until the present prosperity of the industry has been attained.

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### THE QUEBEC BRIDGE.

It is difficult to realise from words the extent of the disaster to the Quebec bridge, which as a Canadian work must have been of great interest for Englishmen. Although there is not as much unanimity about the true cause of the collapse, it is admitted



pipes to a reducing nozzle, and when delivered simply makes the front of the building, brickwork or stone, resplendent as new. Every particle that obscures the work is cleaned off, and it is left clean and sharp as well as when it was first executed. The softest materials and even the hardest stones succumb to this method of treatment, and

that the constructive work was excellent, and the special illustration we give manifests that although there was distortion of some of the parts, absolute breakage did not arise. That the steel should be subjected to enormous strain was inevitable, but the resistance increases the mystery which surrounds the initial weakness.

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**For Index of Advertisers, see page x.**



**A MÆDIEVAL CEREMONY AT LANCASTER.**

THE new Constable of Lancaster Castle (Sir John T. Hibbert) was installed in his office last week with old-time ceremony. Although within the castle things might be stirring enough, says the *Manchester Guardian*, there was little from without to show that anything unusual was happening, a dozen police patiently keeping the great south-eastern gate. To this gate had the new Constable come, and with him many public men of the county. They had walked in procession from the plain old house down the hill, the Judges' lodgings. Four loud knocks on the gate must every new Constable give before it can be opened to him. These were given; then the door was opened by the Governor of the castle and the little procession went within the walls.

A tiny door in the gate now opens to one's knocking, and at length one is let in. Within the castle yard uniformed warders point out a small door at the foot of a turreted tower, and one seeks to hasten up the winding stone stairs to which it leads, so as to catch up with the ceremony that is going on above. But to hasten leads only to a bumped head and barked shins; for the steps are narrow and deep-worn, ever winding like a corkscrew, and there is alternating night and day to confuse the eyes—day for a few steps as one passes long narrow slits in the massive stonework, then night, with only candles in lanterns on the walls to guide. But the top comes at last—a narrow passage with rooms opening off it. The first of them is filled with people and speaking can be heard. This is the Constable's room. In time past it was John o' Gaunt's, and since that day, in spite of its bare stone walls and floor and plain beamed roof, several kings have used it. There is a bright red fire in the grate now, casting a pink glow and shadows on the walls, and two lamps hanging on wires from the beams above and the tiny grated windows at each end of the chamber make a soft light in the place. One can for a moment almost think that it is still John o' Gaunt's room. But it is only for a moment. The cut-glass inkstand near the Constable's chair is wrong, the circular-wicked paraffin lamps are wrong, and the frock coats of the men are an insuperable anachronism.

The new Constable has been led here to receive the keys of the castle and to declare his willingness to under-

take the duties of the office. The King's patent was read "hereby appointing our right trusty and well-beloved Councillor Sir J. T. Hibbert to be Constable of our Castle at Lancaster, with the appurtenances thereto belonging," and after Sir John had declared to the Lord Lieutenant of the county his willingness to fill the post he was escorted to the Constable's chair by Lord Derby and the High Sheriff. The massive keys of the castle were then handed to him by the Governor, into whose keeping Sir John Hibbert returned them. They could not, he said, be in safer hands. Congratulatory speeches were made, and the new Constable thanked the speakers. He then spoke of the history of the castle and of the post he now filled. Time was, he said, when the Constable had much to do, for which, no doubt, he received an adequate payment. Now there was no payment attached to the post, for, as a matter of fact, there were no duties attached to it. He hoped, he concluded naively, that he should perform them well.

After a record of the installation had been signed those present clambered down the winding stairs as best they could, and at the little gate at the bottom formed into procession again and walked round the castle to the more modern shire hall. On the walls of this chamber hang 234 wooden shields bearing the coats-of-arms of all the constables of the castle there have been since 1689. There are too the javelins of many high sheriffs. Among the shields are larger ones bearing the arms of the monarch reigning at the time each shield was hung. Sir John's shield was handed to the Governor and hung immediately under that of King Edward VII. More speeches were made, and after cheers had been given for the new Constable and for the King the ceremony was at an end.

**FIRE RISKS AND LARGE BUILDINGS.**

THE fire brigade committee of the London County Council have reported as follows on the contemplated increase of the cubic extent of buildings:—

We have considered further the proposals of the Building Act committee for the amendment of the provisions of the London Building Act, 1894, relating to the cubical extent of buildings. We have also conferred with that committee as to the regulations that should be adopted

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in dealing with cubical extent applications if the proposed amendments become law. So far as the suggested regulations are concerned, there is little difference of opinion between us and the Building Act committee. We recognise that it may be necessary in certain trades and manufactures to have buildings of larger cubical extent than the present law allows, but at the same time we feel bound to inform the Council that in our opinion the erection in London of buildings of great cubical extent, not subdivided by party walls, cannot fail to expose London to the risk of conflagrations such as have occurred abroad, no matter how stringent may be the regulations governing the erection of such buildings. The chief officer of the fire brigade has impressed this upon us very strongly, and has pointed out that the strength of the brigade will have to be very considerably augmented to cope with the increased danger from fire. The danger would of course be enormously increased if proper precautions were not always insisted upon, and we therefore think that it is essential that the regulations which will govern the erection of buildings of large cubical extent, if the law is amended as proposed, should be inserted in the Act, and we have accordingly requested our chairman to move an amendment to this effect to the recommendation of the Building Act committee.

### ADMIRALTY DOCK, PORTSMOUTH.

The necessity of constructing immense vessels of the *Dreadnought* type compels the addition of a new and special dock to those of Portsmouth. Plans have been received by the dockyard authorities, and the quantities are being got out. The work is to be done by contract.

The new lock is to connect the harbour with No. 4 Basin. This will involve the doing away with the present coaling depot, for the western entrance is to be at the point of land that forms the northern side of the tidal basin. From there the lock will take in a part of No. 3 Basin, and enter No. 4 Basin at the southern side. The total length will be not far short of 900 feet. The width will be a little over 100 feet, and the depth from the coping to the bottom between 50 and 60 feet. The depth of water at ordinary high tides will be 35 feet, and at spring tides there will be a

depth of some 3 or 4 feet more. The scheme which the Admiralty have approved covers not only the construction of the lock itself, but also the removal of a portion of the wall between Basins Nos. 4 and 5, although the latter work may not be carried out concurrently with the main part of the scheme. This widening of the connections between Nos. 4 and 5 Basin is to be carried out so as to facilitate the transfer of vessels from one basin to the other. At both ends the lock will have sliding caissons, the machinery for the opening and closing of which will be operated by compressed air or electric motors. There are to be culverts for emptying and filling the lock, and these will be connected with the main pumping station; but although it will be possible to utilise the lock as an ordinary dock there is no intention of ever doing so. The sole idea is to provide a ready means for enabling the largest battleships or cruisers to enter the basins at any state of the tide, which they cannot now do. The great length and width will enable a *Dreadnought* or a *Warrior*, or the largest warship at present projected or likely to be projected, lying easily in this huge waterway. It is intended to erect a 160-ton crane alongside of it, and besides this all the requisite appliances, in the way of capstans, &c., will also be provided.

No. 3 Basin has been cleared of ships, and it will probably be pumped dry so that the outer walls may act as dams while the work of construction is in hand. A large dam will have to be constructed at the western entrance and another at the eastern end, where the lock enters No. 4 Basin. Excavations have been made at the coaling point to the depth of rather more than a hundred feet, and similar borings have taken place in the basin on what will be the site of the northern wall of the lock, and the results have fully satisfied the engineers as to the reliability of the site so far as the foundations for the masonry are concerned. The work will be of a very substantial nature and it will take about three years to complete. About half of the present area of the basin will be left. This it is intended to utilise for small craft and an entrance will cut through into the Fountain Lake.

The estimated cost of the lock is 940,000*l.*, with an additional 60,000*l.* for machinery, making a round million altogether, but, as stated, of this only 20,000*l.* is to be

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expended during the present financial year. For the 160-ton crane 8,000*l.* has been allowed for the foundations and 24,000*l.* for the machinery, but of those amounts only 4,000*l.* has been set aside in the present estimates.

### WORKS IN SHEFFIELD.

THE city surveyor of Sheffield (Mr. C. F. Wike) in his annual report says there are in the city 290.98 miles of adopted streets and 101.43 miles unadopted. The roads paved with wood for the whole or a portion of their width have a length of 14 miles, and probably not more than one or two provincial towns have anything like this mileage of wood paving. A great part of it was laid eight or ten years ago and renewals are now becoming a heavy item. There is one feature which is very satisfactory. The Local Government Board fix the life of wood pavement at five years, or at any rate they allow only five years for repayment of a wood pavement loan. Generally the life is calculated by authorities at seven years, and the fact that a good deal of the wood in Sheffield has lasted eight years, and some ten years, is very satisfactory.

Since March 1899 no less than 36½ miles of rubble sewers have been reconstructed, and there are still about 40 miles needing attention. Of this total 8½ miles are included in the current estimates, or included in loans applied for.

The work of reconstruction of sewers has been greatly delayed by the action of the Local Government Board. They declined to sanction a loan of 8,040*l.*, applied for in November 1906, on the ground that it included wages to be paid to permanent employés of the Corporation. To meet this objection the highway committee have offered to engage a special staff of men, and it is thought in this way the objection may be overcome.

An average number of 1,511 workmen per week has been engaged by the department. The highest number any week was 1,988 and the lowest 1,266. The wages have amounted to 99,736*l.*, including team work.

This year the regulation of the Council entitling regular employés to one week's holiday will come into force. The number of men working under the department who will

benefit is 1,142. The length of service of these men is:— 20 years' service and upwards, 80; 15 to 20 years, 132; 10 to 15 years, 206; 5 to 10 years, 452; less than 5 years' service, 272. These figures are of particular interest at the present time in view of certain statements which have been made as to the temporary nature of the employment afforded by the highway department, and it is questionable whether many other undertakings or firms could show a better record than this.

There has been an increase in the length of new streets and sewers approved, the figures being greater than for any year since 1899. This is an encouraging feature in one way, but it accentuates the difficulty which is felt in respect of town planning. In some cases every disposition has been shown to meet the Corporation in the laying-out of estates, but in others the governing principle has been to lay out the land so as to get the largest number of house plots and the greatest possible ground rent, little or no regard being paid to the general requirements of the neighbourhood in which the new streets are situate. Every care has been taken to suggest improvements where these appeared necessary, and all reasonable pressure has been exercised to get the suggestions carried out, but the result on the whole has not been very satisfactory. This subject will no doubt have to be dealt with in the near future, and a very strong case can be made out to show that in Sheffield further powers to regulate town planning are needed.

There are in Sheffield upwards of 35 miles of streets carrying tramways—5 miles 2 furlongs 6 chains of single track and 30 miles 4 furlongs 4 chains of double track, equal in all to about 66½ miles of single track. The cost of renewals during the past year has been greater than in any preceding year, but, says the city surveyor, that is only what must be expected. The cost of repairs, however, has been reduced, and stands at the very low figure of .249*d.* (almost exactly a farthing) per mile. This is regarded as very satisfactory. The total cost of repairs for the year was 7,079*l.* and renewals 12,073*l.*

A lengthy reference is made to the relaying of the trams on Sheffield Moor, work which was done with such remarkable expedition. The total amount expended on sewerage, tramways and paving was approximately 11,500*l.*

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Projected tramway work includes a line and junctions along Leopold Street, a line from Chantrey Road to Abbey hotel at Woodseats, extension from Cemetery Road along Psalter Lane to Banner Cross, a line from Rustlings Road to Carterknowle Lane at Ecclesall, extension from Holme Lane to Malin Bridge at Hillsborough, a line from Brightside Lane to Wincobank, extension of the Firth Park section to Bellhouse Road and a new line from Darnall to Handsworth Hill.

The laying-out of the land at High Wincobank for the Model Cottage Exhibition threw a large amount of work on the architectural department. The total cost of the seventy cottages is approximately 13,004*l.* for buildings and fittings, 5,994*l.* for site and costs of acquirement, and 1,915*l.* for street making and sewers. This gives a total of 20,913*l.*, an average of 299*l.* per dwelling.

The number of houses erected and certified for occupation in the city during the year was 1,904.

Abyssinia Bridge is to be widened at a cost of 5,000*l.*

The cost of the work in Fitzalan Square is estimated at 11,168*l.* On the Baker's Hill side the Square has been levelled up. Baker's Hill has been closed as a thoroughfare, and a stepway from the Square now leads to the street below.

Progress has been made with the scheme for making a new street from Waingate to the Victoria station. In April last the gross expenditure was approximately 140,000*l.* Claims settled since then amount to 50,500*l.* Plans have now to be prepared for the new bridge over the Sheaf.

The cost of improving the parish churchyard, including the widening of the street, was 2,360*l.*

#### TAR ON ROADS.

In his report on the road-tarring experiments carried out recently at Aberlady and Gullane Links, in East Lothian, Mr. John Robb, the road surveyor, says:—"In carrying out these works, 7 gallons tar per cubic yard were used, and the cost per cubic yard finished was 3*s.* 5*d.*, or 2*s.* 4*d.* more than by rolling in the ordinary way. In this charge, however, is included the cost of gravel and sand, as such

material is not used in ordinary rolling, but this material should probably be charged to the metal account. The appliances for spreading the tar were rather primitive and not conducive to economical working. A spraying machine would save a large amount of manual labour. I should also point out that the roller cannot consolidate more than 33 cubic yards per day, instead of about 56 cubic yards by the ordinary method. Should it be decided to continue the experiment, from the experience gained I feel sure the work can be done cheaper. The total cost of the experiment has been 62*l.* 10*s.* In Aberlady a portion of the road surface at both ends of the coating was tar painted only. The tar was applied and well brushed in. The area so treated was 1,171 superficial yards, and the quantity of tar used was 260 gallons, or 1 gallon tar to 4½ superficial yards of road. The cost was practically 1*d.* per superficial yard, and this includes the cost of cleaning and sanding the road. While the cost of repairing a road by this method is high, I am satisfied the life of a road so repaired will be considerably prolonged and the extra expenditure in towns and villages will be justified." The County Council were satisfied with the experiment, but decided to wait till after winter before doing anything more.

#### BUILDINGS TO BE ERECTED.\*

WORKING-CLASS dwellings at Prospect Terrace, Paddington (Messrs. Joseph & Smith).

Addition to mission buildings, Harroway Road, Battersea (Messrs. W. & C. A. Bassett Smith).

Office and shop, High Street, Lewisham (Mr. A. L. Guy).

Porches to eighteen houses, Upper Tooting Park Road, Wandsworth (Mr. E. Evans).

Building on south side of Drysdale Road, Hoxton (Messrs. Lovegrove & Papworth).

Buildings in Tollington Park and Pine Grove, Islington (Mr. E. D. Hoyland).

Re-erection of Waterman's Arms, Dockhead, Bermondsey (Mr. W. Stewart).

\* The names of architects or contractors who submitted plans are in parentheses.

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## THE SOCIETY OF ENGINEERS.\*

THE author, in his opening remarks, states that by "liquid fuels" it is implied that the fuels described enter the engine mechanism in a liquid as distinct from a gaseous state. He proceeds to point out the advantages of the adoption of large "heavy-oil" engines for marine purposes as compared with gas-producing plant and gas-engines.

A short synopsis is given of what has been accomplished by makers of heavy-oil engines and paraffin engines, and the two methods of carburetting air by means of paraffin are discussed. The necessity for an accurately measured feed of oil for each working stroke, as distinct from the utilisation of a spray carburetter, is discussed.

The author shows why the specific gravity of petrol has increased during recent years, and how carburetters could be modified to satisfactorily utilise petrols of even a greater density than those now on the market.

Distillation tables and the points of difference between what are known as "heavy" and "light" petrols, with their chemical compositions and boiling-points, are given.

The author also gives the results of a number of experiments he has made during the last two years upon petrols of various densities, and mixtures of petrol and paraffin. The advantage of the adoption of a spirit of a greater specific gravity than 0.720 is clearly demonstrated.

Explosive mixtures are discussed in detail and the proportions are given of petrols of various densities, which produce the best explosive mixtures with air.

Other tables show the results of some of the author's experiments upon the rate of evaporation of various petrols and the effect of heat and air currents. These show that higher temperatures materially affect the rate of evaporation of petrols of greater density, whilst the effect of air currents is less marked. Results of road tests upon carburetter loss and strength of explosive mixture are compared with those put forward theoretically and as the result of laboratory experiments.

The author gives notes upon the sources of supply and

prices of petrol and the causes of the unstable state of the petroleum market. The necessity for some alternative fuel is considered and some results of the author's experiments with benzol and alcohol are given in tabular form. The results of the benzol tests are very satisfactory; the distance covered by the car per gallon of fuel shows a marked increase as compared with various brands of petrol.

Alcohol was tested when mixed with a proportion of another liquid fuel and without any alteration to the engine. The results obtained show great promise for this fuel, and enable the author to refute statements which have been made with regard to alcohol being an impossible fuel for a motor-car engine.

## MANCHURIAN CLAYS.

THE Acting British Commercial Attaché at Pekin has forwarded a copy of an extract from the *Harbinsky Vestnik* dealing generally with Manchurian clays and their composition, from which the following particulars are extracted:—

*Fire Clay.*—This clay is found in Manchuria along the banks of many mountain streams of the Syaolin ridge, and in the western slopes of the Greater Hsing-an Mountains, and is composed of two kinds:—(a) A white pure porcelain clay suitable for the finest work, for instance china-ware; and (b) a light yellowish or reddish fire clay suitable for making fireproof material, such as fire-brick, &c.

Fire clay is also known to exist along the Sungari and Utsimi rivers, and in the Ussuri district along the Mo and the Lephu rivers.

*Fusible Clay.*—This clay is found in different parts of South Manchuria. It is soft and in admixture with water is highly plastic and easy of dissolution. Its colour is bright red or yellow. Many of the different kinds of this clay represent very fine material for the removal of grease spots, and can, therefore, be used as cloth-rolling clay.

*Brick Clay.*—Of the different clays this is most common, and its use has been well developed in making building material for small Chinese shops and stores in the larger centres of Manchuria, especially in the vicinities of Harbin, Tsitsihar, Hailar, Handaohedze and Pogradichnia, also near Vladivostock and Nikolsk in the Primorsk.

\* A paper on "Liquid Fuels for Internal Combustion Engines," read on Monday, October 7, by Mr. Robert W. A. Brewer.

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Along the Sungari and Nonni rivers there are many deposits of sandy and blue clays. In the sandy clay deposits along the Nonni are found gold leaves, indicating that the deposits have their origin from the stream.

In addition to other clay-silic compositions, Manchuria has many deposits of clay and lime marl, some of which are very valuable as material for the manufacture of cement.

Rotten-stone is found between Imenpo and Utsimi and along the Eastern branch of the Eastern Chinese Railway. This material is used in large amounts in the manufacture of dynamite, ultramarine, crystal glass, enamel and glazing; for polishing and cleaning; the manufacture of sealing-wax, paper and soap; and for making light brick and cement for stone.

The Acting Commercial Attaché states that the rotten-stone referred to in the last section is understood to be the Kieselguhr deposit between Imjanpo (Yi-mien-p'o) and Uzeima (Wu-chi-mi), which lie a little to the east of Ashiho on the Chinese Eastern Railway to the east of Harbin.

### PROPOSED WORKS IN MANCHESTER.

A MEETING of the general purposes committee of the Manchester Corporation will be held on Wednesday, October 16, for the purpose of considering the report of the Parliamentary sub-committee, which recommends that a Bill be promoted in the next session of Parliament for the following objects:—To authorise the construction of additional works at the Woodhead and other reservoirs of the Corporation at Longdendale. To authorise the acquisition or appropriation of lands and premises in Moston Lane, North Manchester, for the purpose of making that street 16 yards wide. To confirm, give effect to and authorise arrangements with the Manchester University for the stopping up (wholly or partially) of Coupland Street or part thereof, and the provision of a substituted street 16 yards wide in continuation of Bridge Street, and to authorise the acquisition of lands in connection therewith. To authorise the construction of sewers and works in the city and in Stretford, including works in connection with Brook's sewer, the Manchester Ship Canal and the

main outfall sewer of the Corporation. To extend to the city generally the statutory exemption of libraries from parochial rates which exists in the township of Manchester. To alter and amend the County Borough of Manchester Order, 1896, so as to enable the Corporation to erect one library near the boundary of the districts of Cheetham and Crumpsall, instead of one in each of those districts as required by the Order. To authorise the construction of tramways in Princess Road, Moss Side, and for other general purposes. The additional works recommended by the waterworks committee for dealing with floods are estimated to cost 137,000*l*.

### RIGA TIMBER.

THE effect of extreme competition is illustrated in Mr. Consul Wodehouse's report on the trade and commerce of Riga for the year 1906. The chief competitor of Riga whitewoods in the markets of the United Kingdom is Canadian spruce, but the demand of the United States for Canadian spruce has lately been very large, and prices have ruled so high that spruce shippers have been obtaining in the United States the equivalent of about 8*l*. 10*s*., 8*l*. 15*s*. c.i.f. London for 3 by 8 and 3 by 7 unsorted. Riga exporters seem to have ignored this fact. They commenced selling on a basis of from 8*l*. to 7*l*. 15*s*. for the above dimensions, and by their competition with one another succeeded by the month of April in enabling the United Kingdom buyers to purchase from them at 7*l*. 6*s*. 3*d*. c.i.f. goods which they could not obtain elsewhere—that is, from Canada—under at least 8*l*. 10*s*. to 8*l*. 15*s*. c.i.f. Mr. Wodehouse explains this by saying that the Riga exporters of sawn goods are a badly organised body. They tackle more goods than they can comfortably finance. Their one idea seems to be to turn out as much stuff as they can and get it shipped off before the winter comes, so as to have less stock to finance over during the closed time of winter. The result is that through fear of not clearing their production of the summer and autumn, before the winter comes, and easing themselves financially by getting their money back, they operate one against the other in making sales and forcing the foreign markets.

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**NOTICE TO ADVERTISERS.**

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

**TENDERS, ETC.**

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

HERTFORD.—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500l. Premiums of 50l. and 20l. will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

SUNDERLAND.—Nov. 5.—For erection of branch library in Vilette Road. Deposit 2l. 2s. Messrs. Davidson & Cratney, architects, 22 Fawcett Street, Sunderland.

THURLSTONE.—Nov. 25.—The Thurlstone Urban District Council invite plans for council-room, offices, caretaker's house and outbuildings (cost not to exceed 650l. for building and heating apparatus only). For instructions and particulars apply to Mr. J. Wadsworth, clerk, Thurlstone, near Penistone.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

**CONTRACTS OPEN.**

BARNET.—Nov. 9.—For construction of foundations, drains, roads, fences, water supply and other works (not including the structure) in connection with isolation hospital to be erected in Mays Lane. Mr. H. F. Traylen, architect, 34 Great James Street, Bedford Row, London.

BATLEY.—Oct. 29.—For erection of steam laundry at Bradford Road. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers, Cleckheaton.

BOURNEMOUTH.—Nov. 4.—For erection of elementary schools in Middle Road. Deposit 2l. 2s. Mr. F. W. Lacey, architect to Education Committee, Municipal Office, Bournemouth.

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BRIDLINGTON.—Oct. 29.—For erection and completion of detached residence, Cardigan Road. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

BRIGHTLINGSEA.—Nov. 14.—For erection of a police station at Brightlingsea, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

CHURWELL.—Oct. 31.—For various works (except plumbers') required in alterations and extensions to warehouse and offices at Millshaw leather works, Churwell, Yorks. Messrs. T. A. Buttery & S. B. Birds, architects, Queen Street, Morley, and 1 Basinghall Square, Leeds.

COLCHESTER.—Oct. 26.—For erection of a detached house on Lexden Park estate. Messrs. W. Mortimer & Son, architects, Lindum Chambers, Romford.

CUBBINGTON.—Oct. 26.—For erection of a clubhouse at Cubbington, Warwickshire. Mr. Francis P. Trepass, architect, 1 Church Street, Warwick.

DARTFORD.—Oct. 28.—For erection of a temporary corrugated iron wood-sawing shed and latrines, also supply of galvanised iron sheeting and timber for fencing and lean-to sheds. Messrs. Tait & Hobbs, architects, Dartford.

DUBMIRE.—Oct. 29.—For erection of Council school at Dubmire, near Fence Houses, Durham. Messrs. J. Potts & Son, architects, 57 John Street, Sunderland.

EDINBURGH.—Nov. 1.—For erection of concert hall at Saughton Park for exhibition of 1908. Deposit 1*l* 1*s*. Mr. James D. Gibson, surveyor, 60 Frederick Street, Edinburgh.

GLASGOW.—Oct. 28.—For steelwork in reconstruction of Cathcart Road bridge, on the Pollok and Govan line, for the Caledonian Railway Co. (Western District). Deposit 2*l* 2*s*. The District Engineer, 3 Germiston Street, Glasgow.

GOLCAR.—Oct. 26.—For the erection of stables, &c. Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

HARLOW.—Nov. 14.—For erection of police station at Harlow, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

HORNSEA.—Oct. 30.—For erection of a ladies' lavatory and cloak-room. Mr. W. E. Warburton, C.E., surveyor, Public Rooms, Hornsea, Yorks.

HORTON-IN-RIBBLESDALE.—Nov. 2.—For various trades (whole or separate) in connection with alterations to Horton-in-Ribblesdale school, Yorks. Mr. Spencer E. Barrow, architect, Liverpool Bank Chambers, Lancaster.

HUTTON.—Nov. 13.—For supplying and erecting iron buildings at schools at Hutton, near Shenfield, Essex. Mr. G. Herbert Lough, clerk, 45 Upper North Street, Poplar, E.

IRELAND.—Nov. 8.—For the supply and erection of low-pressure hot-water heating plants in connection with the heating of divisions Nos. 1, 2, 3, 4, 5, 6, 7 and 8 of the Ballinasloe district lunatic asylum. Deposit 1*l* 1*s*. Mr. G. B. Meenan, consulting engineer, 5 Charleville Road, Rathmines, Dublin.

LAMBOURN.—Nov. 2.—For brickwork abutments for a new bridge on the Lambourn and Childrey Road; also for supplying and fixing the steel troughing and handrailing. Deposit 1*l* 1*s*. Mr. J. Fred. Hawkins, county surveyor, Bank Chambers, Cross Street, Reading.

LEEDS.—Nov. 4.—For extension of Tower works, for Messrs. Harding, Richardson, Rhodes & Co. Mr. W. Bakewell, F.R.I.B.A., architect, Leeds.

LEISTON.—Oct. 26.—For erection of a higher elementary Council school and cookery, laundry and manual instruction special subjects centres at Leiston, East Suffolk. Deposit 2*l*. The Education Committee, County Hall, Ipswich.

LONDON.—For erection of large brick tower. Only those who have done similar work need apply. Franco-British Exhibition, 56 Victoria Street, London, S.W.

LONDON.—Oct. 29.—The London County Council invite tenders for new elementary school for 1,116 children at Wandsworth. Terms and conditions and official forms on application to the Architect, Education Offices, Victoria Embankment, London, W.C.

LONDON.—Oct. 30.—For erection of a post office at Blackheath. Deposit 1*l* 1*s*. Mr. J. Wager, H.M. Office of Works, Westminster, S.W.

LONDON.—Nov. 7.—For erection of iron buildings at the workhouse, Swaffield Road, Wandsworth, S.W. Deposit 1*l*. The Guardians' Offices, St. John's Hill, Wandsworth.

MARYPORT.—Nov. 4.—For construction of a jarrah timber slipway at Maryport, Cumberland, near the Senhouse dock,

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MEDOMSLEY.—Nov. 2.—For erection and completion of fourteen houses at Medomsley, Durham; also for erection and completion of pot-house and refuse destructor at Lancaster branch store, for the Annfield Plain Industrial Co-operative Society. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

MORTLAKE.—Nov. 11.—For pulling-down Castelnau House, High Street, and removing material of same. The Engineer and Surveyor's Office, the Council House, Mortlake.

NEWBURY.—Oct. 31.—For pulling-down old property and erecting two shops with dwelling-houses at St. Mary's Hill. Mr. Walter Henry Bell, architect, Market Place, Newbury.

NEWCASTLE-ON-TYNE.—Oct. 30.—For erection of horse stables at New Bridge Street. Mr. William Bell, architect, Central Station, North-Eastern Railway Co., Newcastle-on-Tyne.

NOTTINGHAM.—Oct. 30.—For erection and repair of retaining-walls on southern and eastern boundaries of Castle Gardens. Deposit 2*l*. 2*s*. Mr. Frank B. Lewis, city architect, Guildhall.

PORTSMOUTH.—Oct. 30.—For erection of additional blocks, maternity ward and other works at the workhouse infirmary. Deposit 2*l*. 2*s*. Messrs. Rake & Cogswell, architects, Prudential Buildings, Commercial Road, Portsmouth.

RATHMINES.—Nov. 9.—For erection of additional accommodation at Vergemount isolation hospital. Deposit 1*l*. Mr. Edwin Bradbury, M.R.I.A.I., College Park Chambers, Nassau Street, Dublin.

SCOTLAND.—Oct. 29.—For mason, carpenter, slater, plasterer, plumber, painter and glazier's work of house to be erected in Mid Street, Fraserburgh. Messrs. Reid & McRobbie, architects, Saltoun Chambers, Fraserburgh.

SCOTLAND.—Nov. 1.—For mason, carpenter, slater, plumber, plasterer, painter and glazier's work of two half-houses to be built on Albert Street, Fraserburgh. Mr. W. S. F. Wilson, architect, Broad Street, Fraserburgh.

SEAHAM.—Nov. 4.—For construction of a steel and timber lifeboat house and slipway at Seaham. Mr. John Smith, hon. secretary, Harbour Master's Office, Seaham, Sunderland.

SEA HOUSES.—Nov. 2.—For erection of Primitive Methodist manse, Sea Houses, Northumberland. Mr. George Reavell, architect, Alnwick.

SLOUGH.—Oct. 29.—For alterations to workhouse laundry. Messrs. Sargeant & Son, Slough.

SOUTHBOROUGH.—Oct. 28.—For construction of new tanks, bacteria bed and sprinkler, for the Southborough Urban District Council, Kent. Deposit 10*s*. 6*d*. The Engineer's Office (Mr. William Harmer), 137 London Road, Southborough.

SOUTHAMPTON.—Oct. 29.—For enlargement of the post office. Deposit 1*l*. 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

STONE.—Oct. 26.—For erection of proposed isolation hospital at Yarnfield, near Stone. Forward names to Mr. W. Watkyn Wynne, clerk to the Board, Stone, Staffs.

WALES.—Oct. 26.—For erection of two cottages at Pantygraigwen, Pontypridd. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

WALES.—Oct. 26.—For erection of twenty-four villas behind the Avenue, Pontypridd. Mr. Arthur Lloyd Thomas, architect, Church Street Chambers, Pontypridd.

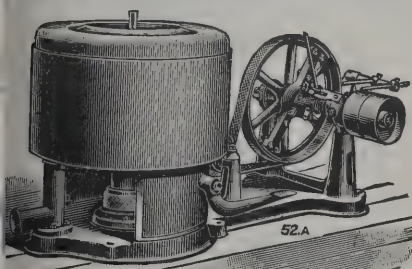
WALES.—Oct. 26.—For alterations and repairs to the National school, Aberystwyth, and the Penparke school. Mr. G. T. Bassett, architect and surveyor, 17 Terrace Road, Aberystwyth.

WALES.—Oct. 29.—For alterations and additions to goods shed at Ebbw Vale, Mon, for the Great Western Railway Company. The Engineer, Newport Station.

WALES.—Oct. 29.—For erection of a metal workshop at Porth County school. Deposit 1*l*. 1*s*. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Oct. 30.—For building Tabernacle Congregational church, schoolroom, &c., at Ebbw Vale, Mon. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

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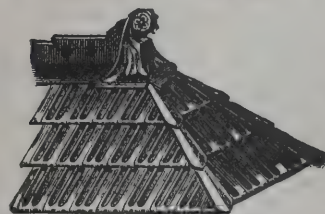
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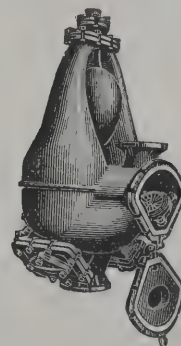
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WALES.—Oct. 30.—For erecting a house on the Bryn-y-Neuadd estate, Llanfairfechan, North Wales. Mr. C. H. Dorman, 53 Abington Street, Northampton.

WALES.—Nov. 6.—For erection of the Bethlehem Welsh Congregational church, Eyre Street, Splotlands, Cardiff. Deposit 2*l.* 2*s.* Messrs. Habershon, Fawckner & Co., architects, Tredegar Estate Offices, 14 Pearl Street, Roath.

WALES.—Nov. 6.—For erection of Government offices at Bangor. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's Gate, S.W.

WARKWORTH.—Oct. 30.—For house of six rooms at Heather Leazes, near Warkworth. The Hermitage inn, Warkworth, Northumberland.

WESTCLIFF-ON-SEA.—Nov. 14.—For erection of police quarters. Deposit 10*l.* Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WOODHALL SPA.—Oct. 28.—For construction of works near Woodhall Spa, Lincs, comprising a new engine-house, 24 feet by 18 feet inside, concrete intake and tank, about 3,500 lineal yards of cast-iron pipes, 6 inches in diameter, from the new engine-house to the existing reservoir, together with machinery foundations, pump well and other works connected therewith. Deposit 2*l.* 2*s.* Messrs. James Mansergh & Sons, engineers, 5 Victoria Street, Westminster.

WORKINGTON.—Nov. 1.—For erection of pavilion for Workington Golf Club. Messrs. W. G. Scott & Co., architects and surveyors, 2 Park Lane, Workington.

PROVOST WEMYSS has repeated his offer of the same area of ground and a new house to each feuar on the Links, Buckhaven, N.B., on condition that they give up their present feus. The Links houses and gardens occupy about ten acres and have fully 100 houses, all occupied by miners, and are mostly from twenty to twenty-five years old. The ground is needed by the Wemyss Coal Company in connection with the opening up of Denbeath pit, hence the offer of new houses for old which has come in the way of the feuars.

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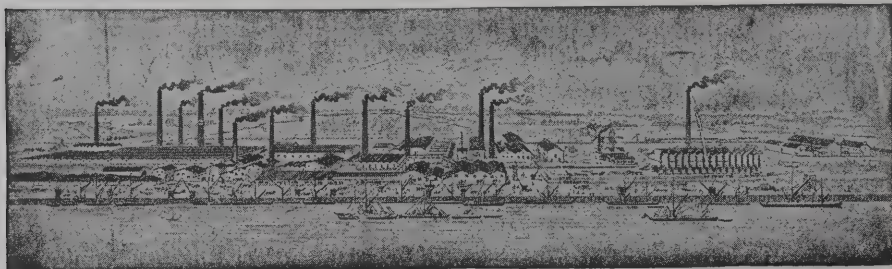
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Turner & Sons	13,623	0	0
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**COALVILLE.**

For erecting Council school, &c. Messrs. McCARTHY & Co., architects, Central Chambers, Coalville.

Garlick	£11,190	8	6
Maule & Co.	10,550	0	0
Barker & Sons	10,349	0	0
Haycock & Sons.	10,280	0	0
Bradshaw Bros.	9,941	0	0
Orton	9,933	0	0
Johnson & Son	9,895	0	0
Hodges	9,890	0	0
Fox	9,849	0	0
Hickman	9,710	0	0
Morley & Son	9,645	0	0
Griffin Bros.	9,545	0	0
Moss, Coalville (accepted)	9,125	0	0

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For the erection of Lower Borough Council school, Kent education committee.

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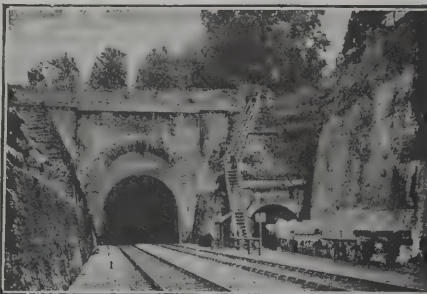
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Richards . . . . . 347 11 0

BUTT, Southampton (accepted) . . . . . 340 0 0

**ELING—continued.***Fencing.*

Rose & Andrews . . . . . £190 6 4

Fletcher & Co. . . . . 179 0 0

Richards . . . . . 161 0 0

Osman . . . . . 135 10 0

DOUGLAS, Southampton (accepted) . . . . . 132 0 0

**FARNBOROUGH.**

For enlargement of Farnborough Council school, for the Kent education committee.

Smith & Co., Ltd. . . . . £2,069 0 0

Markham & Markham . . . . . 1,771 0 0

Loasby & Salmon . . . . . 1,744 0 0

Avard . . . . . 1,687 0 0

Funnell & Co. . . . . 1,650 0 0

Owen . . . . . 1,650 0 0

Lonsdale . . . . . 1,642 0 0

Jones & Andrews . . . . . 1,588 0 0

Wiles & Sons . . . . . 1,557 0 0

Arnaud & Son . . . . . 1,525 0 0

Lawrence . . . . . 1,525 0 0

Millman & Green . . . . . 1,520 10 0

Multon & Wallis . . . . . 1,519 16 8

Skinner . . . . . 1,516 0 0

Thomas & Edge . . . . . 1,513 0 0

Marx . . . . . 1,491 9 0

Smith . . . . . 1,482 9 6

Podger & Sons . . . . . 1,454 0 0

Crossley & Son . . . . . 1,430 0 0

Pollock . . . . . 1,410 0 0

WEBSTER & SON, Peckham Rye (accepted) . . . . . 1,397 16 7

**HOUNSLOW.**

For repairs to 12-ton steam road-roller. Mr. J. C. CAREY, engineer.

Fraser & Fraser . . . . . £138 0 0

Aveling & Porter . . . . . 124 0 0

Oxford Steam Ploughing Co. . . . . 110 18 1

GILLETTS, LTD., Hounslow (accepted) . . . . . 104 0 0

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**HULL.**  
For supply of fittings and furniture at law courts. Messrs.  
RUSSELL & COOPER, architects.  
LACKENBY & Co., Anlaby Road (accepted) . £2,991 12 0

**LONDON.**  
For erection of superstructure of artisans' dwellings in  
James Street and West Street, Bethnal Green, for the  
trustees of the late W. R. Sutton. Messrs. JOSEPH &  
SMITHEM, architects. Quantities by Mr. C. W. LATTER,  
14 Great James Street, W.C.

Sabey & Sons	£36,139	0	0
Higgs & Hill	35,444	0	0
Rider & Son	34,990	0	0
Harris & Wardrop	34,812	0	0
Trollope & Colls	34,709	0	0
Simpson & Son	34,606	0	0
Cubitt & Co.	34,524	0	0
Lawrance & Son	34,083	0	0
Holloway	33,960	0	0
Spencer, Santo & Co.	33,946	0	0
Thorne & Co.	33,760	0	0
Wall, Ltd.	33,560	0	0
Wallis & Son*	32,778	0	0

\* Accepted subject to approval of the Court of Chancery.

For erection of the Lewisham tramways sub-station, for  
London County Council.

Jerram	£4,656	0	0
Roberts & Co.	4,597	0	0
Nightingale	4,450	0	0
Leng	4,444	0	0
Dick, Kerr & Co.	4,404	18	4
Wallis & Sons	4,277	0	0
J. & C. Bowyer	4,276	0	0
Thomas & Edge	4,160	0	0
W. & B. H. Davey	3,963	0	0
Wall, Ltd.	3,900	0	0
Munday & Sons	3,836	0	0
Galbraith Bros.	3,828	0	0
Leslie & Co., Ltd., Kensington (recom- mended)	3,820	0	0
Architect's estimate	3,995	0	0

**LONDON—continued.**  
For foundations of the National Gallery extension, for the  
Commissioners of H M. Works and Public Buildings.

Nightingale	£5,269	0	0
Lawrance & Sons	5,164	0	0
Foster & Dicksee.	5,066	0	0
Dorey & Co.	5,000	0	0
Dearing & Sons	4,957	0	0
Patman & Fotheringham	4,933	0	0
Paterson, Ltd.	4,895	7	10
Smith & Sons	4,890	0	0
Perry & Co.	4,875	0	0
Davey	4,870	0	0
Parnell & Son	4,835	0	0
Patrick.	4,751	0	0
Holloway Bros. (London)	4,740	0	0
Chessum & Sons	4,676	0	0
Ashby & Horner	4,643	0	0
Minter	4,600	0	0
Lamplough	4,590	0	0
Shepherd & Co.	4,575	0	0
Mowlem & Co.	4,498	0	0
Munday & Sons	4,444	0	0
Leslie & Co.	4,419	0	0
Allen & Sons	4,339	0	0
F. & T. Thorne	4,284	0	0
Wall, Ltd.	4,199	0	0

For the construction of an underground convenience for  
women at the Elephant headway. Mr. A. HARRISON,  
borough engineer.

Wisdom Bros.	£1,490	0	0
Doulton & Co.	1,310	0	0
Mather	1,200	0	0
Nightingale	1,085	0	0
Patman & Fotheringham	1,043	0	0
Jennings, Ltd.	1,015	0	
Marsland & Sons	985	0	0
Francis	960	0	0
ROBERTS & Co., Highbury (accepted)	796	0	0

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## LONDON—continued.

For kerbing, channelling and making-up roadways and paving footways of Lowther Hill and Oakcroft Road, for the Lewisham Borough Council.

## Lowther Hill.

				Footway per super yard.
			s.	d.
Wood & Sons	£1,417	0	0	4 3
Etheridge	1,349	16	11	—
Woodham & Sons	1,237	0	0	3 8
Martin	1,225	0	0	—
Mowlem & Co.	1,116	0	0	4 0
Pearce	1,050	0	0	3 4
FRY BROS. (accepted)	1,034	0	0	—

## Oakcroft Road.

Wood & Sons	820	0	0	4 1½
Etheridge	657	0	0	—
Martin	625	0	0	—
Mowlem & Co.	623	0	0	4 0
Woodham & Sons	589	0	0	3 6
Pearce	581	0	0	3 4
FRY BROS. (accepted)	568	0	0	—

For erection of warehouse, Shepherdess Walk. Messrs. JOSEPH & SMITHEM, architects, 83 Queen Street, E.C.

Quantities by Mr. C. W. LATTER.

Smith	£4,280	0	0
Cubitt & Co.	4,251	0	0
Ashby Bros.	4,200	0	0
Higgs & Hill	4,124	0	0
Holloway	4,040	0	0
Wallis & Son	3,983	0	0
Lawrance & Son	3,930	0	0
PERRY BROS. (accepted)	3,777	0	0

For kerbing, channelling, paving, &c., Leweston Place, Upper Clapton. Mr. NORMAN SCORGIE, borough engineer.

Adams	£1,133	4	11
Griffiths & Co.	1,110	19	5
Bloomfield	1,100	1	11
Porter	1,085	3	10
DYKES, 13 Speldhurst Road, Chiswick, W. (accepted)	1,054	17	8

## LONDON—continued.

For turfing and planting on White Hart Lane estate, for London County Council.

Pulford	£475	0
Russell	398	10
Cutbush & Son	382	3
Neal, Wandsworth (recommended)	330	5

For provision of railings and gates at White Hart Lane estate, for London County Council.

Bromsgrove Guild of Applied Arts	£385	0
Henney	269	12
Clubb & Son, Hampstead (recommended)	257	10

## MANCHESTER.

For erection of warehouse, Dale Street and China Lane. Mr. R. ARGILE, architect, Ripley, Derby.

## Foundations and basement.

Hodkinson	£3,950	0
Kirk & Randall	3,928	0
Nuttall & Co.	3,462	19
Byrom	3,293	0
Thorpe	3,183	0
Nowell	3,082	14
Burgess & Galt	3,050	0
Brown & Sons	3,035	0
Normanton & Son	3,002	0
Carlyle	2,989	0
Macfarlane & Son	2,972	0
Booth & Son	2,970	0
Neill & Son	2,900	0
GERRARD & SONS, Swinton, Manchester (accepted)	2,732	15

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Handyside & Co. (including erection)	7,273	16
Homan & Rodgers	6,795	0
Moreland & Son	6,157	0
Butterley Co.	6,079	7
Manchester Iron and Steel Co.	5,953	0
Redpath, Brown & Co.	5,900	0
Trafford Park Steelworks Co.	5,585	0
Wood & Co., Manchester (accepted)	5,550	0

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For Index of Advertisers, see page



## MAIDSTONE.

For supply of pumping plant at sewage works. Mr. G. R. STRACHAN, engineer, Westminster.

Mather & Platt	£2,655	0	0
Greenwood & Batley	2,404	7	0
Gwynnes, Ltd.	2,381	10	0
Allen & Co.	2,310	0	0
Penrose & Co.	2,291	10	0
Lancashire Dynamo Co.	2,284	5	0
Scott & Mountain	2,224	0	0
Electrical Co.	2,157	2	0
Brush Electrical Plant	2,092	6	0
British Electrical Co.	1,988	10	0
SIEMENS BROS. (accepted)	1,963	9	0
Johnson & Phillips	1,955	12	8
Brackett & Co.	1,917	7	0

## MIDDLETON.

For erection of a Dutch barn in Rochdale Road. Mr. W. WELLBURN, borough surveyor.

Alderson	£138	0	0
Heywood & Son	130	0	0
W. & H. Thorpe	126	16	6
Buscan Bros.	125	5	0
Partington & Son	125	0	0
TAYLOR, Middleton (accepted)	122	0	0
Jerrard & Son	120	17	6

For making-up part of Baytree Lane, Middleton, Lancs. Mr. W. WELLBURN, borough surveyor.

Partington & Son	£1,112	13	6
Clegg	1,020	0	10
HEARD, Middleton (accepted)	997	10	0

## NEWLYN (CORNWALL).

For construction of offices for Pier and Harbour Commissioners. Mr. W. T. DOUGLASS, engineer, Westminster, S.W.

Triggs Bros.	£1,347	1	6
Nicholas & Walters	1,340	1	8
Neal, Ltd.	1,268	12	8
Tregenza	1,238	4	8
Perkins & Caldwell	1,159	7	11
BENNETT, Bodmin (accepted)	943	16	2

## NEWENT.

For supplying and laying cast-iron water-mains, with valves, hydrants, &c. Mr. HENRY J. WEAVER, engineer, Gloucester.

King & Son	£1,800	0	0
Bevan & Sons	1,555	9	6
Young	1,551	12	3
Trigg	1,485	13	3
F. & J. Hannay	1,446	5	1
J. & A. Brazier	1,382	13	2
Hutton Bros.	1,382	11	10
Johnson Bros.	1,380	3	7
Byard & Sons	1,379	15	2
Chick, Carden & Co.	1,329	2	1
Meikle	1,310	4	2
Crawford	1,252	12	0
Woodward & Co.	1,231	19	5
York & Co.	1,182	2	9
WESTWOOD, Bromyard (accepted)	1,171	13	4
Engineer's estimate	1,262	14	5

## OUNDL.

For erecting villa residence, Glapthorne Road. Mr. J. T. ROBINSON, architect, Oundle.

Brown	£920	9	6
Hacksley Bros.	859	0	0
Goodman & Murkett	840	0	0
Henson	835	0	0
Higgins	835	0	0
Harrison & Winsor	828	0	0
Howe & Sons	796	11	6
FREEMAN, Oundle (accepted)	775	0	0

## STEEPLE LANGFORD.

For alterations and repairs to the East End inn, Steeple Langford. Messrs. JOHN HARDING & SON, architects, Salisbury.

Futcher	£630	0	0
Smith & Bundy	544	13	0
Billett & Musselwhite	491	0	0
Roles & Sons	485	15	0
Moulding	425	17	6
Burton	424	0	0
BUNDY & SONS, Shrewton (accepted)	340	5	0

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## SOUTHEND-ON-SEA.

For private street works. Mr. E. J. ELFORD, borough surveyor.

*Ramuz Drive.*

Wheeler . . . . .	£3,560	18	6
Griffiths & Co. . . . .	2,804	10	10
Buxton & Jenner . . . . .	2,580	10	8
Iles . . . . .	2,575	0	0
PARSONS & PARSONS, Ilford ( <i>accepted</i> ) . . . . .	2,573	19	9
Borough engineer's estimate . . . . .	2,677	10	0

*Glenwood Avenue.*

Wheeler . . . . .	1,239	12	10
Griffiths & Co. . . . .	1,171	6	6
Parsons & Parsons . . . . .	1,090	10	0
Iles . . . . .	1,090	0	0
BUXTON & JENNER, Southend ( <i>accepted</i> ) . . . . .	1,045	17	7
Borough engineer's estimate . . . . .	1,112	0	0

## WALES.

For rebuilding part and extending Bargoed Girls' Council school, for the Glamorgan county education committee. Mr. D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by County Architect's Department.

Williams & Sons. . . . .	£5,347	0	0
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IMPROVED CONTINENTAL SERVICE.—The first turbine steamer intended for the Great Eastern Railway Company's Harwich-Hook of Holland service was launched at Messrs. Brown & Co.'s (builders of the *Lusitania*) yard, Clydebank, Scotland, on Tuesday, October 22. The christening ceremony was performed by Miss Hamilton, daughter of Lord Claud Hamilton, the chairman of the Great Eastern Railway Company, who named the vessel *Copenhagen*. She will have a speed of twenty knots per hour, is 343 feet long and 43 feet broad, and will have accommodation for over 300 first-class passengers. The *Copenhagen* will have all the modern improvements in respect to lighting, heating and ventilation, and special accommodation for ladies. The greater part of her cabins contain two berths only.

## TRADE NOTES.

STUDENTS of ancient stained glass may be glad to know that Mr. Thomas Curtis, 67 Frith Street, Soho Square, has in his studios some fine late fifteenth-century work from Nettlestead Church, Kent. Mr. Curtis, who has been entrusted with the restoration of this glass, will be pleased to show and explain it to visitors on presentation of their cards.

MESSRS. D. G. SOMERVILLE & Co. have secured the contract for the supply and construction of a steel-frame building with reinforced concrete floors and roofs, for Messrs. Carwarden & Co., Kingsland Road, N.

## NEW CATALOGUE.

THE approach of November fills the minds of a great many people in London and some of our provincial towns with apprehensions of the inconvenience they must suffer during the dark days of winter. The time is therefore opportune for the appearance of the catalogue of the Patent Prismatic Rolled Glass, which is made by Messrs. Pilkington Bros., Ltd., of St. Helens. It is obtainable in many sizes. The title suggests the character of the material, and those who have used it testify to the increased light which is obtained. The large Texas Mill at Ashton-under-Lyne is one of the buildings in which it is introduced and the photographs are evidence that the light is evenly distributed throughout the long rooms. Space that might be of little utility can, when the windows are glazed with the Prismatic Glass, become well adapted for working.

THE London and Lancashire Fire Insurance Company have issued the fifteenth edition of their "American Cotton Crop Movements," containing statistics that must be invaluable to traders in Lancashire.

THE Secretary for Scotland has authorised the Glasgow Corporation electricity department to borrow 150,000*l.* for the execution of works, raising the total sum authorised to be borrowed to 1,850,000*l.*

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Burt Patent Ventilators.  
Crescent Patent Expansion Bolts.

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## ILLUSTRATIONS.

DESIGN FOR NEW COUNTY HALL, LONDON.

GROSVENOR RESTAURANT, GLASGOW.

TURNBERRY HOTEL, AYRSHIRE, N.B.

## VARIETIES.

MR. CARNEGIE has intimated his intention to make a gift of 15,000*l.* for a new central library for the borough of Fulham.

It has been decided to enlarge the Trafalgar Institute at Portsmouth at a cost of 2,500*l.*, and the work will be put in hand at an early date.

THE Kent education committee have promised a donation of 2,000*l.* towards the enlargement of Harvey grammar school at Folkestone.

ROADWAYS are being cut through the Talbot woods on the north side of the railway line. Extensive building operations are about to be carried out in this, one of the most beautiful parts of Bournemouth.

At the last meeting of the Islington Borough Council it was reported that there was a continued increase in the number of empty properties in the borough, which in the last quarter resulted in a loss of 9,587*l.* in respect of 2,484 properties, equivalent to exactly 5 per cent. of the rate.

THE additions to the United Methodist Free Church, Field Road, Forest Gate, were opened on October 17. The contract has been carried out by Messrs. Battley, Sons & Holness, 21 Old Kent Road, the amount being 1,135*l.* 1*s.* 8*d.* The architects are Messrs. Geo. Baines & Son.

THE tender submitted by Mr. F. P. Duthoit, amounting to 2,469*l.* 19*s.* 5*d.*, has been conditionally accepted for Shortlands Congregational mission hall. The buildings are to be faced externally with red bricks and have terracotta dressings. Twelve classrooms are arranged around the main hall, opening into same by means of swivel partitions. The architects whose plans were selected in competition are Messrs. Geo. Baines & Son, 5 Clement's Inn, Strand, W.C.

ON Monday night the Southend Town Council at a special meeting were advised by the sewerage committee to adopt the new scheme designed by Mr. Elford, the borough engineer, the cost of which will be about 150,000*l.* Twenty acres of land are to be purchased for the purpose of the necessary pumping-station and tanks, and it is proposed to erect a dust destructor on the same site.

A RETURN just made to the Lambeth Borough Council discloses a remarkable state of affairs with reference to empty property in that borough. Seven years ago there were 1,137 empty houses. Last year the number had increased to 2,173. This year, however, there are as many as 2,863, the rateable value of which is 88,566*l.*, representing a loss of 4½*d.* in the pound in rates. A thousand of the empty houses are below 20*l.* rateable value.

A SUB-COMMITTEE of the Lord Provost's committee of Edinburgh Town Council have decided to instruct the city architect to prepare, in view of the removal of the slaughter-houses, a feuing plan of the ground at Fountainbridge, at present occupied by the slaughter-houses. The purpose is to show what new streets can be formed, and what the means of access to them will be, together with the cost and other matters.

Two new mills are to be erected at Castleton. It is proposed to build a ring spinning mill near the Crest Mill, and the promoters are the directors of the Cromer Spinning Company, Middleton. The other mill is to be erected by the Ensor Waste Spinning Company, Ltd., and the capital of the company is 50,000*l.*, divided into 10,000 shares of 5*l.* each. The mill will hold 19,000 cotton waste spindles. Building will be commenced immediately.

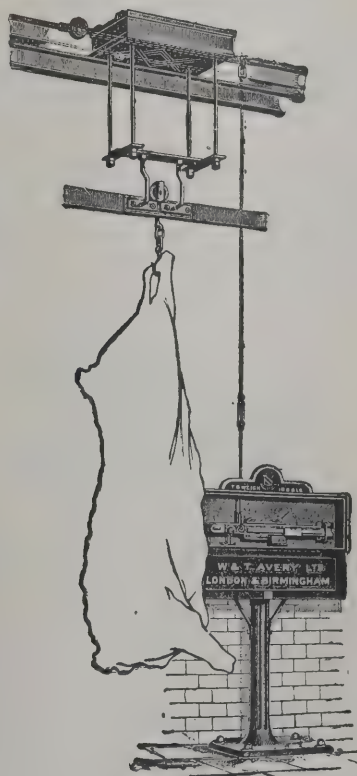
THE Agent-General for Queensland, Sir Horace Tozer, has received some samples of hardwood from a landed proprietor in his colony which the sender calls "teak." These are on view at the Queensland City office, 73 Basinghall Street. One of the samples was cut from a log which has been in use for thirty years as part of a footbridge, and its appearance shows that the timber is immune from the attack of white ants and other insect borers.

MR. W. H. EDWARDS, proprietor of the Duffryn Steel and Tinplate Works, Morriston, has invited tenders for the erection of new works for galvanising sheets at Swansea.

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The site selected is the old Morrision football ground adjoining the present works, and the project involves an expenditure of something like 100,000/. Employment will be found for 300 hands.

THE Ascot authorities are making extensive additions to the present line of stands and enclosures so as to afford accommodation for some 20,000 more people. A large number of men will be employed, but the new buildings will hardly be ready by June next. A new 5s. enclosure will be made, with luncheon-rooms, post-office, &c., at back.

THE engineer's report of progress at Peterhead harbour of refuge for the year ended March 31 last states that during the year the breakwater was extended 180 lineal feet of widened section. The rubble mound has been extended, widened and mostly levelled up for a length of 620 feet ahead of the foundation course. In the work yard blocks containing 19,469 cubic yards of concrete and 32,193 cubic feet of ashlar were made. The output of good stone from the quarries reached a total of 72,800 tons. The daily average number employed were:—Freemen, 238; convicts, 173; warders and guards, 260.

PLANS prepared by Messrs. H. & D. Barclay, architects, Glasgow, for a school of textile industries, have been passed by the Dunfermline Dean of Guild Court. The school is to be erected by the Carnegie Dunfermline Trust, on a site on the west side of the New Row, adjoining the Lauder technical school. It is expected that the cost will be about 11,000/., and towards this amount the Scottish Education Department have, through the School Board, already contributed 5,500/.

THE Poplar Guardians have adopted the following clause for all future contracts:—"The contractor does hereby covenant and declare that he will pay the trade union rate of wages and observe the hours of labour and conditions recognised by the trade unions in the place or places where the contract is executed, and will pay to the Guardians 1/ per day for each day during which each or any employé has not been paid the rate of wages or observed the hours of labour and conditions as recognised by the said trade unions; and the contractor further agrees to accept the recognised union in the trade affected as the sole arbitrator in any question arising under this clause, and that in case of nonpayment upon demand of any sum

forfeited under this condition, the same may either be recovered by the Guardians summarily or deducted by them from the contract price at their option."

CONSUL JOHNSON, of Liège, says:—"Little is generally known regarding the final disposition of a large quantity of newspapers left by travellers in the railway carriages. Here in Belgium, where nothing is allowed to go to waste, they are carefully collected, and at the end of every week sent to the general dépôt at Malines to be utilised in the manufacture of pulp for making a certain quality of cardboard. The quantity of old papers collected daily in the railway carriages amounts to from 660 lbs. to 770 lbs. This represents something like 260,975 lbs. a year, and this amount would be somewhat larger were it not for the fact that many of these papers are misappropriated after collection. Of late it has been observed that the supply of old newspapers is diminishing from day to day, and the administration, jealous of its rights, has complained of the shortage to the various railway stations of the country."

THE city surveyor has submitted to the Sheffield improvement committee plans of three schemes for widening Lady's Bridge from its present width of 48 feet to 58 feet. The committee have recommended to the Council scheme B, which is a design for the projection of the footway on the east side of the present bridge upon cast-iron columns and girders at an estimated cost of 2,000/. The markets committee are to be asked to add to the street the land necessary for widening the bridge, and the tramways committee to make a contribution towards the cost of the improvement. The health committee have adopted a scheme for extending and altering Glossop Road baths, at an estimated cost of 9,845/.. The new baths to be provided are Russian baths, electric sun baths, medicated vapour baths, electric medicated baths, Vichy douche baths, sitz baths and needle baths.

At a meeting of the Westminster City Council the finance committee reported that they had received the sanction of the London County Council to the borrowing of 40,000/ to defray the cost of buying the freehold of the Grosvenor Canal and adjoining properties, for use in the removal and disposal of the house and street refuse of the city. The improvements committee reported that they had received a letter from the Paddington Borough Council with

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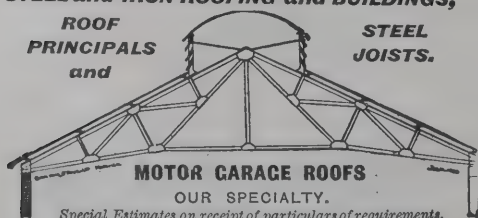
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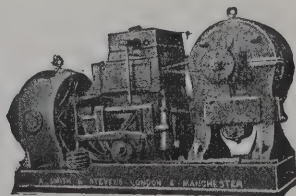
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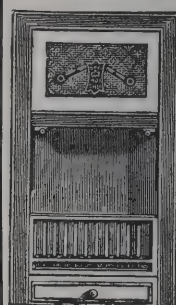
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reference to Mr. Speaight's scheme for the widening of the carriageway at the Marble Arch, saying that they thought a conference of the local authorities interested should be convened with a view to common action. The committee agreed with the suggestion, and had instructed their chairman and the city engineer to attend the conference if convened. The action of the committee was approved and the report was adopted.

In his annual report on building societies in the United Kingdom, the Chief Registrar of Friendly Societies states that thirty-one new societies, of which seventeen were terminating and fourteen permanent, were established during 1906, being an increase of six over the previous year. The number of members returned for 1905 also shows an increase. Advances upon mortgage show a diminution as compared with the previous year both in the number of societies making advances and in the amount advanced, the latter having decreased from 8,922,676*l.* to 8,654,598*l.* The aggregate amount secured by mortgage shows continued progress, and now exceeds 51,000,000*l.* sterling in the United Kingdom, or nearly 94 per cent. of the total assets of the societies. The amount of large mortgages—i.e. those of 5,000*l.* and over—remains practically stationary at 2,000,000*l.*, while it is satisfactory to note that properties in possession have reached a lower percentage than at any other period during the ten years the Act of 1894 has been in full operation.

At a meeting of the Withington special committee of the Manchester Corporation a question between the employes of the works sub-committee in the pavement making department at the refuse destructor and the management was considered. It had been agreed to receive three representative workmen to discuss the men's requests for better conditions of labour, but only one man attended, and it is stated that he expressed himself satisfied. At present the men are understood to have the Corporation minimum wages of 25*s.* weekly, but it is contended that the same work is paid for at 30*s.* weekly in other places. Several of the men who asked for improved conditions are members of the Municipal Employes Association, and it is stated that those who were absent desired to be represented by their trade union officials. Mr. J. T. Jones, the Manchester district secretary of the municipal employes organisation,

has decided formally to ask the committee to receive a deputation of the men and their union officials. This phase of the question was not discussed, and the committee adjourned the further consideration of the matter.

THE sanitary committee of the Manchester Corporation report:—"The nuisance arising from the emission of black smoke from business premises has received attention, and during the year the five inspectors specially employed on this work have reported to the committee 174 cases where the emission has been two minutes or more in the half-hour's observation. Of these reports, 133 were referred to the justices to be dealt with, and in the remaining cases the offenders were cautioned. In consequence of complaints, special attention has been given to the serious emission of smoke from railway and road locomotives, and in several instances it was found necessary to prosecute the offenders. Of the 640 magistrates' summonses issued under the direction of the committee for non-compliance with notices, or for offences under the various Acts which they have to administer, the justices convicted in 256 cases, the penalties imposed amounting to 435*l.* 16*s.* 6*d.*, with costs 320*l.*; forty were ordered to pay costs only, seventeen orders of abatement were made, 223 were excused or withdrawn and 105 adjourned. In the cases withdrawn the requirements of the committee were carried out previous to the hearing."

THE medical officer of health for Glasgow (Dr. A. K. Chalmers) in his report for the year 1906 pays special reference to the existence of insanitary areas. Experience of displacements here and elsewhere has brought, he says, both gratification and disappointment. The area has been regenerated, but the displaced population has simply been dispersed. It is easy to appreciate the disappointment so frequently expressed with the results of this displacement on the character of the displaced population. It is more difficult to command the patience necessary to await the results of an educative process, and this is essentially the change which displacement from insanitary surroundings is fitted to begin. The economic aspect of the question also is not without difficulty. Between the frankly uninhabitable house which has only a stone and lime value and the insanitary area which may have individual houses, objectionable chiefly because of their situation and surroundings, there is a wide interval which existing legal

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machinery does not seem able to bridge, except at a cost which may well appear to be prohibitory. But the need for action is none the less urgent. Many tenements, especially toward the circumference of the area, are fairly substantial in structure, but the internal arrangements are bad. Dark internal lobbies exist. The area cannot be satisfactorily dealt with until certain portions are removed and the space appropriated to washing-houses and other offices required by a resident population. The conversion of the remainder of the space to a playground for children would seem, with the offices already indicated, to amply occupy the ground.

### ELECTRIC NOTES.

THE Stretford District Council have approved a resolution that "the application before the Local Government Board to borrow a sum of 53,460*l.* for electricity purposes be amended," and that in lieu an application be made to the Board "to borrow a sum of 36,445*l.*" to meet the detailed expenditure on the extension of the electricity station and supply under the Council. Application will also be made "to borrow 2,723*l.* 8*s.* 3*d.*, being the expenditure incurred on the electricity undertaking in excess of the amount of 54,200*l.* sanctioned by the Local Government Board on June 7, 1902," and also for the Board's sanction to a loan of 3,000*l.* to defray the cost of purchasing motors for hire.

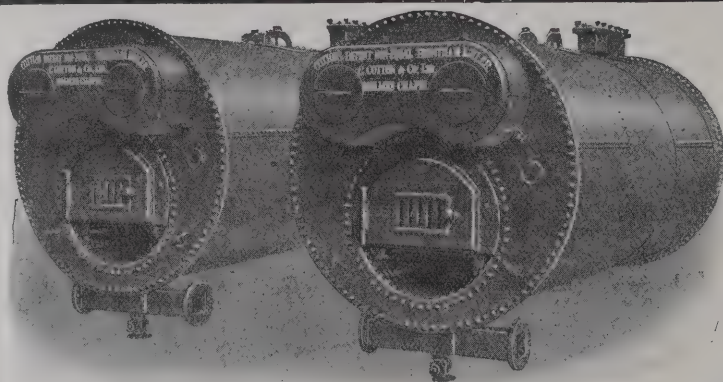
It has been discovered that the new heating installation for Westgreen asylum, N.B., cannot be carried out as originally intended. Reporting on the subject, the architect states that the 4-inch main supply pipes have been found inadequate for the work, and that no proper circulation can be got out of them. Two proposals are put forward to obviate the difficulty, viz. the adoption of mechanical circulation by means of two pumps or the introduction of a 5-inch flow pipe to be carried up and along the attic, and which could be levelled so as to give a perfect and natural circulation to the whole system, while the present 4-inch pipes would be suitable for returns to the calorifiers. The latter scheme, which would cost 108*l.*, as against 100*l.* for the other, is recommended.

THE York City Council have approved of a report by the tramways committee which recommended that certain

routes in the city be constructed under a Light Railways Order, and that before exercising the powers a poll of the citizens be taken to determine whether the Corporation should construct and work the tramways themselves, or lease the undertaking to a company. As regards the cost, they estimated the cost of laying down an overhead system, including the extension and adaptation of the existing carsheds, the provision of twenty tram cars and the necessary street improvements, including the strengthening of Lendal bridge, at a total sum of 110,917*l.*; and (2) for laying down the tramways by a surface contact system, including similar works and cars, at the sum of 119,959*l.*, with rails of 100 lbs. per lineal yard.

### BANGOUR ASYLUM.

At a meeting of the Edinburgh District Lunacy Board on Monday, the minutes of the works sub-committee on final accounts in connection with Bangour showed that on the 26th of last month the clerk had submitted a statement of accounts rendered by Mr. Blanc, the architect, showing that the total amount of accepted estimates was 225,187*l.* 17*s.* 5*d.* or thereby, which included measurers' fees, cost of schedules, and clerks of works' salaries, as well as a sum of 20,637*l.* 8*s.* 10*d.* for wood and iron buildings and laundry machinery. Deducting the actual expenditure of the Board (17,404*l.*) on the wood and iron buildings and verandahs from the accepted estimates, &c., Mr. Blanc's total per his statement would be 207,783*l.* 11*s.* 5*d.* The commission on that sum at 5 per cent. was 10,389*l.* 3*s.* 6*d.* To account of commission due to him Mr. Blanc had received 8,578*l.* The clerk also submitted a memorandum which he had prepared in connection with the architect's accounts, in which he found that the total contracts accepted amounted to 202,002*l.* 4*s.* 11*d.*, and that the total expenditure up to July 31 last was 191,306*l.* 1*s.* 6*d.*, these figures being exclusive of the cost of the wood and iron buildings. The commission at 5 per cent. on the amount of the accepted contracts would be about 10,000*l.* or thereby. The total paid to Mr. Blanc by the Board up to that date was 11,748*l.* 18*s.* 5*d.*, but of that sum 3,170*l.* 1*s.* 5*d.* was for miscellaneous services, discarded plans and general outlays and expenses, which had already been adjusted and passed by



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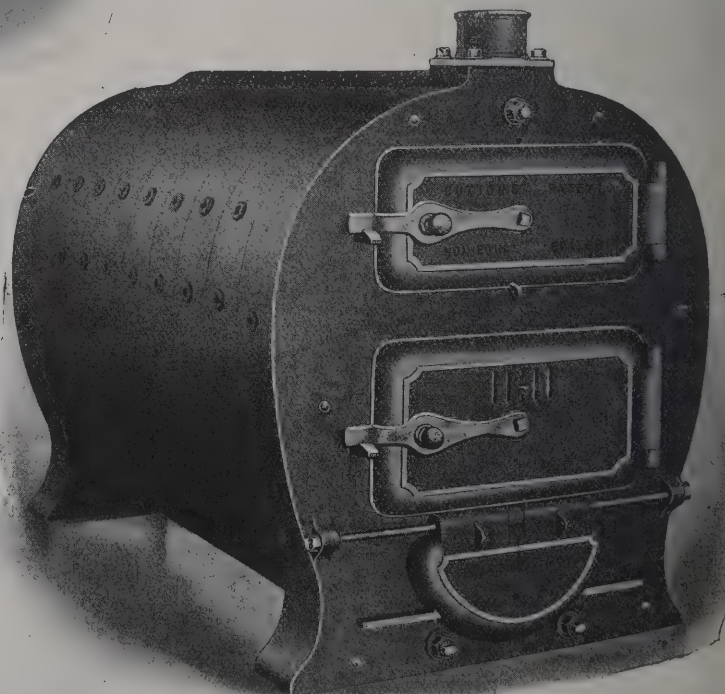
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the Board. Deducting that sum from the amount paid to Mr. Blanc left a balance of 8,578*l.* 17*s.* as the actual payment made to him as commission on the whole works executed. Mr. Blanc stated that his outlays for special visits and for copies of plans, &c., since the date of last settlement with him had been 263*l.* 13*s.* 11*d.*, so that there was apparently due to him at this date the sum of 8,641*l.* 16*s.* 11*d.* The clerk reported that it would be necessary at a future date for him to go over and adjust with Mr. Blanc the figures upon which their respective statements were based, and in the meantime he recommended that a further payment of 1,200*l.* be made to the architect on account of the fees due to him by the Board. That recommendation was agreed to by the sub-committee.

At a subsequent meeting of the works committee it was agreed to recommend to the Board that it be remitted to Messrs. Gibson, Huie and Cumming, as a committee, to have an interview with Mr. Blanc regarding the adjustment of his accounts against the Board.

### FERRO-CONCRETE CONSTRUCTION.

A LECTURE was given by Professor Henry Adams, M.Inst.C.E., &c., on the 10th inst. on the above subject at the Engineering Exhibition, Olympia, under the chairmanship of Mr. J. D. Searles-Wood. He first described the principle of the construction, in which steel, strong in tension, was used in such a way that it took up all the tensile stress, and cement concrete, which was strong in compression, took up all the compressive stress, the combination giving an efficient and economical result. The principles of stress were explained by means of an indiarubber beam differently marked on the four sides and permitting of simple manipulation. The different forms of steel reinforcing bars and their strength were noted. The best protection from corrosion was stated to be Portland cement wash after slight rusting had removed the mill scale. The composition of the concrete and mode of mixing and placing were dealt with, and reference made to the engineering standard specification for cement. The general type of a ferro-concrete building was described from foundations to roof. The building by-laws of London unnecessarily hamper the use of

ferro-concrete, and it is hoped that the modifications which are now under consideration will permit of its use in a reasonable manner. The Local Government Board also raise a bar to progress by limiting their loans on ferro-concrete works to fifteen years only instead of thirty years, as is the case with structures of brick or stone. The lecturer illustrated by lantern photographs many varieties of buildings in ferro-concrete, both exteriors and interiors; then the details of construction came under review, the early failures through want of provision for shear strength being shown in a very graphic manner. A series of slides illustrating the failure of the third Madrid reservoir were shown, and many illustrations showing the various modes of constructing foundations brought the Professor's interesting lecture to a close.

### DECAY OF STONE IN GLASGOW.

THE decay of the stonework in many Glasgow buildings has attracted much attention recently. Several of the newer buildings appear to have resisted atmospheric and other influences tolerably well, in others decay has set in within a few years of erection, and in one or two instances before completion. Preservative measures are numerous and frequently costly, but their application does not always seem to be attended with success. Among the buildings which have shown some signs of decomposition is that of the Glasgow Stock Exchange in Buchanan Street. The older portion was not only very much discoloured, says the *Glasgow Herald*, but in a rather serious state of decay, and it was found necessary to renew a good deal of the carved work and to re-chisel many of the stones in front. The treatment applied to the building was the "Farnham process." By this process the pores of the stone were effectively impregnated with paraffin wax, which is said to prevent the inroads of the atmospheric acids which cause disintegration. The paraffin was forced into the stone at a high temperature, the pores being hermetically sealed and filled with wax to a depth of about half an inch. The whole building was thoroughly waterproofed and afterwards sand-blasted. Sand-blasting was applied a second time to remove any surplus wax and clean any slight discoloration that might have been caused by the stoves used for heating the



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stone. A portion of the Buchanan Street part of the building still requires some treatment, but the entire work will be completed in a few weeks. Apart from the intrinsic value of the process, it may be said that the appearance of the building has been vastly improved. One very noticeable feature of the process is that it preserves intact or restores the original tone colour of the stone.

#### A MAGNETIC OBSERVATORY.

THE magnetic observatory which is being erected for the Government at Eskdalemuir will be completed in a few weeks' time. It was begun last year in the month of March, and the estimated cost is about 20,000*l.* The buildings are situated on part of the farm of Nether Cassock, ten acres of which were acquired for the purpose from the Duke of Buccleuch. The observatory stands a little off the main road which runs between Langholm and Edinburgh, by way of Innerleithen—fifty-six miles distant from the city. It is equi-distant seventeen miles from Lockerbie and Langholm, and twenty-eight miles intervene between it and Hawick. Approached from the road which has been made off the main thoroughfare, the first set of buildings at the south end consists of the caretaker's and junior assistant's dwelling-house. The next buildings consist of the workshop and office block, in which there are a library and laboratory thoroughly equipped. To the left is a large room for photographic purposes, with the necessary dark chamber, &c., while to the north is the seismograph-room, where the earth's disturbances will be recorded, the principal pier in this room having been sunk 20 feet down to the solid rock. There are also packing and other rooms, while in the basement are the heating apparatus and gas generating chamber. Near the south-west corner of the ground is the senior assistant's house. In the centre of the grounds stands the magnetograph house, which is underground. The sinking for this necessitated an average cutting of 13 feet, the biggest cutting being 18 feet, and the whole of the material taken out was banked over the building, which at this point is 800 feet above the Ordnance datum. Further north, towards the northern boundary of the ground, are situated two magnetic huts, placed, like the magnetograph house, to the

magnetic north. There are also offices and stables, and the whole of the buildings are enclosed by a wall. The buildings are built of whinstone with freestone facings.

#### DIRECT LABOUR *v.* CONTRACT.

THE following letter from the Norwich builders respecting the Hellesdon Asylum extension has been addressed to the members of the Town Council:—

Mr. Mayor and Gentlemen,—At the last meeting of Council a report was presented stating the cost of the above works as carried out by direct labour, and also a comparative statement showing what the cost would have been if carried out by a contractor. The committee of our Association, having had their attention called to these reports have looked into the matter, so far as information in their possession has enabled them to do, and I am desirous by them to call the attention of the Council to some apparent errors and discrepancies in such reports. Various preliminary and provisional items, which were included in the original bill of quantities (of which some members of my Association hold copies), do not seem to have been dealt with, for instance:—(1) The contractor was asked to insure the buildings against fire; (2) to insure all workmen under the Employers' Liability Acts and Workmen's Compensation Acts, 1897, &c.; (3) to provide water for the carrying out of the works; and (4) to provide for maintenance of works for six months after completion. A reasonable amount to allow for these four items would be 75*l.* (5) It would appear from the debate in the Council that no establishment charges have been included in the report. These at the rate of 5 per cent. work out on the actual reported cost (11,608*l.*) at 580*l.* 8*s.* (6) It has been noticed that a new gable wall is charged as an extra. The cost of removing the old gable bodily or building a new wall in place thereof was included in the original tender and cannot be an extra 125*l.* (7) There was also a item provided in the tender for "contingencies" (100*l.*) This ought certainly to have been credited off the claim for extra works at 100*l.* (8) The report states that the tender of 8,211*l.* did not include the heating of the buildings. My committee maintain that 400*l.* of this sum was expressly included in the bill of quantities; the amount being litho-

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WORK IN BRASS FOUNDRIES.

THE following order by the Home Secretary is to be observed from Friday next :—

In pursuance of section 116 of the Factory and Workshop Act, 1901, I hereby make the following order :—

The provisions of the said section shall apply, subject to the modifications hereinafter contained, to factories and workshops in which the undermentioned processes or any of them are carried on, and to outworkers employed in those processes and the occupiers or contractors by whom they are employed :—The mixing, casting and manufacture of brass and of any articles or parts of articles of brass and the electro depositing of brass (including in the term brass any alloy or compound of copper with zinc or tin), except when carried on as a subsidiary process in shipbuilding yards or in marine, locomotive or other engine-building works, or in general engineering or in machine-tool works.

The said section shall be modified so as to read as follows :—

1. The occupier or contractor shall for the purpose of enabling each worker who is paid by the piece to compute the total amount of wages payable to him in respect of his work, cause to be published particulars of the rate of wages applicable to the work to be done, and also particulars of the work to which that rate is to be applied, as follows :—

(a) He shall furnish every worker with particulars of the rate of wages applicable to the work done by him, either (1) by handing him such particulars, in writing, when the work is given out to him; or (2) by supplying him with such particulars in writing at the time of his employment, and on every subsequent occasion when the rates are fixed or altered; or (3) in the case of persons employed in a factory or workshop, by exhibiting such particulars in the factory or workshop on a placard containing no other matter than the rates of wages applicable to the work done in the factory or workshop, and posted in a position where it is easily legible by the workers. Provided that if in any case the work given out is of a novel kind for which no rate of wages has been fixed, and if the employer and workman for the purpose of arriving at a rate for the work so agree, it shall not be necessary for particulars of the rate of wages to be furnished when the work is given out, provided such

graphed and carried through in the total column clearly shows this to be so, and from which item all builder's work in connection therewith was excluded (see item 21)—400l. (9) The foundation trenches were not required to be dug to the depth originally "taken;" this, with the consequent saving in concrete and brickwork, should represent a saving of at least 150l. (10) It has come to the knowledge of my committee that shutters for the epileptic wards were not supplied in their entirety. There should thus be a saving, say, about, on these items of 50l. (11) With regard to the items of omission mentioned in the report (384l. 6s.) for fire escape, store, &c., and another item of 334l. clerical error, making a total of 718l. 6s. omitted. The contractor would have been bound by his contract to carry out and complete these works without any extra cost, seeing that the error in calculation was his. This amount, therefore, cannot come into any comparative statement as an extra 718l. 6s. Total, 2,198l. 14s. With regard to the comparative report of ascertained cost on the basis of another tender from a Norwich builder selected by the asylum committee, it is clearly shown that 1,200l. extra is charged for heating, whereas in the former report only 800l. extra is charged, so that there is a clear discrepancy of 400l. between the two statements. Both statements cannot be correct, and in either case a credit of 400l. is included in the original estimates. You will observe that even with the limited knowledge of the subject in the possession of my committee they have been enabled to point out discrepancies of over 2,000l. in the report, and therefore feel justified in asking that these works be properly surveyed and the accounts audited, so that the true position may be placed before you so as to enable you to arrive at a sound decision in this matter, which so directly affects the ratepayers and the building trades of the city.

Accompanying the above letter is a comparative statement of account which purports to show :—

	£	s.	d.
Total cost of works as carried out by direct labour (see report)	11,608	0	0
Total cost if the highest tender (9,547l.) had been accepted	10,024	12	0
Thus saving to the ratepayers	1,583	8	0

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particulars are furnished to the worker when the work is completed.

(b) Such particulars of the work given out to be done by each worker as affect the amount of wages payable to him shall be furnished to him in writing at the time when the work is given out to him.

(c) The particulars, either as to rate of wages or as to work, shall not be expressed by means of symbols; but this shall not prevent the occupier or contractor from describing any work which is of a standard kind known to the persons employed by a particular number, letter or name by means of such number, letter or name.

2. If the occupier or contractor fails to comply with the requirements of this section he shall be liable for each offence to a fine of not more than 10*l.*, and in the case of a second or subsequent conviction within two years from the last conviction for that offence, not less than 1*l.*

3. If anyone engaged as a worker in any of the aforesaid classes of work having received such particulars, whether they are furnished directly to him or to a fellow workman, discloses the particulars for the purpose of divulging a trade secret, he shall be liable to a fine not exceeding 10*l.*

4. If anyone for the purpose of obtaining knowledge of, or divulging, a trade secret, solicits or procures a person so engaged to disclose such particulars, or with that object pays or rewards any such person, or causes any person to be paid or rewarded for so disclosing such particulars, he shall be liable to a fine not exceeding 10*l.*

In this order the term "outworker" means any person employed in the business of a factory or workshop outside the factory or workshop, whether directly by the occupier thereof or by any contractor employed by him, and also any person employed by the occupier of any place from which work is given out, or by a contractor employed by him. This order shall come into force on Nov. 1, 1907.

#### A REINFORCED CONCRETE CODE.

THE Concrete Association of America recently submitted to the Building Code Revision Commission of New York City the following regulations for adoption:—

1. Reinforced concrete construction shall be understood

to mean an approved concrete mixture reinforced by steel of any shape, the two materials to be so combined that the concrete will take up the compression stresses and the steel the tension stresses and assist the concrete in shear and compression.

2. Reinforced concrete construction when designed in accordance with this code shall be approved for fireproof construction.

3. Before permission to erect any reinforced concrete structure shall be granted complete drawings and specifications must be filed by the architect or engineer representing the owner with the superintendent of buildings, showing all construction details, including dimensions of concrete and the sizes and position of all reinforcing members.

4. The concrete shall be mixed in the proportions of not less than one part of cement by volume to seven parts of aggregates by volume, consisting of sand and broken stone or gravel. The proportion shall be such that the resistance of the concrete to crushing shall not be less than 2,000 lbs. per square inch after hardening for twenty-eight days. Tests to determine this value shall be made from time to time by a competent engineer under the direction of the Bureau of Buildings. The concrete used in reinforced concrete construction shall be what is usually known as a "wet" mixture.

5. All cement used in reinforced concrete construction shall be a Portland cement conforming to the standard specifications of the American Society for Testing Materials and shall be tested by an independent chemist not in the employ of the cement manufacturer. Records of these tests shall be kept on file in the contractor's office.

6. All sand used in reinforced concrete construction shall be clean and sharp, free from loam, dirt or other injurious material, and shall not be finer than the standard sample in the office of the Bureau of Buildings.

7. All stone used in reinforced concrete construction shall be clean, broken trap rock or gravel, and shall not be of a size larger than can be easily worked or tamped around the reinforcing members. In case it should be desired to use any other material or kind of stone than specified above, samples of same shall first be submitted to and have the approval of the Superintendent of Buildings.

8. Steel for reinforced concrete construction shall have

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an elastic limit of at least 30,000 lbs. per square inch, and an ultimate strength of at least 60,000 lbs. per square inch, and shall be of uniform quality. Samples cut from any bar shall be capable of bending cold 180 degs. around a bar of equal diameter without signs of fracture.

If twisted, corrugated, diamond or other mechanical bond bars are used, such bars may be stressed in tension to 16,000 lbs. per square inch, or to one-third of their elastic limit; in shear to 10,000 lbs. per square inch, and in compression to twelve times the compression stress in concrete.

9. All steel reinforcement shall be completely encased in the concrete, and in beams, girders, columns and walls the steel shall not be nearer the surface than  $1\frac{1}{2}$  inch. In floor and roof slabs the steel shall not be nearer the surface than  $\frac{3}{4}$  inch for bars having a diameter of  $\frac{1}{2}$  inch or less. Where larger bars are used in floor or roof slabs, the steel shall not be nearer the surface than 1 inch.

Where the number of bars used in a beam or girder cannot be placed in one plane they shall be placed in two or more planes.

In reinforced concrete footings the steel shall not be nearer the surface than 3 inches.

10. Reinforced concrete shall be so designed that the stresses in the concrete and steel shall not exceed the following limits:—

	Pound per Square Inch.
Extreme fibre stress on concrete in compression . . . . .	600
Shearing stress in concrete . . . . .	100
Concrete in direct compression . . . . .	500
Tensile stress in steel . . . . .	16,000
Shearing stress in steel . . . . .	10,000
Compressive stress in steel twelve times the compressive stress in the concrete.	

11. The adhesion of concrete to steel shall be assumed to be not greater than the shearing strength of the concrete.

12. The ratio of the moduli of elasticity of concrete and steel shall be taken as 1 to 12.

13. The following assumption shall guide in the determination of the bending moments due to the external forces. Beams and girders and floor slabs may be considered as

continuous where proper provision for continuity is made in the design, the bending moment for uniformly distributed loads being taken at not less than  $WL/10$ . In the case of square floor plates which are reinforced in both directions and supported on all sides the bending moment may be taken at  $WL/20$ .

In figuring T beams the width of the floor slab to be considered as part of the beam or girder shall be determined by the shearing resistance of the slab along the beam, but in no case shall the width of the floor slab so considered exceed the distance between beams, and provided also that the beam or girder and slab shall be built at the same time as a unit.

14. The amount of resistance of reinforced concrete construction in transverse loads shall be determined by formulae based on the following assumptions:—

(a) The bond between the concrete and steel is sufficient to make the two materials act together as a homogeneous solid.

(b) The strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis.

(c) The modulus of elasticity of the concrete remains constant within the limits of the working stresses fixed in these regulations.

From these assumptions it follows that the stress in any fibre is directly proportionate to the distance of that fibre from the neutral axis.

The tensile strength of the concrete shall not be considered.

15. When the shearing stresses developed in any structural member of reinforced concrete construction shall exceed the safe working strength of the concrete, as fixed in these regulations, a sufficient amount of steel shall be introduced in such positions that the deficiency in the resistance to shear shall be provided for.

16. When the safe limit of adhesion between the concrete and steel is exceeded, some provision must be made for transmitting stresses from the concrete to the steel.

17. Reinforced concrete may be used for columns and their strength determined as follows:—

The concrete within the steel ties or hoops may be stressed in compression to 500 lbs. per square inch. No allowance shall be made for the concrete outside of the

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hoops or ties and serving the purpose of fireproofing. Vertical steel bars may be placed in the concrete, and if substantially tied together by steel bars at intervals of not more than the least side or diameter of the column, may be stressed in compression to twelve times the compressive stress in the concrete. These rods shall be joined immediately above the floor line or at points of lateral support. They shall have full perfect bearings and be connected by tight-fitting sleeves or the ends may be threaded and connected by standard sleeve nuts.

In concrete columns with vertical reinforcement the total cross section of vertical steel shall not be less than  $\frac{1}{2}$  of 1 per cent. of the cross section of the concrete within the hoops or ties, but in no case shall this amount be less than 1 square inch.

Concrete columns reinforced by spirally wound hoops of steel shall be designed in accordance with the following formula:—

$$P = [1.5fc + (3fs' \times As') \div r] Ac + fs' As'$$

Where  $P$  = working loads in pounds.

$fc$  = 500 lbs.

$fs'$  = 20,000 lbs. for cold drawn wire.

$fs$  = 6,000 lbs. on vertical steel.

$Ac$  = area concrete inside of hoops.

$As$  = area of vertical steel.

$As'$  = area of spirals per unit of column length.

$r$  = radius of spirals in inches.

Minimum amount of spiral steel shall be such that  $(fs' \times As') \div r$  shall not be less than 75 lbs.

For columns with greater length than twelve times the least diameter the value of  $fc$  to be used in the above formula shall be reduced.

The hoops shall not be spaced closer together than  $1\frac{1}{2}$  inch, nor further apart than one-seventh of the diameter of the spiral. In no case shall the total cross section of vertical steel be less than 1 per cent. of the cross section of the concrete within the spiral.

Additional reinforcement or reduction in the compressive stress on the concrete shall be made for columns eccentrically loaded.

18. Spandrel walls supported entirely on reinforced concrete wall girders and extending from the floor-line to the window-sill shall have a minimum thickness of 8 inches

and shall be reinforced with not less than  $\frac{1}{2}$  lb. of steel per square foot of wall.

Enclosure walls of skeleton buildings built in between columns and supported entirely on reinforced concrete girders shall have a minimum thickness of 8 inches for 40 feet of the uppermost height thereof or the nearest tie of beams to that measurement. For each additional 30 feet of height or to the nearest tier of beams to that measurement the thickness of the wall shall be increased 1 inch. Basement walls shall be at least 2 inches thicker than the walls immediately above. All such enclosure walls shall be reinforced with not less than  $\frac{1}{2}$  lb. of steel per square foot of wall. All window or door openings shall be reinforced with steel on the sides and at the top and bottom in addition to the steel specified above. Where walls are required to meet special conditions the thickness and the amount of reinforcement shall be determined by such conditions.

Parapet walls shall have a minimum thickness of 6 inches and shall be reinforced with not less than  $\frac{1}{2}$  lb. of steel per square foot of wall.

Enclosure walls for one-storey storage or factory buildings shall have a minimum thickness of 4 inches and shall be reinforced with not less than  $\frac{1}{2}$  lb. of steel per square foot of wall.

19. Partitions required by the code to be fireproof may be constructed of reinforced concrete and shall have a minimum thickness of 3 inches, and shall be reinforced with not less than  $\frac{1}{4}$ -inch rods on 12-inch centres, running both vertically and horizontally.

20. Reinforced concrete construction may be continued during freezing weather provided all frost is eliminated from the sand and broken stone by artificial heat, and provided also that the work is protected from the weather by canvas or similar means, and artificial heat supplied to prevent the concrete from freezing prior to taking its final set.

21. The contractor must be prepared to make load tests on any portion of reinforced concrete construction within reasonable time after erection. The tests must show that the construction will sustain a load of twice the live load for which the section was designed without any sign of failure.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

HERTFORD.—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500l. Premiums of 50l. and 20l. will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

SUNDERLAND.—Nov. 5.—For erection of branch library in Vilette Road. Deposit 2l. 2s. Messrs. Davidson & Cratney, architects, 22 Fawcett Street, Sunderland.

THURLSTONE.—Nov. 25.—The Thurlstone Urban District Council invite plans for council-room, offices, caretaker's house and outbuildings (cost not to exceed 650l. for building and heating apparatus only). For instructions and particulars apply to Mr. J. Wadsworth, clerk, Thurlstone, near Penistone.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

CONTRACTS OPEN.

AUDENSHAW.—Nov. 12.—For rebuilding Audenshaw (Hundred) Bridge, on main road from Manchester to Ashton-under-Lyne. The work comprises the taking-down of the old arch bridge and the building of a new bridge in masonry and steel, with a span of 22 feet 9 inches and a width between parapets of about 50 feet. The County Bridgmaster's Office, Preston.

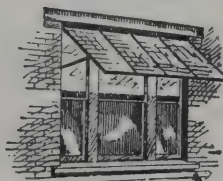
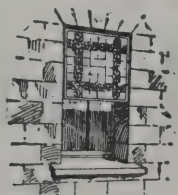
BARNET.—Nov. 9.—For construction of foundations, drains, roads, fences, water supply and other works (not including the structure) in connection with isolation hospital

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**BARROW-IN-FURNESS.**—Nov. 19.—For (a) construction and delivery complete of a floating bath in Ramsden Dock, and (b) erection and completion of conveniences, &c., appurtenant thereto, for the Corporation. Deposit 5*l*. The Borough Engineer's Office, Town Hall, Barrow-in-Furness.

**BELMONT.**—Nov. 6.—For erection of a cottage at Belmont, Sutton, Surrey, for the Metropolitan Asylums Board. Deposit 1*l*. Messrs. T. W. Aldwinckle & Son, architects, 20 Denman Street, London Bridge, S.E.

**BOURNEMOUTH.**—Nov. 4.—For erection of elementary schools in Middle Road. Deposit 2*l*. 2*s*. Mr. F. W. Lacey, architect to Education Committee, Municipal Office, Bournemouth.

**BRIGHTLINGSEA.**—Nov. 14.—For erection of a police station at Brightlingsea, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

**DORCHESTER.**—Nov. 6.—For erection of new latrines and making alterations to girls' school. Mr. J. Feacey, architect, South Walks, Dorchester.

**EARL SHILTON.**—Nov. 12.—For erection, completion and maintenance for six months after completion of new shops and stores at Earl Shilton, Leicester. Deposit 1*l*. Mr. W. T. Grewcock, architect, 8 New Street, Leicester.

**GLASGOW.**—Nov. 9.—For works required in erection of servants' block, Belvidere hospital. The Office of Public Works, City Chambers, 64 Cochrane Street.

**HARLOW.**—Nov. 14.—For erection of police station at Harlow, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

**HATFIELD.**—Dec. 2.—For alterations and additions at the Sawbridgeworth, Fawbert and Barnard County Council school. Deposit 2*l*. Mr. U. A. Smith, County Surveyor's Office, Hatfield.

**HORTON-IN-RIBBLESDALE.**—Nov. 2.—For various trades (whole or separate) in connection with alterations to Horton-in-Ribblesdale school, Yorks. Mr. Spencer E. Barrow, architect, Liverpool Bank Chambers, Lancaster.

**HUTTON.**—Nov. 13.—For supplying and erecting iron buildings at schools at Hutton, near Shenfield, Essex. Mr. G. Herbert Lough, clerk, 45 Upper North Street, Poplar, E.

**IRELAND.**—Nov. 8.—For the supply and erection of low-pressure hot-water heating plants in connection with the heating of divisions Nos. 1, 2, 3, 4, 5, 6, 7 and 8 of the Ballinasloe district lunatic asylum. Deposit 1*l*. 1*s*. Mr. G. B. Meenan, consulting engineer, 5 Charleville Road Rathmines, Dublin.

**LAMBOURN.**—Nov. 2.—For brickwork abutments for a new bridge on the Lambourn and Childrey Road; also for supplying and fixing the steel troughing and handrailing. Deposit 1*l*. 1*s*. Mr. J. Fred. Hawkins, county surveyor, Bank Chambers, Cross Street, Reading.

**LEEDS.**—Nov. 4.—For extension of Tower works, for Messrs. Harding, Richardson, Rhodes & Co. Mr. W. Bakewell, F.R.I.B.A., architect, Leeds.

**LEEDS.**—Nov. 7.—For bricklayer and mason, carpenter and joiner, plumber and glazier, plasterer, painter, slater and ironfounder's works required in erection of two separate blocks (blocks 1 and 2) at the workhouse, Beckett Street. Messrs. Thomas Winn & Sons, architects, 84 Albion Street, Leeds.

**LONDON.**—Nov. 12.—For tea-house and conveniences, Hyde Park. Deposit 1*l*. 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

**LONDON.**—Nov. 12.—For erection of a tramways car-shed at Mare Street, Hackney, for the London County Council. Deposit 2*l*. 2*s*. The Highways Section of the Architect's Department, 13 Charing Cross, S.W.

**LONDON.**—Nov. 13.—For carrying-out general repairs to the relief offices, 7 Fairfield Road, Bow; also for asphaltting work at the Guardians' Offices. Mr. G. Herbert Lough, clerk, 45 Upper North Street, Poplar, E.

**LONDON.**—Nov. 19.—For erection of a county court at Westminster. Deposit 1*l*. 1*s*. Mr. H. N. Hawks, I.S.O., H.M. Office of Works, &c., Westminster, S.W.

**MARYPORT.**—Nov. 4.—For construction of a jarrah timber slipway at Maryport, Cumberland, near the Senhouse dock, for the Royal National Lifeboat Institution. Deposit 1*l*. Mr. Quintin Moore, hon. secretary, Harbour House, Mary-

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port; or Mr. W. T. Douglass, M.I.C.E., 15 Victoria Street, Westminster, London, S.W.

**MEDOMSLEY.**—Nov. 2.—For erection and completion of fourteen houses at Medomsley, Durham; also for erection and completion of pot-house and refuse destructor at Lan- chester branch store, for the Annfield Plain Industrial Co- operative Society. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

**MONK BRETTON.**—Nov. 14.—For whole or separate tenders in connection with erection of school at Smithies, Monk Bretton, near Barnsley. Deposit 1*l*. Mr. E. W. Dyson, architect, 10 Regent Street, Barnsley.

**MORTLAKE.**—Nov. 11.—For pulling-down Castelnau House, High Street, and removing material of same. The Engineer and Surveyor's Office, the Council House, Mort- lake.

**NEWCASTLE-UPON-TYNE.**—Nov. 6.—For following works, in separate tenders, for the Guardians:—(1) Building of a covered way and the cementing of an airing-court; (2) making and fixing of iron grates and railings; (3) finish- ing with tar macadam of the main roads at the workhouse. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street, Newcastle-upon-Tyne.

**PORTSMOUTH.**—Nov. 5.—For erection of additional storey to tramway offices, North End, Portsmouth, and other works. Deposit 2*l*. 2*s*. The Tramway Engineer, Vivash Road, Fratton Grove, Portsmouth.

**RATHMINES.**—Nov. 9.—For erection of additional accom- modation at Vergemount isolation hospital. Deposit 1*l*. Mr. Edwin Bradbury, M.R.I.A.I., College Park Chambers, Nassau Street, Dublin.

**ST. BLAZEY.**—Nov. 8.—For erection of classroom at St. Blaze Council (boys) school, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

**SCOTLAND.**—Nov. 8.—For excavator, mason and brick- work, carpenter and joiner, glazier, iron and smith, asphalte, plumber, plaster, slater, harling and tiler works of new school proposed to be erected at Cardenden station, Auchterderran. Deposit 1*l*. 1*s*. Mr. William Williamson, architect, Royal Bank Buildings, Kirkcaldy.

**SCOTLAND.**—Nov. 11.—For (1) digger, mason and brick- work; (2) carpenter, joiner and ironmongerywork; (3) steel and cast-ironwork; (4) plumbers' work; (5) slaters' work; (6) plasterwork; (7) tilework; (8) gasfitters' work; (9) heat- ingwork; (10) painters' work; (11) furnishings, required in erection of addition to Greenock Academy. Deposit 1*l*. each schedule. Messrs. Boston, Menzies & Morton, architects, Greenock.

**SEAHAM.**—Nov. 4.—For construction of a steel and timber lifeboat house and slipway at Seaham. Mr. John Smith, hon. secretary, Harbour Master's Office, Seaham, Sunderland.

**SEA HOUSES.**—Nov. 2.—For erection of Primitive Metho- dist manse, Sea Houses, Northumberland. Mr. George Reavell, architect, Alnwick.

**STANLEY FERRY.**—Nov. 11.—Whole or separate tenders in connection with erection of school at Stanley Ferry, near Wakefield. Deposit 1*l*. Mr. J. Lane Fox, architect, Bond Street, Dewsbury, and 4 Oxford Place, Leeds.

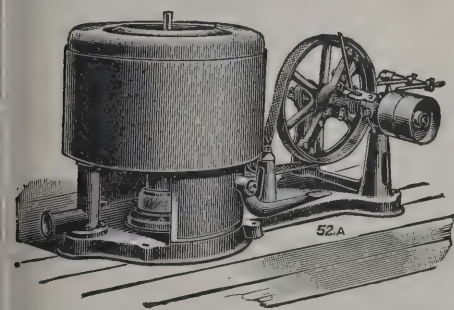
**TEDDINGTON.**—Nov. 18.—For erection of (a) 114 working- class dwellings on land situate in Shacklegate Lane; (b) 3,000 super yards of carriageway formation, and 1,450 lineal feet of sewer construction; (c) 1,000 super yards of tar paving, for the Urban District Council. Deposit 2*l*. 2*s*. Mr. M. Hainsworth, surveyor, Elmfield House, Teddington.

**TODDINGTON.**—Nov. 6.—For alterations, additions, drainage, water service, cleansing, &c., at Mill Cottage, Toddington, near Littlehampton. Mr. H. Howard, sur- veyor, Town Offices.

**TOTTINGTON.**—Nov. 6.—For rebuilding a short length of retaining wall and contingent works at Loe Bridge, Bolton Road, Hawkshaw. Mr. Lawrence Kenyon, surveyor to the Council, 33 Chapel Street, Tottington, Lancs.

**WAKEFIELD.**—Nov. 9.—For the following works, viz:— New school (builder, joiner, slater, plumber, plasterer, painter, ironfounder and smith) at Normanton Common; additions and alterations (whole trade, builder, plumber) at Thorpe Salvin provided school, near Sheffield; altera- tions, &c. (builder, joiner, slater, plumber, plasterer, heating engineer, asphalter) at Carleton (Pontefract) pro- vided school; additions and alterations (builder, joiner, plumber, painter, asphalter) at Langsett provided school,

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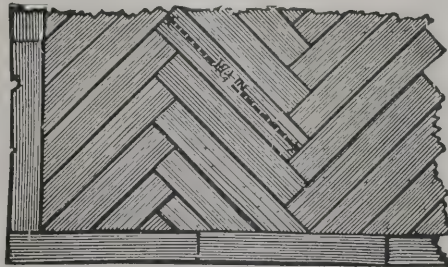
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WALES.—For erection of new north aisle, St. Paul's Church, Sketty, Swansea. Deposit 5*l*. Mr. Glendinning Moxham, architect, 39 Castle Street, Swansea.

WALES.—Nov. 4.—For renovating and altering houses on Newfoundland Terrace and Watkins Court, Merthyr Tydfil. Mr. C. M. Davies, High Street, Merthyr Tydfil.

WALES.—Nov. 4.—For building additional schoolroom, new galleries and reseating, also decorating Bethesda Presbyterian chapel, Ebbw Vale, Mon. Mr. H. Batten, Dalmeny House, Ebbw Vale.

WALES.—Nov. 6.—For erection of Government offices at Bangor. Deposit 1*l*. is. H.M. Office of Works, &c., Storey's Gate, S.W.

WALES.—Nov. 6.—For erection of the Bethlehem Welsh Congregational church, Eyre Street, Splotlands, Cardiff. Deposit 2*l*. 2s. Messrs. Habershon, Fawcner & Co., architects, Tredegar Estate Offices, 14 Pearl Street, Roath.

WALES.—Nov. 6.—For partly rebuilding, altering and renovating the Labour Club and Institute, Lake Street. Messrs. Lewis & Morgan, architects and surveyors, Market Street, Pontypridd, and 55 Dunraven Street, Tonypandy.

WALES.—Nov. 7.—For carrying-out alterations and additions to the Holton Road Council schools, Barry. Deposit 2*l*. 2s. Mr. G. A. Birkenhead, architect, Caledonian Chambers, St. Mary Street, Cardiff, and 21 Park Avenue, Barry.

WALES.—Nov. 11.—For erection of schools at Tallstown, Cwm, Ebbw Vale, together with caretaker's house, boundary walls and other works. Deposit 3*l*. 3s. Messrs. Henry Walters & Stanley Hutchins, joint architects.

WALES.—Nov. 13.—For carrying-out foundations for the proposed temporary school at Caerau, and also erection of permanent offices and playsheds, for the Glamorgan County Council. The County Offices, Westgate Street, Cardiff.

WALES.—Nov. 14.—For construction of new stabling and latrines, &c., at the County hotel, Ebbw Vale. Mr. Hy. Waters, architect, Market Chambers, Ebbw Vale.

WESTCLIFF-ON-SEA.—Nov. 14.—For erection of police quarters. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WIMBLEDON.—Nov. 15.—For the erection of a pair of semi-detached houses in Durham Road, Raynes Park. Messrs. Belfrage & Savile, architects, 27 Chancery Lane, W.C.

CONSUL L. E. DUDLEY, who represents the United States in Vancouver, British Columbia, reports that at the rate at which timber licenses are now being taken it is estimated the Canadian Government will realise during the present year 750,000 dollars from new licenses and 500,000 dollars from renewals. American capitalists are leading in the acquirement of timber leases. A St. Paul, Minn., company recently purchased 261,000 square miles of timber lands, partly on Vancouver Island, the remainder upon the mainland, paying about 5,000,000 dollars for the same, and proposes building six large sawmills at once. One American is said to have realised more than 1,000,000 dollars profit upon his holdings acquired in the last few years. The provincial lands are not sold, and all logs cut upon such lands must be manufactured within the province. The lands now changing hands by sale and purchase came into private hands before the enactment of the law now in force. Each person leasing timber lands pays 150 dollars a year, and the leases may be renewed or continued for twenty-one years. When the timber is cut a royalty of 50 cents a thousand feet is payable. It is understood that the provincial Government has reserved the right to raise the license fee or to increase the amount of the royalty when it seems good policy to do so. The price of logs in this market recently fell considerably, while wages remain at the high figures reached some time ago. The lumbermen are no longer embarrassed for cars for shipping lumber and shingles to the East. Taken altogether, the condition of the lumber industry is most prosperous.

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LONDON—continued.

For erection of first portion of the Bow tramways car-shed.

Holloway	£30,300	0	0
Lawrance & Sons	29,584	0	0
Foster & Dicksee	28,983	0	0
Kirk & Randell	28,964	0	0
Patman & Fotheringham	28,921	0	0
Mowlem & Co.	28,800	0	0
Lovatt	28,266	0	0
McCormick & Sons	27,500	0	0
Holland & Hannen	27,260	0	0
Holloway Bros. (London)	27,164	0	0
Kerridge & Shaw	26,979	0	0
Carmichael	26,897	0	0
Leslie & Co.	26,589	0	0
Works committee	25,512	0	0
F. & H. F. Higgs	25,414	0	0
Wall, Ltd. (recommended)	25,393	1	5

For enlargement in the neighbourhood of Amwell Marsh and Amwell Hill (New River) pumping station.

McAlpine & Son	£5,442	19	0
Mowlem & Co.	5,214	0	0
Hay & Co.	5,128	7	10
Aird & Sons	4,992	13	8
Docwra & Son	4,798	8	6
Manders (recommended)	3,421	16	2

For the erection of sorting office at Holloway.

Allen & Sons	£3,250	0	0
Ansell	2,662	0	0
Smith & Sons	2,589	0	0
Dolman & Mathews	2,573	0	0
Patman & Fotheringham	2,493	0	0
McCormick & Sons	2,487	0	0
Willmott & Sons	2,450	0	0
Dearing & Son	2,489	0	0
Chessum & Sons	2,405	0	0
Christie	2,383	0	0
Galbraith Bros.	2,323	0	0
Coles	2,283	8	0
Foster	2,255	0	9
Behrend	2,275	0	0
Perry Bros.	2,197	0	0
J. & W. DRAKE (accepted)	2,173	9	0

MAYFORD.

For sanitary works at Mayford Industrial school (L.C.C.).

Mills & Son	£1,662	15	0
Pain & Son	1,635	0	0
Wallis & Bennett	1,536	0	0
Jennings, Ltd.	1,478	0	0
Ricks with R. Cushion	1,447	0	0
Drowley & Co.	1,379	0	0
Harding & Son	1,296	12	6
BEATTIE, 8 Lower Grosvenor Place (accepted)	1,294	0	0
Architect's estimate	1,260	0	0

PONTNEWYDD.

For construction of cesspit and filtering tank, &c. Mr. GEORGE JONES, surveyor, Pontnewydd.

Dyson, Parfitt & Co.	£240	0	0
Parfitt	225	0	0
POULTON & WHITING, Pontnewydd (accepted)	197	10	0

REIGATE.

For installation of low-pressure hot-water system at parish church.

Davis & Co.	£257	10	0
Grundy	257	0	0
Marriage & Co.	224	17	6
TAMPLIN & MAKOVSKI, Reigate (accepted)	174	0	0

SAFFRON WALDEN.

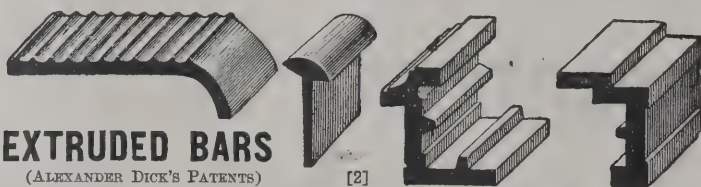
For demolition of old and erection of new stores in High Street. Mr. F. P. TREPES, architect, Warwick.

Staines	£1,980	0	0
Saunders & Sons	1,854	0	0
Newberry	1,850	0	0
Cristerson	1,776	0	0
Hunt & Son	1,687	0	0
Bloxham	1,677	0	0
Lindfield & Son	1,668	0	0
FINCHER & Co., Stratford-on-Avon (accepted)	1,575	0	0

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**SOUTHGATE.**

For erection of Council school at Hazelwood Lane. Mr. H. G. CROTHALL, architect, Guildhall, Westminster, S.W.		
Mattock & Parsons	£9,575	0 0
Leslie & Co.	9,441	0 0
Renshaw	8,989	0 0
Fryer & Co.	8,847	0 0
Johnson & Co.	8,692	0 0
Gough & Co.	8,578	0 0
Harris & Co.	8,450	0 0
Fairhead & Son	8,323	0 0
Treasure & Son	8,313	0 0
Lawrence & Son	8,194	0 0
Johnson & Son	7,998	0 0
Rowley Bros.	7,997	0 0
Knight & Son	7,890	0 0
MATTOCK BROS. (recommended)	7,847	0 0

**TRING.**

For providing, laying and jointing of about 6,500 yards of stoneware pipe sewers, with manholes, &c. Messrs. WILLCOX & RAIKES, engineers, Birmingham.

Williams	£4,149	16 3
Watson, jun.	3,880	0 0
Ford	3,871	0 0
Fincher	3,793	0 0
Adams	3,722	5 4
Osman	3,500	0 0
Pedrette & Co.	3,475	12 3
Lock, Andrews & Price	3,469	19 6
Willmott	3,460	0 0
Henson & Son	3,450	0 0
Manders	3,390	2 11
Green & Co.	3,387	0 0
Woodham & Sons	3,387	0 0
Parry & Co.	3,350	0 4
Langley & Johnson	3,301	0 0
Rowell & Sons	3,292	4 0
Moran & Son	3,196	12 10
Osenton	3,179	0 0
Willis & Powis	3,164	15 1
Fry	3,150	3 9

**TRING—continued.**

Bell & Sons	£3,097	0 0
Jackson	3,071	6 4
Edwards & Co.	3,032	16 7
Powdrill	2,993	13 0
Dean & Co.	2,991	14 5
HONOUR & SON, Tring (accepted)	2,798	0 0
Buckley	2,797	12 10

**TWICKENHAM.**

For erection of secondary school for girls and technical institute at Clifden Road. Mr. H. G. CROTHALL, architect, Guildhall, Westminster.

Cubitt & Co.	£14,670	0 0
Appleby & Sons	14,200	0 0
Spencer, Sauto & Co.	14,157	0 0
Barker & Co.	13,877	0 0
Leslie & Co.	13,875	0 0
Messom & Co.	13,755	0 0
Bollom	13,716	0 0
Renshaw	13,666	0 0
Treasure & Son	13,601	0 0
Martin, Wells & Co.	13,545	0 0
Dickens	13,269	0 0
Johnson & Co.	13,185	0 0
Chessum & Son	12,985	0 0
Minter	12,976	0 0
Hawkins & Co.	12,971	0 0
Dorey & Co.	12,748	0 0
Lawrence & Son	12,672	0 0
Knight & Son (recommended)	12,483	0 0

**WALES.**

For street works in second section of Parcmain Street. Mr. F. J. FINGLAH, borough surveyor. DAVIES, Carmarthen (accepted) £498 0 0

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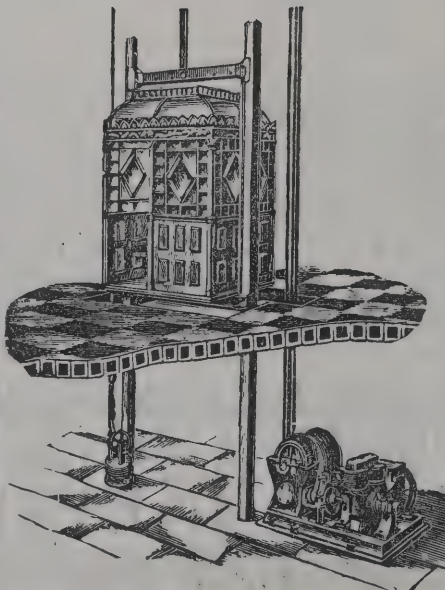
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Potterton	£4,465	0 0
Willis	4,450	0 0
Leather	4,217	0 0
Gage & Sons	4,077	0 0
Tarrant	4,011	0 0
Bulled & Co.	3,997	0 0
Higgs	3,976	0 0
Patman & Fotheringham	3,971	0 0
Jones & Sons	3,963	0 0
Burges & Son	3,924	0 0
Blake	3,850	0 0
Lawrence	3,799	0 0
F. & G. FOSTER (accepted)	3,755	0 0

WANTAGE.

For brickwork abutments for bridge known as Gallows Ham. Mr. J. F. HAWKINS, surveyor, Reading.		
Ellis	£215	7 6
Barrett	184	12 1
Wheeler & Co.	165	0 0
RANDALL, Abingdon (accepted)	135	0 0
For steel troughing and handrailing for bridge known as Gallows Ham. Mr. J. F. HAWKINS, surveyor, Reading.		
Ellis	£147	0 0
Barrett	144	0 0
BALLARD & SON, Abingdon (accepted)	142	0 0

WARWICK.

For providing and fixing gas mains and fittings, exterior painting and other repairs and alterations at the work-house, Warwick. Mr. F. P. TREPESS, architect.		
<i>Painting and repairs.</i>		
Lapworth	£299	10 0
Dankes	261	9 0
Bailey & Co.	245	0 0
McDonald & Hunt	234	0 0
Thomas & Son	230	4 0
Chaplin	196	8 0
Wallsgrove	180	0 0
Diss	179	9 0
GATHERCOLE, Leamington (accepted)	178	0 0

WARWICK—continued.  
Gas.

Stott & Co.	£195	15 0
Bailey & Co.	164	0 0
Reynolds & Co.	152	10 0
Leamington Gas Co.	149	16 1
McDonald & Hunt	145	0 0
Hammond	138	10 0
Riley	132	0 0
Horncastle & Son	120	0 0
WARWICK GAS CO., Warwick (accepted)	95	10 0
Wynn	90	15 6

Iron staircases, &c.

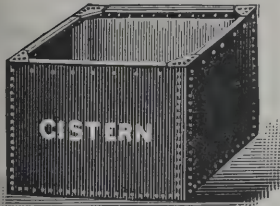
Bailey & Co.	329	19 0
McDonald & Hunt	326	10 0
Horncastle	281	0 0
GATHERCOLE, Leamington (accepted)	240	13 6
Chaplin	231	18 0
Emery	151	15 0

For alterations and repairs to St. Mary's Upper Almshouses, Saltesford. Mr. F. P. TREPESS, architect.		
Cashmore & Sons	£508	12 0
Palliss	480	0 0
Sheasby & Hollis	473	17 0
Chaplin	432	10 0
CASHMORE, Warwick (accepted)	415	0 0

WINCHESTER.

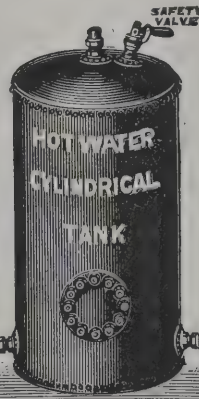
For extension of north end of Cheriton Road, with surface-water drains, &c., for the Ecclesiastical Commissioners. Messrs. CLUTTON, Westminster, and Messrs. LEMON & BLIZARD, Southampton, surveyors.		
Trueman	£1,079	0 0
Wilcox	950	9 7
Hewitt & Sons	860	12 6
Wheeler	829	10 0
Wort & Way	825	0 0
Osman	820	0 0
Paddington	805	0 0
Coston & Co.	788	0 0
Turner	760	0 0
DOUGLAS, Southampton (accepted)	757	0 0

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## TRADE NOTES.

MESSRS. D. G. SOMERVILLE & Co. have secured the contract on their design for constructing all roofs, arches and ceilings in reinforced concrete for St. Charles College Chapel, Notting Hill.

THE new chapel for the Bedford Grammar School is now nearly completed, the architect being the late G. F. Bodley, R.A. The whole of the stone employed is Monks Park, from the quarries of the Bath Stone Firms, Ltd.

A LARGE clock has just been erected in the church tower of Kimbolton, Hunts, by Messrs. John Smith & Sons, Midland Clock Works, Derby. It is fitted with all modern improvements, and is made generally to the designs of the late Lord Grimthorpe.

UNDER the direction of Messrs. W. O. & O. P. Milne, architects, 77 Chancery Lane, E.C., the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the West Lynn schools, Norfolk.

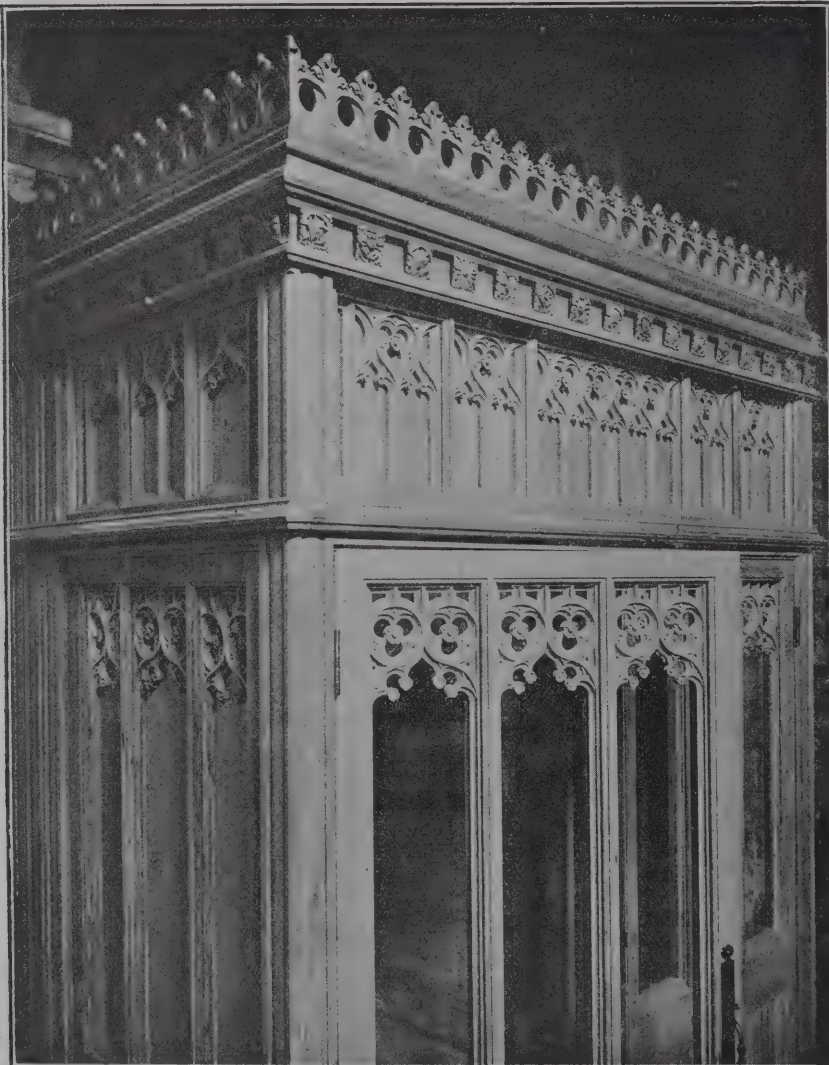
MESSRS. J. LONGBOTTOM & Co., of Belgrave Foundry, Leeds, have the following installations in hand or have just fixed:—Shaugh Prior Church, near Plymouth; St. Martin's-by-Looe, Cornwall; Coleby Church, Lincoln; Redruth Technical Schools, Cornwall; Hutton Cranswick Church, Beverley; Saltash Mission Hall, Plymouth; Stokenham Church, Kingsbridge, Devon; Alfriston Church, Berwick, Sussex; Riccall Church, near Selby, Yorks; St. Mark's Church, Leeds; Muker Church, Swaledale, Richmond, Yorks; and Aberford Church, near Leeds.

THE judges in the competition for the best tar-spreading machine and the best preparation of tar for road purposes have awarded the first prize for the best tar-spreading machine to Thomas Aitken, County Buildings, Cupar-Fife, for "Aitken's Pneumatic Tar Sprayer," and the second prize to Tarspra, Ltd., of 20 Victoria Street, London, S.W., for their "700-gallon Thornycroft 'Tarspra' Motor Van." The prize for the best preparation of tar for road purposes has been awarded to Messrs. R. S. Clare & Co., Ltd., of Liverpool, for their "Clare's Patent Tar Compo."

## ELECTRIC RADIATORS.

If cheapness, artistic design and efficiency are recommendations, then the electric radiators of the Dowsing Radiant Heat Co., Ltd., are sure of success. In the first place, the metal radiator is produced in a great variety of styles. It can be obtained of a square or rectangular type in wrought-iron with copper, or coppered all over, in a fan-shaped form, or in a style allied to Adam's, Chippendale or Sheraton work, or of a modern French type. It can also be procured in setting of Doulton's majolica ware. The radiators are therefore adapted for business premises, offices, dining-rooms, drawing-rooms or boudoirs. As to price, one can be obtained with two heat lamps as low as 1*l.* 17*s.* 6*d.*, and four lamps can be obtained for 2*l.* 15*s.* Handsome fan-shaped radiators in copper and brass can be purchased for 5 guineas and 6*l.* 10*s.* Some have the advantage of portability, and they can therefore be placed in different parts of a room according to circumstances. The radiators have been adopted in Buckingham Palace, Windsor Castle, the Royal Yacht, in Government offices, in municipal offices, asylums, theatres, banks. But perhaps the best testimony to their utility is derived from their purchase by various electric supply companies and electric lighting companies. They can be employed not only in interiors but out of doors, and they are quite safe in gunpowder rooms. There is no waste with them, and no smoke, dust or contamination of air.

THE Perth Town Council have had a conference with Mr. J. J. Burnet, A.R.S.A., the assessor, in connection with the new City Hall, as to the conditions under which the competition for the plans of the new hall will take place. It has been decided that the first prize plan is to secure the building of the hall, but no premium will be paid to the author. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded to the architects whose plans are placed second, third and fourth respectively. The entire square is included, and the situation of the new hall is left to the architects. Seating accommodation is to be provided for 2,000 people, so that the hall when crowded will hold considerably over that number. The plans must be lodged with the town clerk not later than February 1, 1908.



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ENTRANCE LOBBY—MARBLE STAIRCASE—LAVATORY—UPPER LAND-  
ING—GENERAL OFFICE—THE BOARD-ROOM.

BOROUGH OF BIRKENHEAD CENTRAL PUBLIC LIBRARY.

## DOULTING STONE.

A SMALL residence called "Stileman's Copse," at Munstead, near Godalming, for Mr. E. P. Arnold, has been completed from designs by Sir Chas. Nicholson, Bart., and Mr. H. C. Corlette, architects. The principal features are two canted bay windows on the south front going the whole height of the building, with the main cornice breaking round and a projecting porch on the north front. The walls are of local stone with brick backing, and the window dressings, cornice, &c., are of Doulting stone supplied from the Chelynch beds by the Ham Hill and Doulting Stone Company, Ltd. Messrs. Nicholson & Corlette are also carrying out the rebuilding of St. Martin's Church, Epsom, now in course of erection by Messrs. Benfield & Loxley, of Oxford. The cost when completed will be about 15,000*l.*, and Doulting stone supplied from their Chelynch beds by the Ham Hill and Doulting Stone Company, Ltd., is being used for the dressings, traceries, &c., with walls of rubble masonry. The church is vaulted throughout and is being built on the site of the old one.

## PRESERVATION OF WOOD.

TIMBER, like all organic substances, is liable to decay. But fortunately science has been able to find remedies. If the Egyptians were able to preserve animal substances for two or three thousand years, it seems a comparatively more simple task to act upon the fibres of timber. Messrs. C. A. Peters, Ltd., are not satisfied with simply describing their preservative which is known under the title of "Carbolineum Avenarius." They tried experiments several years ago, and they have taken the precaution to have specimens signed and sealed by officials in Germany. One

is a piece of fencing which has been preserved for twenty-five years, another for ten years, a third fourteen years and so on. In contrast with these, specimens of untreated timber are also shown. Vine posts, which were pointed, have retained their sharpness for over twenty years. All this is not magic. It is simply an application of science which acts upon the parts liable to decay, and which is also fatal to insect enemies of timber. Wood-paving blocks have likewise been subjected to the process; and among the London streets where they have been laid down are Northumberland Avenue, Whitehall, Duncannon Street, Endell Street and Harley Street. The preservative is applicable to all classes of timber required in construction, as well as sleepers, telegraph poles, signal posts, gates, fencing, bridges, piers, &c. There is a special preservative called Sotor which is adapted for timber which is liable to the destructive attacks of the sea-worm, and the prism anti-oxide is effectual against the rusting of metals.

MESSRS. HAMPTON & SONS, at the Mart, Tokenhouse Yard, on Tuesday offered for sale a newly-erected block of buildings known as Queen Anne's Chambers, situated between Victoria Street and St. James's Park. The property has frontages to Broadway, Tothill Street and Dean Farrar Street, and a superficial area of about 35,000 feet. The accommodation comprises over 570 rooms, with eight shops; the actual and estimated rentals amount to 25,000*l.* per annum, and the property is held by lease from the Ecclesiastical Commissioners for a term of 999 years from Christmas 1898, at a ground-rent of 2,687*l.* 14*s.* 10*d.* per annum. Mr. W. Roland Peck, who occupied the rostrum, suggested 150,000*l.* as a start. The first bid was 130,000*l.*, and by six advances 143,000*l.* was reached, at which a sale was declared.

At the next meeting of the Derby Town Council the special drainage committee will, it is understood, ask for a grant of 25,000*l.* in order to complete the new sewerage works. The cost so far has amounted to about 350,000*l.* The extra cost is for additional filter tanks at the Spondon outfall works, the eighteen already fixed having proved insufficient.

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East Greenwich, S.E.

Office: 75 Bath Street.  
Pinkston Works,  
Port Dundas.

Office & Works:  
Trafford Park.

Section Books & Stock Lists on Application



## VARIETIES.

It is announced that Mr. J. B. Duckworth, of the firm of Muir, Duckworth & Co., has joined the Head Office Board of the London and Lancashire Fire Insurance Company.

A new theatre is to be built in Dundee in the vicinity of Murraygate. A site has been secured by Mr. R. A. P. Williams, the manager of the Gaiety Theatre, Dundee. Accommodation will be provided for 3,000 persons.

At a public sale at Rochdale last week a row of nine houses in Lomax Street, Rochdale, was sold for 50%. After meeting all charges against the property there remained over 22% a year.

The City Council of Vienna has voted 1,250,000% for the extension of the municipal gasworks. The work will be spread over seven years, and it includes very large additions to the existing gasworks and the erection of entirely new plant in 1911, when the remaining contracts of the British company known as the Imperial and Continental Gas Association will expire.

MISS JEKYLL, the authoress of "Old West Surrey," has placed her collection of old cottage furniture, ironwork and objects of domestic antiquity at the disposal of the Council of the Surrey Archæological Society. There is probably no collection in England of equal value in its kind. The Council have accepted the gift, and there only now remains the provision of means to enable it to be shown to the public, either at the Society's museum, Castle Arch, Guildford, or elsewhere.

AFTER deliberations extending over nine years, and much delay in consequence of legal difficulties, Evesham appears likely soon to secure a public hall more suitable to the requirements than the existing buildings. At a special meeting of the Town Council on Tuesday it was agreed that application should be made for sanction to borrow a sum not exceeding 8,000% for the alteration and enlargement of the public library and institute buildings.

At the sitting of the Alloa Dean of Guild Court, Dean of Guild Wilson, who presided, in submitting a statement regarding the business of the Court for the past year, said the estimated value of the dwelling-house property was 6,463%, as against 10,227% in the previous year; while the average

for the last five years was 14,825%. The estimated value of works and shops was 5,077%, as compared with 3,428% last year, the average for the last five years being 11,090%.

DURING a discussion at a meeting of the Swanage District Council respecting the repairing of a pavement, it was stated that one of the stones recalled the time of Judge Jeffreys and the Bloody Assize, several of the condemned prisoners having been hanged on the gallows from the stone, which had been taken from its original position and placed in the pavement about fifty years ago. The Council agreed to hand it over to a local gentleman who desired to restore the stone as near as possible to its original position, so that it might be preserved as a memorial.

THE plans and specifications for the construction of the embankments, discharge culvert and other works in connection with the raising of the level of Loch Arklet are now in an advanced state of preparation. The water committee recommend that Mr. George H. Hill, C.E., Manchester, who was consulting engineer in connection with the preparation of the Parliamentary plans, be appointed to consult with Mr. J. R. Sutherland, the water engineer, in regard to the carrying out of the works.

THE report of the sanitary committee of Pollokshaws Town Council, who were inquiring into various phases of housing in the burgh, has just been issued. The committee state that there is no such scarcity in the class of workmen's houses as to demand that the Town Council should embark upon a housing scheme. It is also the opinion of the committee that it is not the proper policy of the Town Council to build inferior houses to be let at rents which would attract the lowest class of occupiers. The policy of the Town Council should rather be to encourage the building of a fair class of workmen's houses, and at the same time to use pressure to close uninhabitable dwellings.

MR. WILSON Fox's report to the Board of Trade on conciliation boards has been issued. It shows that 194 conciliation boards and committees, affecting more than a million and a quarter of workpeople, are in existence, and that friendly discussion at meetings of these bodies, which represent employers and employed, is now a very generally recognised method of settling wages and other matters in dispute in most of the principal trades of the United

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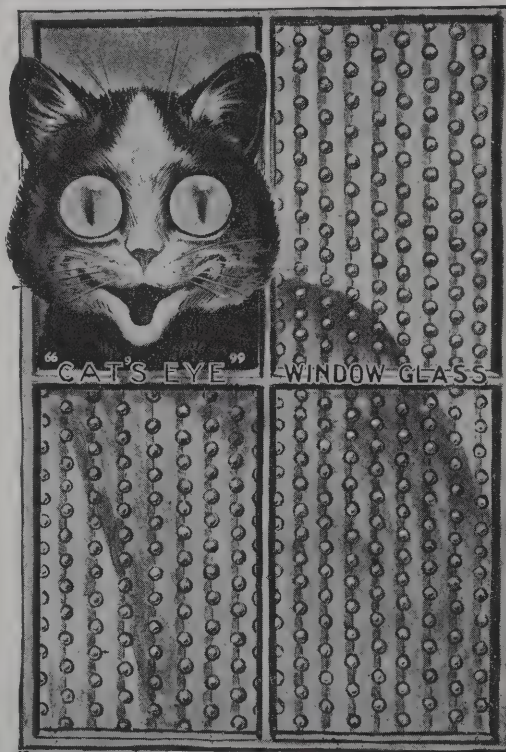
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kingdom. The value of boards as a means of preventing stoppages of work is shown by the fact that in the majority of cases the rules provide that no suspension of work shall be brought about by either party until the question in dispute has been considered by the Board. Of 7,248 cases settled by conciliation boards in the last ten years only ninety-one, or 1 per cent., were preceded by stoppage of work. The most important boards settle a deadlock by reference to arbitration.

ELECTRIC NOTES.

THE electric-lighting committee of Edinburgh Town Council recommend the Council to supply current to the forthcoming Scottish National Exhibition at a charge of 2d. per unit, with a minimum charge of 1,900l. It was estimated that 328,000 units would be required both for power and lighting, and this is calculated to be equal to a charge between 2,000l. and 3,000l. In connection with the exhibition the electric-light mains will be extended from Orgie and Murrayfield to Saughton.

COLONEL DRUITT, of the Board of Trade, in his report on the Bradford tramway accident last August, when a car ran down a steep decline and fourteen persons were injured, says it was found an axle was broken, but had the slipper brake been more fully applied before the car came to the steepest part of the decline, no runaway would have occurred through the axle breaking. What is required, he says, for cars on steep gradients is a mechanical slipper brake that can be applied practically instantaneously, as once a car gets out of control on a steep gradient, it is impossible to stop it with the brakes at present in ordinary use.

THE Union of German Electrical Industries have dissented from the advisability of reducing prices in consequence of the fall in copper. It was asserted, however, that in spite of the position of copper, there was still less margin of profit than was the case a few years ago, and that therefore advanced prices must be maintained. Regarding raw material it was stated that it was only in copper, which had gone up about 100 per cent. since 1904, that any reduction had occurred, whilst wages and coal still show a decided

tendency to rise. The advances which have had to be made in selling prices from time to time were said to have been considerably less than sufficient to cover the extra works cost, so that the reduction in copper is merely to be regarded as a factor in favour of the electrical companies and not in favour of their customers. It was also stated that the works were busy and had plenty of orders on the books.

A PARLIAMENTARY return published on Friday gives the numbers of persons killed and injured by the "live" rail on railways in the years 1904, 1905 and 1906, and in the first eight months of 1907. During the whole period 16 persons have been killed and 71 injured. Of those killed 4 were railway servants and 12 trespassers on the lines. The injured included 40 railway servants, 1 passenger, 5 persons on business and 25 trespassers. The total figures for the respective years were:—1904, 8 killed, 20 injured; 1905, 2 killed, 18 injured; 1906, 4 killed, 21 injured; first eight months of 1907, 2 killed, 12 injured. The largest proportion of casualties occurred on the North-Eastern Railway, where 8 persons have been killed and 28 injured. The Lancashire and Yorkshire had 5 killed and 19 injured.

THE Dundee electricity committee have had under consideration the allocation of contracts for the plant and equipment of the new generating station to be erected at Carolina Port. The engineer recommended acceptance of the tender of Messrs. Willans & Robinson, Rugby, amounting to 18,676l. 16s. 6d. for the complete generating plant, including condenser, and that of Messrs. Babcock & Wilcox, amounting to 14,935l., for the boilers, &c.; and further, that the same firm's tender of 2,125l. for brickwork settings for boilers and economisers be accepted. In view of the importance of the matter it was remitted to the convener and Mr. Nairn, along with the engineer, to visit Glasgow and other places for the purpose of seeing certain types of turbo-alternators and boilers in operation before coming to a decision. The steam generating plant of the new station consists of four Babcock & Wilcox boilers, economisers, coal handling plant, bunkers, railway sidings, wagon pipe conveyers, mechanical stokers, &c. The electrical generating machinery to be installed consists of two 2,000 k.w. (3,000 h.p.) turbo-alternators of the horizontal type.

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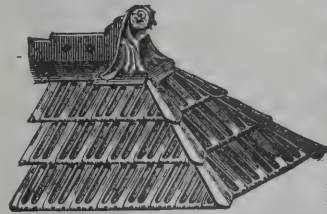


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**REFILLING TRENCHES IN STREETS.\***

It is pleasing to note that recent issues of engineering periodicals have devoted prominent space to this matter, which is both one of the most important and one of the most generally neglected matters that municipal officials and contractors have to meet in connection with street work.

One of the articles referred to quotes from specifications of the West Park Commissioners of Chicago, which are incorporated in permits granted for making excavations in streets to reach underground service pipes. From the quotation the following extract is of special interest:—

"All material excavated from any trench under paved roadways must be removed from the boulevard; said trench being refilled with clean cinders, sand, gravel or crushed stone, placed in layers not exceeding 6 inches in depth, thoroughly compacted with heavy hand rammers, using the necessary amount of water to complete perfect consolidation of the back filling."

This specification is certainly on the safe side, but for general use in many, if not most cases, it seems to the writer unnecessarily severe and expensive in the requirement that all material excavated from any trench must be removed from the street and replaced by cinders, sand, gravel, crushed stone, &c.

In the case of West Chicago Park boulevards such a general stipulation may be justified by either:—

(a) The importance of not littering the boulevards any more than absolutely necessary and of maintaining their fine appearance as constantly as possible, or

(b) The knowledge, if it is a fact, that the subsoil underlying this section of Chicago is of a character which, after once being disturbed, is unsuitable for backfilling of trenches. Whatever may be the reason and justification for such a claim by the Chicago West Park Commission (and I assume it is justified there), this should not be set out as a generally suitable provision and for all cities and all classes of subsoil. I do not want to be understood as advocating the withdrawal of one iota of the greatest precaution and care in this important matter of backfilling

\* A paper by George C. Warren, read before the Detroit Convention of the American Society of Municipal Improvements.

trenches, carelessness in which is costing an aggregate of hundreds of thousands of dollars annually in damage to pavement and vehicles. On the contrary, my purpose is to endeavour to point out the importance of the matter, and suggest practicable, general requirements for overcoming the difficulty in the most economical way as to the particular case.

With a quarter of a century of experience in street paving throughout the United States and Canada, I believe I have met the matter of backfilling of trenches in all of its possible phases, and I appreciate that it is a difficult matter to draft a specification which will (a) efficient results and (b) a basis of payment for the work which will insure the greatest practicable economy to the city and fairness to the contractor.

The greatest difficulty arises from the fact that the method of treatment and its cost vary very widely with the character of subsoil, which often varies very greatly within the limits of one sewer or water or gas main trench; often cannot be foreseen and often varies with the weather conditions (wet or dry) which happen to prevail.

Before attempting to offer a solution I will mention a few instances which have come to my notice. There is a popular notion that trenches should be allowed to settle a year before paving and that then the work is safe. This is not only a fallacy which breeds carelessness in construction, where it is thought no pavement will be laid in a year or more, but it is impracticable to defer paving until a year or more after all mains and house connections are made, equally impracticable to avoid cutting into pavement for installation of and repairs to service pipes, although the latter can be guarded against by the exercise of reasonable precaution much more than is generally done.

We all know that by careless or indifferent backfilling of trenches unpaved streets are often rendered dangerous and nearly impassable for years. I remember about fifty years ago an instance in one of our older cities, where asphalt pavement was being laid, replacing an old cobble pavement. The cobbles and a few inches of the underlying earth necessary to provide the sub-grade were removed, the sub-grade rolled with a steam-roller and a concrete foundation laid. While the concrete was "setting" there had been a good deal of rain, and at one point in the street

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the concrete settled and developed a hole, into which a hoe handle was inserted the full length without finding the bottom of the hole. Investigation and subsequent examination developed a serious hollow, several feet deep, about two feet below the service and over 200 feet long over a sewer which had been laid twenty-five years before, and doubtless backfilled in what is still the quite generally customary way of merely throwing the earth loosely back into the trench. In this case a crust or arch of solid earth had become formed, which did not develop the hollow below until the excavation for the new pavement removed a part of this crust, and the rains caused the balance of the crust in one spot to fall into the hole. In another instance no trouble developed in the construction of an asphalt pavement laid on concrete foundation, but three years later a horse's hoof broke through the surface of the pavement and he broke his leg. Here examination revealed a hole 6 feet deep, which it took fifty loads of earth to fill, over a sewer trench ten years old.

It is very common for a pavement to settle a year or more after it is laid along the line of a sewer trench filled several years before the pavement, where no trouble developed during the rolling and laying of the pavement. It is still more common to find almost insurmountable difficulty from settlement of old trenches while the paving work is in progress.

So much for the theory that, however carelessly a trench or fill is made, it will settle itself within a year. On the other hand, I have never known of a case where trouble has followed from the settlement of sewer or service-pipe trenches made immediately before the laying of the pavement where I had supervision of the backfilling, even with very treacherous soil conditions. I would far rather take my chances on the guarantee of a pavement laid immediately after a sewer trench, the filling of which I could control, than five years after the laying of a sewer, the trench of which was filled with the generally customary carelessness and usual view to the least possible cost only.

About two years ago I was going over a street about two miles long in the Middle West, for the paving of which bids were about to be received. A sewer, the trench of which was from 15 to 20 feet deep to a clay soil, was being built, using an excavating machine which backfilled without

tamping. On account of the looseness of the fill the level of the roadway over the trench was being raised about 18 inches, sloping to nothing near the edge of the road. An inspector was standing over the work, and I asked him to show me the specifications. They clearly provided for "thorough tamping of the trench in courses, not more than 6 inches." On calling the inspector's attention to the provision he first claimed that it only referred to paved streets. I showed clearly that this was not the case, and explained that my interest in the matter was as a bidder and possible contractor for the pavement to follow, and received the following retort:—"You don't shuppose Misther Murphy (naming the contractor) is going to fill the sewer for youse!" The outlet of the same sewer passed through a paved street, which I found was actually being filled, without any tamping whatever, with tipcarts loaded from the excavation by buckets and hoisting engines. An appeal to the engineer brought a promise to investigate any continuation of the trouble, and further inquiry brought out the explanation why this provision of the specifications was not generally complied with—that contractors did not figure on doing so; that the price showed the contractor did not figure on doing so, and so it would be a hardship to force him to the expense, and that as the pavement would not be laid for a year the trench would probably be settled by that time. This is only a somewhat aggravated case of what happens to-day, I believe, in fully three-fourths of the sewer-trenches which are being built every year.

Now for the remedy, which is more difficult than to call attention to the common faults.

In case of permits to public service corporations, plumbers and abutting owners to cut into the streets, whether paved or unpaved (the former is but little more important than the latter) it is only necessary to stipulate in the permit that "the trenches shall be backfilled by such means as the city engineer may direct, depending on the character of the excavated material, in such a manner that all excavated material shall be replaced in the trench without raising the grade of the roadway. Flushing will only be permitted in cases where the subsoil is sand or gravel or other material from which the surplus water will readily drain away."

In criticism of this proposed requirement reference may

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be made to the volume of the pipe. My reply is that except in trunk sewers (which do not apply to the permits referred to) the volume of the pipe is so little, in comparison to the volume of the trench, as to be insignificant, and it is well known that, in ordinary cases, more earth can be tamped into a trench than is removed from it. There is the familiar farmer's post hole, which will take the earth removed from the hole and the post besides. In my judgment the only case where the rule of "get back all the dirt" cannot apply is in rock excavation, in which case, the breaking up of the rock nearly doubles its volume, and the pieces of rock are so large that they cannot be replaced, to their original density.

In the case of contract work for sewers, &c., the case is more difficult, in view of the necessary uncertainty of conditions to be met under ground and consequent uncertainty of the most economical way to properly backfill the trench and consequent impracticability of the contractor accurately figuring in advance what the cost per linear foot will be. On this account some contractors are sure to bid far too low to permit proper work, and others figure "safe," with the probability that if they happen to receive the contract the price will be too much advance on the probable cost. In one case the city has the almost impossible task of forcing the contractor to do proper work when the price is too low to permit it without loss. In the other case the probability is that the city will pay too much for the work. An effort should be made to avoid both evils.

#### IMPERMEABLE CONCRETE.

ONE of the most desired characteristics of concrete at the present time in connection with its physical resistance to the results of loading is impermeability to water. Although the ultimate compressive resistance of the strongest concrete is far below that of the best natural building stones, it is high enough to meet the exacting requirements of masonry in most engineering structures, and its lack of tensile resistance is effectively cured by steel reinforcement. In spite of the fact that its real merits, intrinsically of a high order, have at times been greatly exaggerated and grossly

overworked by ignorant and ill-judged advocates, concrete is rapidly becoming one of the most valuable of all our structural materials for engineering purposes, if, indeed, it has not already reached that position. It is employed in many cases where its main function is that of carrying loads, but at the same time where the quality of real impermeability would add greatly to its value. This is not only true in an extended range of engineering structures, such as dams and aqueducts, but also in its application to buildings both *en masse* and in blocks. If concrete could be given a truly impermeable character its value would be greatly enhanced and its field of usefulness would be even more rapidly extended than at present.

The great obstacle heretofore experienced in making concrete waterproof, says the *Engineering Record*, has been its highly porous character. With the dry mixtures used in times past the porosity of concrete was excessive, and not the least of the many advantages accruing to the use of wet mixtures is the greater solidity or density conferred upon the mass. A wet mixture not only causes all portions of the mass to run together in greater solidity, but it enables the finer materials of the aggregate to flow freely and thoroughly into the spaces between the coarser particles, thus producing a much more nearly continuous and dense interior mass. This means obviously a greatly reduced permeability to water or a much enhanced capacity to resist seepage through it. In fact, if the cement were ground sufficiently fine to enable it and the finest parts of the sand to enter freely into all the interior spaces of the aggregate a waterproof material under high intensities of pressure would result; but the wettest mixtures which it is possible to use neither eliminate all the air bubbles nor fill all the interior spaces. However much care may be taken in securing a thorough and intimate admixture of the component parts, all porosity is not eliminated and some seepage results under pressures of 40 to 60 lbs. per square inch or even less.

If suitable mixed concrete could be put under a high pressure before the initial set takes place, so as to squeeze out all air and surplus water, should there be any, in much the same way as molten steel is compressed in order to produce grades of that metal of special value, it is altogether probable that the resulting density would be suffi-

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ment to secure essential impermeability under very high heads. This obviously is impossible, but some recent investigations appear to indicate that there may be other simple means of attaining the much-desired quality of impermeability. In a discussion by Mr. Richard H. Gaines of the paper presented to the American Society of Civil Engineers in April of the current year by Messrs. V. B. Fuller and S. E. Thompson, there are set forth some results of tests made to determine the effect of the addition of certain substances on ordinary concrete mixtures. In the search for materials which may enhance the waterproof character of concrete it is clear that none must be used which will prejudice the resistance or durability of the mixture. Mr. Gaines, who is the chemist of the New York Board of Water Supply, shows that the addition of small percentages of alum solution and fine clay to Portland cement mortar and concrete enhances greatly the impermeability of the mixture and that both compressive and tensile resistances were increased. Although the number of the tests was relatively small and the life of the test specimens was not long enough to settle conclusively such a question as that under consideration, the results obtained show that the line of investigation followed is worthy of being carried further in order to determine just what value may be attached to the mixtures of such materials as were employed with the usual proportions of cement, sand and gravel, or broken stone in the manufacture of mortar and concrete.

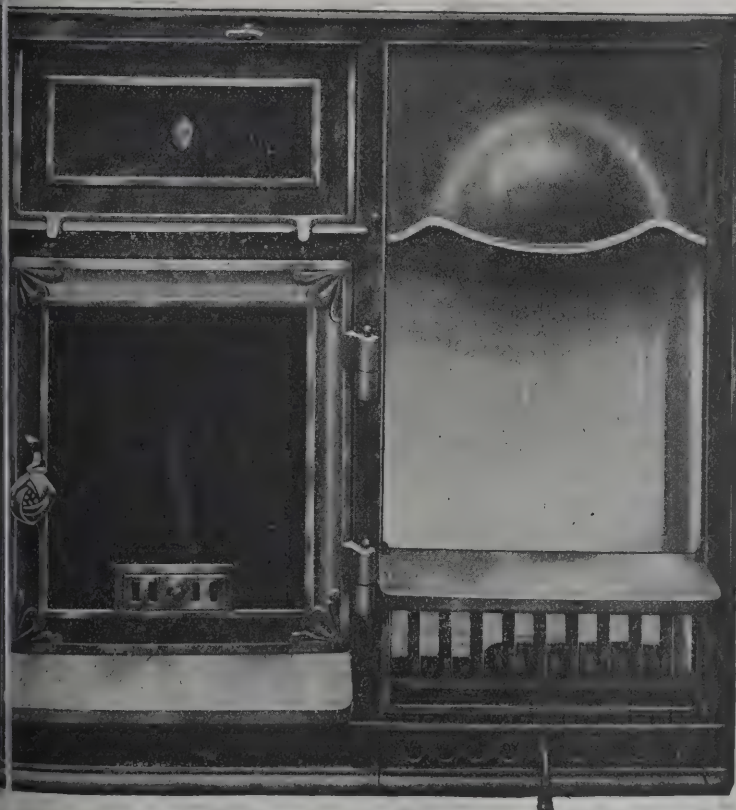
It has been indicated by tests that, contrary to the former opinions of engineers, the presence of small percentages of fine clay of a suitable character and properly mixed does not necessarily injure the strength of concrete, and it has also been shown that the same mixture may aid in attaining more nearly waterproof qualities. Up to the present time, however, investigations of this kind have not been carried far enough to give quantitative results of sufficient range for practical purposes. It has generally been considered that the effect of fine clay in reducing the porosity of concrete was wholly mechanical, but the modern view of physical chemistry, so to speak, may disclose a different significance to the results of use of fine clay for such a purpose. With the modern wet concrete mixtures, the presence of the clay is asserted by Mr. Gaines to induce

a colloidal action which is apparently aided by such a solution as that of alum, so that the result is a modification of the interior mass, tending to eliminate ordinary porosity.

There is nothing new in the employment of an alum solution as well as various soap solutions to afford concrete a certain degree of impermeability to water, but the purpose hitherto has been to produce an impermeable surface rather than an impermeable mass, which the results of Mr. Gaines's experimental work appear to indicate as attainable. The great advantage of securing an impermeable or waterproof mass of concrete over superficial effects is so clear as to need no comment. This observation is especially pertinent to all reinforced concretework, in which it is of the first importance to protect the steel reinforcement from corrosion. It is to be hoped that in its investigations connected with the construction of the Catskill aqueduct, the Board of Water Supply will extend its investigations thoroughly into the field indicated by the results already obtained by Mr. Gaines. At the present time it is difficult to imagine any greater benefit to be conferred upon all classes of concretework than to find some simple and effective method of making it waterproof under reasonably high pressures. Such an investigation should also include tests with hydrated lime and the various proprietary waterproofing compounds now extensively used, some of which seem to be giving good results when added to the usual concrete mixtures.

### SMOKE ABATEMENT.

A LECTURE was given in Manchester on Saturday by Mr. R. H. Clayton, vice-president of the Chemical Club, on the problem of smoke abatement. In the course of it he said that the solution of the smoke problem must come by attacking the domestic fire. He agreed with Dr. Bailey and other authorities that about 70 per cent. of the smoke in the atmosphere was from domestic chimneys and the rest from factories. Anyone must notice in passing over the viaduct at Stockport or London Road, or in such a view as that of Salford from Kersal Hill, that the houses are always enveloped in a cloud of whitish smoke. People were apt to consider that this whitish smoke was not so noxious as the smoke from the factory chimneys, but some



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results he had got would show that it was more so. Taking the average consumption of coal for domestic purposes as  $1\frac{1}{4}$  tons per head per annum, the total annual consumption for England would be 50,000,000 tons altogether. The coal consumed by factories, iron foundries and other trades amounted to 65,000,000 tons per annum, but a great deal of this was used for purposes which were absolutely smokeless. Take, for example, the Mond gas plants; these in the neighbourhood of Manchester alone would account for 1,000,000 tons a year, and the process was completely smokeless. Another cause which was bringing about the diminution of factory smoke was the growing use of mechanical stokers. Mr. Clayton instanced the two chimneys of the Salford Corporation electric-lighting station, where mechanical stokers were used; it was marvellous how little smoke was emitted; one might almost imagine they were never working there. It was the same in the Manchester electricity works. These two establishments alone accounted for about 100,000 tons per annum. Only part, therefore, of coal used in factories, &c., was burnt in a smoke-producing way. In the emission of smoke, Mr. Clayton said that the percentage of loss from this cause in the case of a factory chimney was very small; it could be calculated as 1, 2 or 3 per cent. of the fuel, whereas the loss in the case of a domestic chimney was something like 50 per cent.

The distinctive characteristic of domestic smoke is that it is laden with oily hydrocarbons (tarry oils) and ammonia, owing to its being produced at a low temperature, whereas factory smoke is nearly all pure carbon. In the following analyses of domestic smoke, factory smoke and the Manchester atmosphere, these constituents are calculated according to the proportion they bear to the amount of pure carbon. The analysis of the polluting matter in Manchester air shows that it approximates most nearly to domestic smoke, as shown by the amount of tarry oils, ammonia and other constituents that are characteristic of domestic smoke. The comparatively innocent appearance of a domestic chimney was due largely to the fact that a large amount of the smoke came off in the form of these oils, which, when in a hot and vaporous state, were colourless, not black like factory smoke. Another reason for the better appearance of domestic smoke at the actual moment of being poured out

was that it was diluted with a much larger amount of air. Ten times as much air in proportion to the amount of coal burned passed up a domestic chimney as passed up a factory chimney. Pointing to a diagram of an ordinary domestic grate and a gas retort, the lecturer observed that they were constructed on very much the same principle. Both were distilling the coal, but in the one the products of distillation were poured into the air, in the other they were collected and used as valuable industrial materials.

In calculating the cost of the smoke nuisance, Mr. Clayton pointed out that if we put the cost of extra cleansing, &c., at only a halfpenny a day per head, it worked out at 500,000 a year for Manchester alone. After reviewing various possible solutions, he said that coke and gas were the most promising. But gas at 2s. 3d. a thousand, or anything over 2s., was too heavily handicapped. They ought to endeavour to supply gas as cheaply as possible. Manchester spent 64,000l. a year on the purification of sewage to prevent the pollution of the rivers; on the other hand, they were handicapping the much more important purification of the atmosphere by taking 60,000l. a year out of gas for the rates.

### LIGHTING OF EDINBURGH.

THE report by the inspector of cleaning and lighting for the year to May 15 states that for some time past earnest and continuous efforts have been made to effect improvements in the gas lighting of the city, and in this respect the municipal year 1906-7 has proved a record one. It has been marked by the disappearance of all the flat flame burners, for which incandescents have been substituted. The superior illumination of the incandescent burner over that which it has displaced is so great that as a whole the result marks the completion of a lighting transformation which may be said to constitute an epoch in the lighting of the city. Edinburgh with its electric lighting of its main thoroughfares and car routes, its incandescent illumination of its other streets and of its courts and closes, and its stair lights burning from sunset to sunrise, has now reached a stage of effective lighting which commands the approbation of the citizens and elicits commendation from visitors and other municipalities.

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At May 15, 1907, the streets, &c., of the city were lighted by 9,940 incandescent gas lamps, 1,175 electric arc lamps, and the common stairs by 12,123 gas jets and 70 electric lights. In the previous year the number of gas lamps was 10,118, which has been reduced by 178. The improved lighting in the streets has created a desire to have the stairs lighted with the incandescent burner. By way of experiment this burner has been introduced into a few stairs. The lights, however, being unprotected and easily injured, there is at least meantime little prospect of progress in this direction. The number of stairs incandescently lighted is 13 with 36 jets. For some quarters of the city, where better-class houses are being erected and electric mains are available, there is a disposition to have the stairs lighted with electricity. Progress in this direction is so far not considerable, but there are indications of growth. The number of stairs electrically lighted is 36 with 70 lights.

The total expenditure on lighting was 43,600*l.* os. 1*d.*, of which 21,434*l.* was for street gas lighting, 10,272*l.* for electric lighting and 11,893*l.* for stair lighting. The cost of the conversion of flat flame burners into incandescents was 10,725*l.*, an amount which has been spread over three years. The retiring allowance to old and enfeebled members of the staff amounted to 122*l.* os. 7*d.* The cost per arc lamp has been reduced from 20*l.* in 1895-6 to 9*l.* in 1906-7. The total expenditure of the lighting department (43,600*l.*, less a revenue of 5*l.* 5*s.*) works out at 2*s.* 6½*d.* per head of the population and 3½*d.* per 1*l.* on the assessable rental.

### NEW PHYSICAL LABORATORY, EDINBURGH.

The physical laboratory which was established in 1868 by Professor Tait, and was situated in the Old University Buildings, will, at the beginning of this winter session, be transferred to a building of its own. This has been made possible by the purchase from the city of the buildings and site of the city hospital by the University Court, and by the grant made to the University by the Carnegie Trust for transforming these buildings into a physical laboratory.

The building which has thus been transformed, says the *Scotsman*, consisted of the old surgical hospital of the infirmary. The outer walls of the old building, the inner

walls and the old staircases have been utilised, wholly or partially, but the wooden flooring has been replaced by concrete supported on steel girders running east and west to avoid magnetic disturbances. The plaster on the walls has been removed and replaced by a surface of tinted Parian cement. The heating arrangements consist of a low-pressure steam-heating system, and for ventilation purposes three electrically-driven fans have been supplied. The building throughout is fitted with incandescent electric lights; there is also gas, chiefly for experimental purposes.

A gap of 5 feet has been cut between the north block of the physical laboratory and the engineering laboratory, to avoid any vibration that might be caused by the heavy machinery of the latter department. A stone bridge connects the Drummond Street level of the grounds with the main entrance to the building, and this leads to what has now become the principal floor. Directly above the main entrance, on the face of the building, the University coat of arms has been inserted in stone.

On the principal floor there are the chief lecture-room, an apparatus-room, the professors' rooms and a library and reading-room. The chief lecture-room, which will accommodate from 200 to 250 students, is fitted with hinged flap-seats, and is so designed that students, wherever seated, have an equally good view of experiments, whether conducted on the lecture table or on the experimenting space in front of it. The large lecture table is supplied with current, gas, water and other requisites necessary for experimental demonstrations. Behind the table are three large sliding blackboards, their area being such that, in general, they will not require to be cleaned during a lecture. There is a lantern screen behind the table, so placed that it can be equally well seen by all the students—the light from the lantern, which is set in a gap in the lecture-table, being reflected from a mirror on to the screen.

Under the lecture table there is a room to enable improvements in lecture experimenting to be adopted, and in which gasometers, boilers and other heavy or bulky pieces of lecture apparatus can be manipulated, and the blackboards and lantern screen slide down to this room. Above the ceiling over the lecture table is an attic-room, the floor of which has a series of openings for experiments on long pendulums, falling bodies, &c., and a free drop of

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45 feet can be obtained. Above the lecture table, on the wall facing the audience, is a gallery for diagrams and suspension experiments.

There are three entrances to the lecture-room, one for women and two for men. The women's entrance is on the principal floor and a cloak-room has been provided for them below the seats; the men's entrances are on the principal and upper floors, and with cloak-rooms adjoining.

Opening off the lecture-room is the preparation-room for the preparation of experiments and distribution of electric power. There are also small rooms for the preparation of diagrams and lantern slides. The apparatus-room, immediately opposite the preparation-room, is for apparatus for lecture purposes, laboratory apparatus and standard instruments being in the rooms in which they are required.

The library and reading-room is a well-lit, handsomely-appointed room for the use of students attending lectures or engaged in experimental work, and has shelved alcoves on one side. It is hoped in time to have a moderately extensive collection of books and periodicals on physical subjects.

The students' laboratories occupy the whole of the upper floor. The junior arts and science laboratory will accommodate forty-five students, and is fitted with tables, benches and wall apparatus for elementary experiments. The senior laboratory consists of a suite of seven rooms for mechanical, thermal, electrical, optical and acoustic work, the fittings being suitable for the kind of work intended to be performed. There are also a small workshop and photographic-room for the use of students in the laboratories.

The tower of the building contains a lift well and a shaft, and there is an experimenting space on the roof, which is reached by a wooden ladder inside the lift well, which, it is hoped, will be replaced, when funds become available, by a lift to enable heavy pieces of apparatus to be conveyed to the upper portions of the building and to the roof. The shaft is for the suspension of long wires, for a mercurial pressure gauge and other purposes requiring a considerable height.

On the ground floor are most of the research-rooms, of which seven have been fitted up; there is, however, a large space available for extension. Although each room differs

in regard to particular features, they are all adapted to a considerable range of work, having firm concrete floors and stone shelves built into solid walls, and they are supplied with high and low-pressure water, gas, electric light and current. In one of the research-rooms—the gun-room—Professor Tait's compressibility apparatus has been fitted up, and in another—the guillotine-room—his impact apparatus has been installed. In addition, there are the accumulator-room and the workshops; the complete fitting up of the latter has been deferred for the present. On the ground floor also is a lecture-room capable of holding eighty students for the classes in applied mathematics and the more purely mathematical classes in natural philosophy; it is furnished with rising seats and large blackboards and the necessary experimental arrangements.

In the entrance hall on the principal floor are cases for historical apparatus, associated with the names of Leslie, Forbes and Tait.

Since the building was designed the tutorial system has been introduced, and has proved so successful that it has become necessary to provide tutorial classrooms. The arrangements made at present are of a temporary nature, certain rooms intended for other work being utilised for this purpose. Another problem which has recently arisen is the provision of suitable accommodation for the recently instituted student-teachers' courses, and they are at present provided for by the giving up of two of the rooms of the senior laboratory. In the unfinished wing there is a large room which Professor MacGregor hopes will be fitted up at an early date for the teachers' class.

The boundary wall in Drummond Street is part of the old city wall, and the main entrance gate was once the entrance gate to the old infirmary, and as interesting historical monuments both wall and gate have been left intact.

The work of reconstruction has been directed by Messrs. Sir Rowand Anderson and Balfour Paul, architects. At all stages they have had the advice of Professor MacGregor, the head of the department, who has made a careful study of the most recent and complete laboratories in Britain and America and on the Continent. The work has been supervised by Mr. A. E. L. Clark, the University's superintendent of works.

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**Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.**

**EDITORIAL NOTICES.**

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

**TENDERS, ETC.**

*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

**COMPETITIONS OPEN.**

**BOLTON.**—Nov. 14.—For a church to seat from 300 to 350, cost not to exceed 1,900*l.*, with all furnishings, lighting and heating apparatus. The Rev. D. E. MacInnes, 11 Wyresdale Road, Bolton.

**EDINBURGH.**—The Scottish National Exhibition (1908) authorities offer prizes and medals for designs of dwellings and steadings, suitable for holdings not exceeding twenty acres, and for a one pair of horse farm. Successful competitors may be invited to erect models at the Scottish National Exhibition on favourable terms. For particulars apply at once to the Secretary, Highland and Agricultural Society, George IV. Bridge, Edinburgh; or to the Manager of the Exhibition, 45 York Place, Edinburgh.

**HERTFORD.**—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500*l.* Premiums of 50*l.* and 20*l.* will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

**PERTH.**—The Town Council of Perth invite architects to submit plans for new City Hall. Plan of ground and conditions of competition may be procured on application to the town clerk on payment of one guinea, which will be returned on receipt of a bona-fide design. Premiums of 50, 30 and 20 guineas will be awarded. Mr. John J. Burnet, A.R.S.A., will act as assessor. Apply to Mr. John Begg, town clerk, Perth.

**THURLSTONE.**—Nov. 25.—The Thurlstone Urban District Council invite plans for council-room, offices, caretaker's house and outbuildings (cost not to exceed 650*l.* for building and heating apparatus only). For instructions and particulars apply to Mr. J. Wadsworth, clerk, Thurlstone, near Penistone.

**WARRINGTON.**—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1*l.* 1*s.* Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

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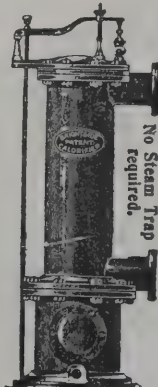
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WIGAN.—The committee appointed by the county borough of Wigan invite models and sketches for a statue to Sir Francis Sharpe Powell, Bart., M.P. An assessor will be duly appointed. Mr. Harold Jevons, Town Clerk's Office, Wigan.

### CONTRACTS OPEN.

AUDENSHAW.—Nov. 12.—For rebuilding Audenshaw (Hundred) Bridge, on main road from Manchester to Ashton-under-Lyne. The work comprises the taking-down of the old arch bridge and the building of a new bridge in masonry and steel, with a span of 22 feet 9 inches and a width between parapets of about 50 feet. The County Bridgmaster's Office, Preston.

BARNET.—Nov. 9.—For construction of foundations, drains, roads, fences, water supply and other works (not including the structure) in connection with isolation hospital to be erected in Mays Lane. Mr. H. F. Traylen, architect, 34 Great James Street, Bedford Row, London.

BARNESLEY.—Nov. 13.—For erection and completion of warehouse, stabling, house and shop, Racecommon Road. Mr. George Moxon, architect, 26 Church Street, Barnsley.

BARROW-IN-FURNESS.—Nov. 19.—For (a) construction and delivery complete of a floating bath in Ramsden Dock, and (b) erection and completion of conveniences, &c., appurtenant thereto, for the Corporation. Deposit 5*l*. The Borough Engineer's Office, Town Hall, Barrow-in-Furness.

BLACKWELL.—Nov. 19.—For alterations and improvements at Blackwell Council school. The County Education committee's architect, Shire Hall, Durham.

BRIGHTLINGSEA.—Nov. 14.—For erection of a police station at Brightlingsea, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

BRISLEY.—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

BRISTOL.—Nov. 20.—For extension of asylum buildings. Deposit 5*l*. 5*s*. Mr. Peter Addie, city valuer, Bristol.

DARTMOUTH.—Nov. 14.—For erection of a house and boundary walling at Mount Boone. Mr. W. Percy Marr, architect and surveyor, Dartmouth.

EARL SHILTON.—Nov. 12.—For erection, completion and maintenance for six months after completion of new shops and stores at Earl Shilton, Leicester. Deposit 1*l*. Mr. W. T. Grewcock, architect, 8 New Street, Leicester.

GLASGOW.—Nov. 9.—For works required in erection of servants' block, Belvidere hospital. The Office of Public Works, City Chambers, 64 Cochrane Street.

GUILDFORD.—Nov. 14.—For reconstructional work to some stables at Slyfield Farm. Mr. C. G. Mason, borough surveyor, Tuns Gate, Guildford.

HARLOW.—Nov. 14.—For erection of police station at Harlow, Essex. Deposit 10*l*. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

HATFIELD.—Dec. 2.—For alterations and additions at the Sawbridgeworth, Fawbert and Barnard County Council school. Deposit 2*l*. Mr. U. A. Smith, County Surveyor's Office, Hatfield.

HUDDERSFIELD.—Nov. 14.—For the erection of villa residence in Allison Drive, Fartown. Mr. Arthur Shaw, architect, Golcar.

HUTTON.—Nov. 13.—For supplying and erecting iron buildings at schools at Hutton, near Shenfield, Essex. Mr. G. Herbert Lough, clerk, 45 Upper North Street, Poplar, E.

ILFRACOMBE.—Nov. 19.—For constructing and erecting refuse destructor on land adjoining Hillside Road. Deposit 2*l*. 2*s*. Mr. Oswald M. Prouse, engineer and surveyor, Town Hall, Ilfracombe.

IRELAND.—Nov. 14.—For building residence and surgery at Main Street, Larne. Deposit 1*l*. 1*s*. Mr. J. P. Irvine, architect, 49 Waring Street, Belfast.

IRELAND.—Nov. 16.—For extension and improvements to National schoolhouse, Mell, Drogheda. Mr. Finian H. Tallan, architect and surveyor, 106 West Street, Drogheda.

KINVER.—Nov. 25.—For construction of pumping station and turbine-house, sluice gates, pumping and delivery mains and reservoir, and other works in connection with water supply of Kinver, Seisdon, Staffs. Deposit 5*l*. 5*s*. Mr. Sidney R. Lowcock, engineer, Temple Courts, Temple Row, Birmingham, or 50 Queen Anne's Gate, Westminster, S.W.

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**LONDON.**—Nov. 12.—For tea-house and conveniences, Hyde Park. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's Gate, S.W.

**LONDON.**—Nov. 12.—For erection of a tramways car-shed at Mare Street, Hackney, for the London County Council. Deposit 2*l.* 2*s.* The Highways Section of the Architect's Department, 13 Charing Cross, S.W.

**LONDON.**—Nov. 13.—For carrying-out general repairs to the relief offices, 7 Fairfield Road, Bow; also for asphaltting work at the Guardians' Offices. Mr. G. Herbert Lough, clerk, 45 Upper North Street, Poplar, E.

**LONDON.**—Nov. 14.—For carrying-out certain work to remedy dampness in basements of 3 and 5 Gossage Road, Plumstead, S.E. Mr. J. Rush Dixon, borough engineer, Town Hall, Woolwich.

**LONDON.**—Nov. 14.—For provision and fixing of lift at St. John's Road workhouse, Upper Holloway, N. Mr. William Smith, architect, 65 Chancery Lane, W.C.

**LONDON.**—Nov. 19.—For erection of a county court at Westminster. Deposit 1*l.* 1*s.* Mr. H. N. Hawks, I.S.O., H.M. Office of Works, &c., Westminster, S.W.

**MACCLESFIELD.**—Nov. 14.—For erection of a laboratory at the Batley sewage works. Deposit 1*l.* 1*s.* The Borough Surveyor, Town Hall, Macclesfield.

**MANCHESTER.**—Nov. 20.—For erection of superstructure of new sorting office at Newton Street. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

**MEXBOROUGH.**—Nov. 18.—For erection of retaining wall, market shops, and other incidental works thereto, at Market Street. Deposit 1*l.* Mr. G. Fenwick Carter, surveyor.

**MONK BRETON.**—Nov. 14.—For whole or separate tenders in connection with erection of school at Smithies, Monk Bretton, near Barnsley. Deposit 1*l.* Mr. E. W. Dyson, architect, 10 Regent Street, Barnsley.

**MORTLAKE.**—Nov. 11.—For pulling-down Castelnau House, High Street, and removing material of same. The Engineer and Surveyor's Office, the Council House, Mortlake.

**NEW HUNSTANTON.**—Nov. 29.—For enlargement of New Hunstanton school, Norfolk. Deposit 2*l.* 2*s.* Mr. H. J. Green, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

**RATHMINES.**—Nov. 9.—For erection of additional accommodation at Vergemount isolation hospital. Deposit 1*l.* Mr. Edwin Bradbury, M.R.I.A.I., College Park Chambers, Nassau Street, Dublin.

**REDRUTH.**—Nov. 13.—For erection of a police station and appurtenances at Redruth, Cornwall. Mr. Oliver Caldwell, architect, Penzance.

**SCOTLAND.**—Nov. 11.—For (1) digger, mason and brickwork; (2) carpenter, joiner and ironmongerywork; (3) steel and cast-ironwork; (4) plumbers' work; (5) slaters' work; (6) plasterwork; (7) tilework; (8) gasfitters' work; (9) heatingwork; (10) painters' work; (11) furnishings, required in erection of addition to Greenock Academy. Deposit 1*l.* each schedule. Messrs. Boston, Menzies & Morton, architects, Greenock.

**SHEFFIELD.**—Nov. 16.—For erection of tea and refreshment-room in Endcliffe Woods. Deposit 10*s.* City Surveyor's Office, Town Hall, Sheffield.

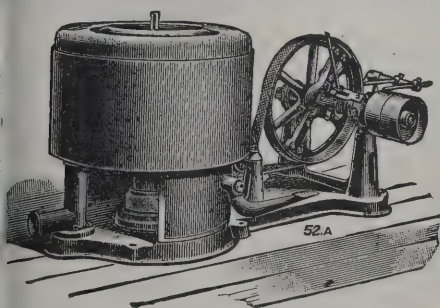
**STANLEY FERRY.**—Nov. 11.—Whole or separate tenders in connection with erection of school at Stanley Ferry, near Wakefield. Deposit 1*l.* Mr. J. Lane Fox, architect, Bond Street, Dewsbury, and 4 Oxford Place, Leeds.

**STYAL.**—Nov. 28.—For erection of additions to senior schools at Styal Homes, Cheshire. Deposit 2*l.* 2*s.* Messrs. J. W. Beaumont & Son, architects, 10 St. James's Square, Manchester.

**TEDDINGTON.**—Nov. 18.—For erection of (a) 114 working-class dwellings on land situate in Shacklegate Lane; (b) 3,000 super yards of carriageway formation, and 1,450 lineal feet of sewer construction; (c) 1,000 super yards of tar paving, for the Urban District Council. Deposit 2*l.* 2*s.* Mr. M. Hainsworth, surveyor, Elmfield House, Teddington.

**WAKEFIELD.**—Nov. 9.—For the following works, viz:—New school (builder, joiner, slater, plumber, plasterer, painter, ironfounder and smith) at Normanton Common; additions and alterations (whole trade, builder, plumber) at Thorpe Salvin provided school, near Sheffield; altera-

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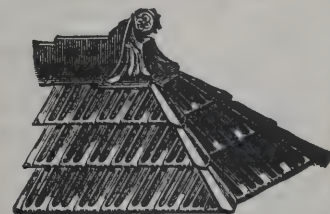
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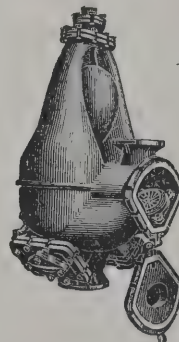
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WALES.—For following works, for Glamorgan County Council, viz.:—(1) Erection of a new school at Tongwynlais; (2) erection of a new school, &c., at Craigcfnparc, Swansea Valley; (3) erection of a new caretaker's house at Tonyrefail; (4) erection of a new caretaker's house at Pentyrch; (5) additions and alterations to the St. Athan Council school; (6) erection of new offices, &c., at Glyn-corrwg Council school; (7) erection of new playsheds at the Pontardulais Council school; (8) gas-lighting at the Godre'grais school, near Pontardawe. The Glamorgan County Council offices, Westgate Street, Cardiff.

WALES.—Nov. 11.—For erection of schools at Tallistown, Cwm, Ebbw Vale, together with caretaker's house, boundary walls and other works. Deposit 3*l.* 3*s.* Messrs. Henry Walters & Stanley Hutchins, joint architects.

WALES.—Nov. 12.—For erection of minister's house, Corwen, North Wales. Mr. G. Dickins Lewis, architect, Talbot Chambers, Shrewsbury.

WALES.—Nov. 13.—For carrying-out foundations for the proposed temporary school at Caerau, and also erection of permanent offices and playsheds, for the Glamorgan County Council. The County Offices, Westgate Street, Cardiff.

WALES.—Nov. 14.—For construction of new stabling and latrines, &c., at the County hotel, Ebbw Vale. Mr. Hy. Waters, architect, Market Chambers, Ebbw Vale.

WALES.—Dec. 5.—For building school at Cwmgwili, Cross Hands, Carmarthenshire. Mr. W. Vincent Morgan, county education architect, County Offices, Carmarthen.

WESTCLIFF-ON-SEA.—Nov. 14.—For erection of police quarters. Deposit 10*l.* Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WHITLEY.—Nov. 11.—For the erection of a dairy at Seven Stars Farm, Whitley, near Coventry. Deposit 1*l.* 1*s.* The City Engineer's office.

WIMBLEDON.—Nov. 15.—For the erection of a pair of semi-detached houses in Durham Road, Raynes Park. Messrs. Belfrage & Savile, architects, 27 Chancery Lane, W.C.

WINLATON.—Nov. 19.—For alterations and improvements at Winlaton Council schools, Durham. The County Education committee's architect, Shire Hall, Durham.

AN exciting scene took place at Limerick Corporation recently when the election took place of a borough electrical engineer. There were 120 applications, and a committee recommended the appointment of Mr. P. T. MacNamara, a Limerick man, and a member of the Engineering Association of Ceylon. It was moved, as an amendment that the applications of the candidates declared to be qualified should be submitted to an electrical expert to select therefrom twelve. It was pointed out than an electrical expert had been appointed to examine Mr. MacNamara, whose recommendation by the committee was unanimous. An exciting discussion ensued, during which a great deal of disorder prevailed outside the barrier, and the chairman had to requisition the services of the Mayor's sergeants to restore quietude. Alderman Donnelly said the members had to leave the committee-room because of bullying and fear of physical chastisement. The chairman denied that there was any bullying. Another member asked was it not a fact that one member called another a robber? The chairman said it was not a fact. Councillor Cuddely said that some members wanted an Englishman or Scotchman appointed to the position, but not a Limerick man. In the result a poll was taken, and by sixteen votes to four Mr. MacNamara's appointment was confirmed, subject to his examination by an electrical expert.

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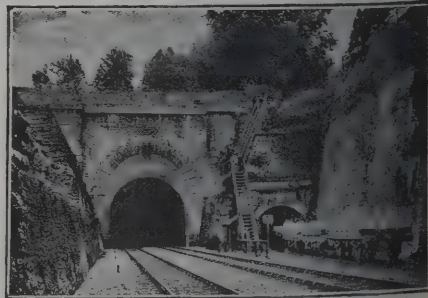
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For erection of Grinstead Hall, King's Road. Mr. HUGO R. BIRD, architect, Brentwood.

Burtwell.	£825	0	0
Jarvis	797	0	0
PARISH, Hutton (accepted)	732	10	0

### BRIDPORT.

For erecting secondary school, St. Andrew's Road. Mr. F. COOPER, architect, Bridport.

Parsons Bros. & Dunster	£5,010	0	0
Wilkins & Sons	4,890	0	0
Poole	4,655	0	0
Sprackling	4,525	0	0
Cooper	4,398	0	0
MERRICK & SONS, Glastonbury (accepted)	4,295	0	0

### CALSTOCK.

For construction of reservoir and other works. Mr. H. F. BELLAMY, engineer, Plymouth.

Cockerell	£844	13	11
Paynter	608	0	0
Skinner & Co.	573	14	0
J. Shaddock	501	3	6
Snell & Alderman	487	14	4
Steer & Pearce	481	14	4
Bennett	375	0	0
T. SHADDOCK, Plymouth (accepted)	353	19	9

### CHESHUNT.

For erection of branch stores, Turner's Hill. Mr. FRANK BETHELL, architect, Enfield.

Newman	£870	0	0
Lawrence & Co.	844	0	0
Archer	832	0	0
Jennings & Grenfell	825	0	0
Lane & Harvey	823	0	0
PAUL (accepted)	780	0	0

### CHESTER.

For erection of school in Love Street. Mr. H. BESWICK, architect, Chester.

PETERS & SONS, Rochdale (accepted) £10,110 0 0

### CHURWELL.

For alterations and extensions to Millshaw leather works Messrs. T. A. BUTTERY & S. B. BIRDS, architects, Morley and Leeds.

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Blakeley & Co., mason	£720	0	0
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Strickland & Co.	255	18	6
Saze & Sons	249	9	0
Butcher	241	0	0
Free & Son	210	6	8
James & Co.	206	15	0
Morris	202	11	0
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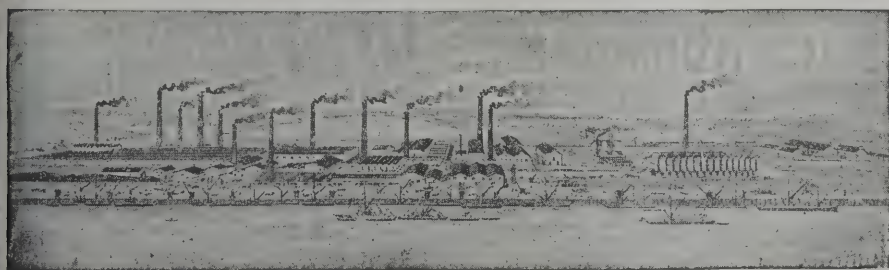
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Hurn & Son.	3,267	0	0
Murray & Robinson	3,251	0	0
Saunders	3,200	0	0
Youngs & Son	3,195	0	0
Hawes & Son	3,180	0	0
Spencer, Santo & Co.	3,175	0	0
Podd & Fisher	3,169	0	0
Grimwood	3,114	0	0
Palmer	3,096	0	0
Kenney	3,095	0	0
Catchpole & Sons	3,016	0	0
Hannant	2,997	0	0
Linzell	2,987	0	0
Gayford	2,985	0	0
Porter	2,961	4	5
Mickleburgh.	2,884	0	0
Shanks	2,880	0	0
Blyth	2,825	0	0
Greengrass	2,790	0	0
E. & L. Plummer.	2,746	0	0
A. Plummer	2,698	0	0
C. ROPER, Ipswich (accepted)	2,585	0	0
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Wort & Way	956	0	0
Kavanagh & Co.	942	0	0
Free & Sons.	901	0	0
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Middlesex Contracting Co.	706	0	0
Turner.	700	0	0
Ripley, Strong & Co.	678	0	0
Hoar	645	0	0
HILL, Fleet (accepted)	614	0	0

## Upper Street.

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Wort & Way	1,285	0	0
Kavanagh & Co.	1,200	0	0
Wilson & Co.	1,043	0	0
Middlesex Contracting Co.	1,094	0	0
Douglas	1,019	0	0
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*Accepted tenders.*

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Firth & Sons, Boothtown, mason	973	0	0
Charnock & Sons, Halifax, joiner	700	12	0
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Green	3,584	0	0
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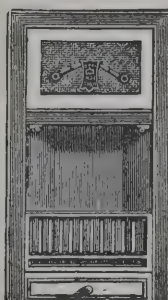
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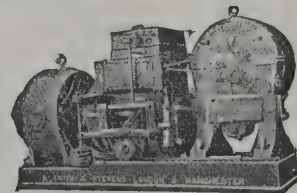
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Lascelles & Co.	16,850	0	0
Learmouth	15,830	0	0
Sprigings	15,500	0	0
Tanner	15,270	0	0
Colburn	15,197	0	0
Coles	15,187	0	0
Minter	15,186	0	0
Blake	14,985	0	0
Crockerell	14,946	0	0
Jones	14,845	0	0
Wallis	14,811	0	0
Light & Sons	14,742	0	0
Privett	14,233	0	0
Watteridge	13,787	0	0
Coltherup	13,608	0	0
Corke	13,300	0	0

## SCOTLAND.

For erection of technical school, Kilmarnock.

*Accepted tenders.*

Calderwood & Sons, masonwork, &c.	£6,400	1	1
Rome & Sons, carpenter, joiner and glazier	2,827	0	0
Boyd & Forrest, fireproof floors	654	0	0
Yuille & Sons, plumber	616	19	5
Yuille & Sons, slater	525	0	0
Woolliscroft & Son, Ltd., tilework	480	4	5
Borland & Co., plaster and lath	395	3	0
Holmes & Jackson, stone carving	285	1	6
Paton & Sons, iron railings and gates	248	10	10
Holm Foundry Co., Ltd., cast-iron work	74	5	10
The Scottish Patent Flooring Co., wood-block flooring	69	8	7

## SANDOWN.

For erection of two houses and shops, High Street. Mr.

JAMES NEWMAN, architect.

Simmonds	£2,150	0	0
Payne	1,925	0	0
Brown & Corney	1,897	0	0
WHITE ( <i>accepted</i> )	1,810	0	0

## SHENFIELD.

For alterations and additions to Highfield, Hutton Mount. Mr. HUGO B. BIRD, architect, Brentwood.

Dix	£445	0	0
Parish	445	0	0
Jarvis	429	0	0
BURTWELL, Brentwood ( <i>accepted</i> )	325	0	0

## SOUTHBOROUGH.

For construction of tanks, bacteria bed and sprinkler. Mr. WILLIAM HARMER, engineer, Southborough.

Browning	£1,395	0	0
Catley	1,280	0	0
Bell & Sons	1,119	0	0
Wallis & Harmer	1,116	0	0
Jarvis	1,112	7	0
Punnett & Sons	1,080	0	0
Carrick	1,071	9	5
Jackson	1,069	19	2
Murray & Co.	1,009	0	0
Underwood & Co.	1,000	0	0
Fry Bros.	982	0	0
MARTIN & Co., Tonbridge ( <i>accepted</i> )	969	0	0

## WATFORD.

For erecting elementary school, Harwoods Road. Mr. W. H. SYME, architect, Watford.

Nightingale	£15,352	0	0
Davies	14,549	16	7
Stephens, Bastow & Co.	14,105	4	11
Honour & Son	13,864	13	2
Dearing & Sons	13,711	0	0
Drever	13,648	0	0
Munday & Sons	13,638	0	0
Coulson & Lofts	13,588	0	0

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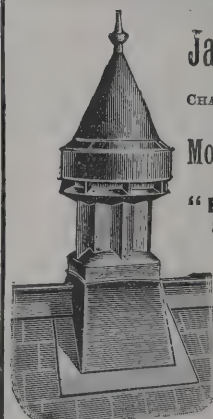
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Jaggard . . . . .	13,404	0	0
McCormick & Sons . . . . .	13,384	0	0
Wall . . . . .	13,336	0	0
Minter . . . . .	13,195	0	0
W. & B. H. Davey . . . . .	13,181	3	1
Miskin & Sons . . . . .	13,162	0	0
Lovell & Son . . . . .	13,100	0	0
Pattison & Sons . . . . .	13,000	0	0
Darvill . . . . .	13,000	0	0
Wiggs . . . . .	12,999	0	0
Webster & Cannon . . . . .	12,998	0	0
Guttridge . . . . .	12,989	0	0
Wallis & Sons . . . . .	12,978	0	0
Wilmott & Sons . . . . .	12,961	0	0
Bailey & Sons . . . . .	12,903	0	0
Parnell & Son . . . . .	12,826	0	0
Brightman . . . . .	12,775	0	0
C. & J. Waterman . . . . .	12,750	0	0
Lawrence & Son . . . . .	12,724	0	0
Parren & Son . . . . .	12,700	0	0
Clark Bros. . . . .	12,657	0	0
Dickens . . . . .	12,650	0	0
Blake . . . . .	12,600	0	0
Fairhead & Son . . . . .	12,573	0	0
Jeyes . . . . .	12,356	0	0
Fisher . . . . .	12,344	0	0
Brown & Son . . . . .	12,330	0	0
Henson & Son . . . . .	12,300	0	0
Higgs . . . . .	12,250	0	0
Moss & Sons . . . . .	12,244	0	0
Bayes . . . . .	12,234	0	0
H. & E. Harris . . . . .	11,990	0	0
Rowley Bros. . . . .	11,952	0	0
HAYCOCK & SONS, Leicester (accepted) . . . . .	11,850	0	0
For erection of branch store, Whippendell Road. Mr.			
W. H. SYME, architect, Watford.			
Wiggs . . . . .	£1,299	0	0
Eames . . . . .	1,232	0	0
CLARK BROS. (accepted) . . . . .	1,209	0	0

TRADE NOTES.

THE system of the United Kingdom Fireproofing Company, Ltd., has been adopted for the London Joint Stock Bank, Kingsway. The whole of the fireproof floors and roofs will be on their combination system of ferro-concrete beams and terra-cotta tubes. The whole of the fireproof floors, roofs and staircases of the new chemical laboratory, Cambridge, will also be constructed on the ferro-concrete beam and tube system. Both these jobs are to be carried out without centring.

THE additions to the Reigate and Redhill hospital are being warmed and ventilated by means of Shorland's patent Manchester grates.

A CHIME clock, with two large external dials, is now erecting at Brodsworth parish church as a memorial. The work is in the hands of the makers, Messrs. Wm. Potts & Sons, Ltd., Leeds and Newcastle, and will be completed by an early date.

THE British Consul at Christiania announces that the Corporation of Vardo have issued a call for tenders for the supply and delivery of 290 tons of cast-iron pipes, 38 tons of galvanised asphalted steel pipes and a number of halves, besides other material. Tenders are to be delivered by November 30, 1907, to "Stadsingenioren," at Vardo. Copies of specifications, conditions and drawings may be inspected by British makers at the Commercial Intelligence Branch of the Board of Trade.

HOLY TRINITY CHURCH, Exmouth, Devon, was consecrated on Wednesday, October 30, by the Lord Bishop of Exeter. The tower and nave have been completely remodelled and rebuilt, and a new chancel, chapel and vestries have been added. The work has been well done by Messrs. Wilkins & Sons, of Bristol, at a cost of about 13,000*l.*, under the supervision and from the designs of Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., of 6 Queen Anne's Gate, Westminster.

B. N. SNEWIN & SONS, LTD.

MAHOGANY, WAINSCOT, AND TIMBER MERCHANTS,  
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SLOW DRYING.

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SUMMER DRIED SEASONED STONE FOR WINTER USE.



## VARIETIES.

THE plan for building a prison on the Borstal system at Brompton, near Retford, has been abandoned, and an asylum is to be erected on the proposed site.

At the weekly board meeting of the directors of the London and Lancashire Fire Insurance Company, held on Monday last, Mr. George H. Robertson, hitherto deputy-chairman, was elected to succeed the late Mr. Edward H. Harrison as chairman of this Company.

At Glasgow Dean of Guild Court, held on the 31st ult., the Corporation was authorised to construct the substructures of the south side sewage pumping station at the corner of Park Street and St. James Street, Kinning Park. This part of the Corporation sewage scheme is estimated to cost 12,000*l.*

THE Manchester Council have sanctioned the proposal of the sanitary committee to erect a municipal lodging-house for women on land bounded by Corporation Street, Crown Lane and Ashley Lane. The Council were told that if they acted on the lines pursued in Glasgow the new venture would be self-supporting.

At the annual meeting of Glasgow District Building Trades Exchange, Ltd., the chairman stated that a year ago he mentioned that they had in the city at the time some 14,000 empty houses, and from a return which had been sent to him they had that day 15,000 empty houses, or 1,000 more than they had last year.

THE directors of the South-Eastern and Chatham Railway Company and the Dover Harbour Board have approved plans for widening the Admiralty Pier and constructing the new marine station. The work, which is to cost over 500,000*l.*, is for the cross-Channel and Atlantic passenger traffic.

THE Midland Railway Company have decided to construct a training pier at Heysham, consisting of an extensive timber jetty running out 1,000 feet into the sea. The piles are of jarrah wood from 30 feet to 70 feet in length, and these will be sunk into the ground by water pressure. A considerable quantity of embankment, excavation work and rock-getting will also have to be done. The contract is to be completed by the latter part of next year.

A MEETING of the advisory committee for the building and contracting trades was held on Monday at the offices of the Board of Trade. There were present Mr. A. Wilson Fox (in the chair), Mr. Henry Holloway, Mr. H. H. Bartlett, Mr. Edward Goulding, Mr. John Beal, Mr. Thomas Costigan, Mr. James Leslie, Mr. W. Nicholson, Mr. G. J. Stanley, Mr. H. W. Macrosty and Mr. C. L. Maunders (acting secretary).

THE new water-supply for Prestonpans district, which has cost close on 50,000*l.*, was formally turned on without any ceremony. This large outlay has been incurred owing to the foundations and ponds failing to hold the water by reason of their exceptionally porous nature. The new supply is likely to prove of great benefit to a district that in past years has suffered endless trouble and inconvenience.

THE theatres and music halls committee of the London County Council have had before them drawings of the Wesleyan Methodist Hall, which is to be erected on the site of the old Aquarium in Westminster, and for which an application will be made to the Council for a music license. Accommodation will be provided in the various halls, committee-rooms, &c., for 4,950 persons. The committee recommend, subject to certain alterations, the granting of the customary certificate.

THE Court of Governors of the Birmingham and Midland Free Hospital for Sick Children on Monday unanimously resolved the erection of a new building to be a matter of urgent necessity and instructed the management committee to acquire a freehold site in Ladywood Road. The proposed site is not too far away from the centre of the city, and consists of 13,234 square yards and in round figures will cost about 15,000*l.* The site would permit of an hospital being erected with double the present bed accommodation. It is suggested they should provide for 120 beds.

At the last meeting of the Holland (Lincolnshire) County Council a proposal was submitted for the erection of a new bridge over the river Welland at Fosdyke, and it was recommended that Mr. J. Healey Johnson, of Boston, be appointed to advise the committee and to prepare plans of a new bridge, with an estimate of the cost. An amendment was moved in favour of the design being thrown open to competition and a premium of 100*l.* offered, but upon a division the committee's recommendation was approved by seventeen votes to thirteen.

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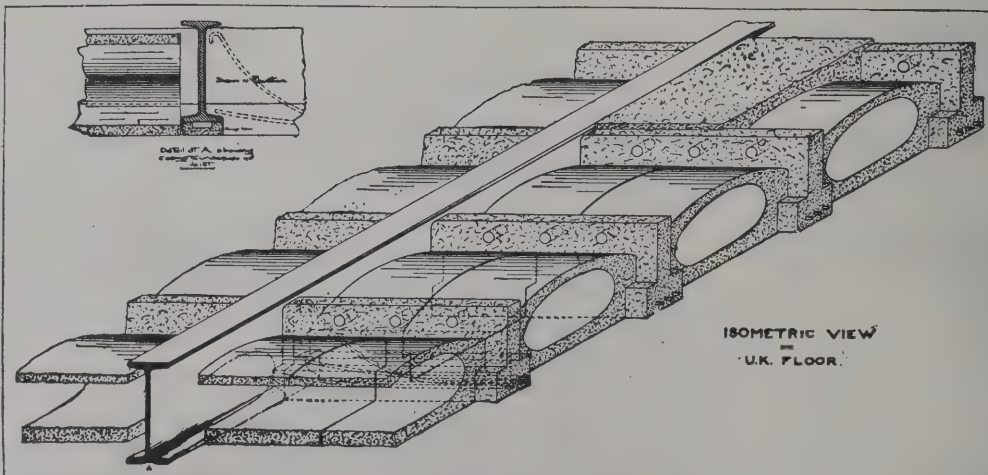
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## ILLUSTRATIONS.

MOOR CRAG, WINDERMERE.

UPCOTT HOUSE, OKEHAMPTON.

TURNBERRY HOTEL, AYRSHIRE, N.B.

WINDOWS IN THE NAVE ROOF, ST. MARY THE VIRGIN,  
BEDDINGTON, SURREY.

It is reported that a slight leakage has been discovered in each of the three new reservoirs constructed by the Halifax Corporation at Walshaw Dean, the water falling round the corner of the embankments, and that the main embankments are not defective. The leakages are not regarded as serious by the waterworks committee. The reservoirs have already entailed an expenditure of about 350,000*l.*, double the original estimate. The chief cause of the increased expenditure was the digging of the trenches to a much greater depth than was originally considered necessary.

The magistrate at Brentford police court adopted an unusual method in the case of a schoolboy who had damaged a tree planted by the Corporation at Ealing. He ordered the lad to provide another tree which would meet with the approval of the borough surveyor. He is then to plant it himself, and, failing this, will have to pay 1*l.* and costs. The magistrate said that if the children of this country were brought up as those in Germany and Switzerland, and taught to plant trees in the public highway, there would be less wanton destruction of trees provided by public authorities.

The Local Government Board gave their final decision respecting the Surbiton sewerage scheme when a deputation waited on them. After hearing what the deputation had to say, the official acting on behalf of the Board informed those present that his Board had fully considered the scheme proposed and could not sanction it being proceeded with. The Board advised that a new and less expensive one should be got out and fresh tenders sought for the contract. When that was completed the Board would hold a new

inquiry and give their decision. It should be mentioned that the cost of the sewerage scheme totalled up to over 70,000*l.*, and the accepted contractor was Stephen Kavanagh & Co., whose contract price was 48,810*l.* 16*s.*

The half-yearly general meeting of the Southern Counties Federation of Master Builders was held in Portsmouth on Thursday of last week. The chair was taken by Mr. F. Wallis, of Maidstone (president of the Southern Counties Federation), supported by the Secretary of the National Federation of Building Trade Employers, in addition to members from London, Maidstone, Southampton and Gosport. It was agreed that an organisation committee should be formed, composed of three representatives from each town in the Southern Counties Federation, to meet occasionally and arrange for meetings in various towns throughout the area of the Federation, in order to stimulate and advance their objects. Messrs. S. Salter, M. Coltherup and G. R. Chamberlain were elected as the local representatives on this committee, and Messrs. Salter (Portsmouth) and Marshall (Southampton) on the national committee.

In the House of Lords on October 29 the Lord Chancellor, the Earl of Halsbury, Lord Macnaghten and Lord Atkinson heard the arguments and gave judgment in an appeal at the instance of the Great Western Railway Company against Messrs. S. Pearson & Son, Ltd., the contractors. The point was argued as to whether in regard to the amount due to the respondents in respect of a big contract which they had carried out for the appellants, the Great Western Railway Company, an appeal was permissible on an error of law on the face of the award of the arbitrator acting upon the instructions of the Court. Their lordships dismissed the appeal, holding that no error of law was shown on the face of the award, but reserved their opinion as to jurisdiction on a case where there had been such error. The appeal was accordingly dismissed, with costs.

The Council of the Institution of Civil Engineers have made the following awards for the year 1906-7:—*The Howard quinquennial prize* to Mr. T. E. Vickers, C.B., in recognition of the part he has taken during his career in developing and improving the production of steel for important engineering purposes; *Telford gold medals* to

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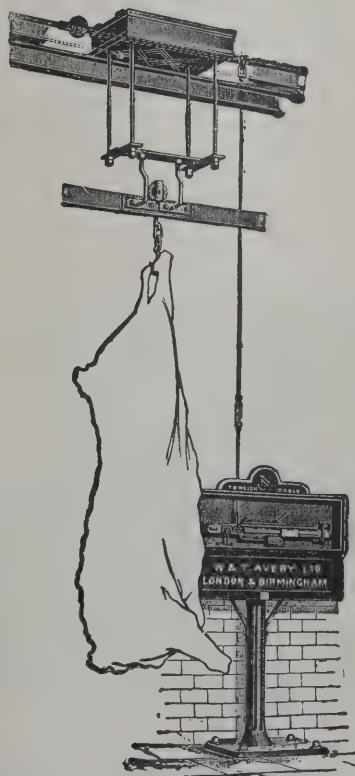
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WHOLESALE MEAT  
MARKETS at HOME  
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Customers' . . .  
Requirements . .

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Messrs. Dugald Clerk (London) and E. J. Way (Johannesburg); *Watt gold medals* to Messrs. J. T. Milton (London), A. W. Brightmore, D.Sc. (Egham) and C. W. Lloyd-Jones (Secunderabad); *George Stephenson gold medals* to Messrs. G. A. Hobson (London) and W. C. Copperthwaite (London); *Telford premiums* to Messrs. C. F. Jenkin, B.A. (London), W. A. P. Tait, B.Sc. (Edinburgh), A. P. Trotter, B.A. (London), M. Kellow (Penrhyndeudraeth), H. J. S. Heather, B.A. (Johannesburg), A. M. Robeson (Johannesburg) and J. W. Kitchin (Bristol); a *Crompton prize* to Mr. R. F. Thorp (London); *Manby prizes* to Messrs. S. A. Frech (London) and G. D. McGlashan (Blyth); *The Miller scholarship* and the *James Forrest medal* to Mr. A. C. Anderson (Wolverhampton); *Miller prizes* to Messrs. R. A. Whitson (Basutoland), C. A. Ablett, B.Sc. (Addiscombe), E. H. Heathcote, M.A. (Henbury, near Macclesfield), G. B. G. Hull (Stockport), H. Stringer (Stoke-on-Trent), G. F. Walton (Edenfield, near Manchester) and A. T. Weston, M.Sc. (Woolwich); *Bayliss prizes*, awarded on the results of the October and February examinations, 1906-7, respectively, to Messrs. F. C. R. H. Boyd (Luxor, Upper Egypt) and D. J. Morris (Swansea).

### ELECTRIC NOTES.

THE West Derby Board of Guardians have discovered, with regard to the lighting and heating of Mill Road Infirmary, that if they had obtained electricity from the Corporation, they would have been charged  $3\frac{1}{2}d.$  per unit. But they had been able to manufacture it themselves for  $3d.$ , thus effecting a saving of  $\frac{1}{2}d.$  per unit, which represented a saving on the last half-year of 104*l.* 6*s.* 9*d.*

THE West Ham Corporation electricity department have secured a contract with the Wholesale Co-operative Society to supply their flour mills and their soap factory at Silvertown with electrical power for all purposes. The contract is based on an annual consumption of 5,500,000 units—a supply which exceeds in amount the total output of many towns which have municipal electricity undertakings. For power purposes West Ham charges only one penny a unit, and gives special discounts to large consumers.

THE new electricity generating station erected by Greenock Corporation in Dellingburn Street has been opened. Some time ago the municipal authorities decided to build a refuse destructor, and as the existing electricity establishment in Hunter Place has been producing its full capacity of current for several years, it was further resolved that the heat available from the burning of the refuse should be utilised for raising steam for the production of electricity. Although the destructor is not yet completed, the latter part of the scheme has now been inaugurated, and the Corporation will thereby be enabled to meet the growing demand for electricity, both for lighting and traction purposes. The total cost of the destructor and electric-power station is estimated at about 41,700*l.*

SIR ALFRED HICKMAN is laying down a complete new steel plant at his Spring Vale Works, near Wolverhampton, at an estimated cost of nearly 100,000*l.* The new mill is being built on the latest American principles, and will be worked entirely by electricity, being the first mill in England worked on this principle. It will be capable of turning out every class of heavy steel bars, plates and girders, and will have a capacity largely exceeding that of any mill in this country. The metal ore will now be run direct from the furnaces into a patent mixer, and being converted into ingots will be conveyed in a malleable state to the mill, where it will be rolled down into bars or plates as required. The new system will accelerate the production of steel and also secure more uniform and better results. It is expected that the mill will be completed early in the new year, and the Staffordshire Steel and Ingot Works will then be the best-equipped works in England, and capable of meeting the severest competition from America or Germany.

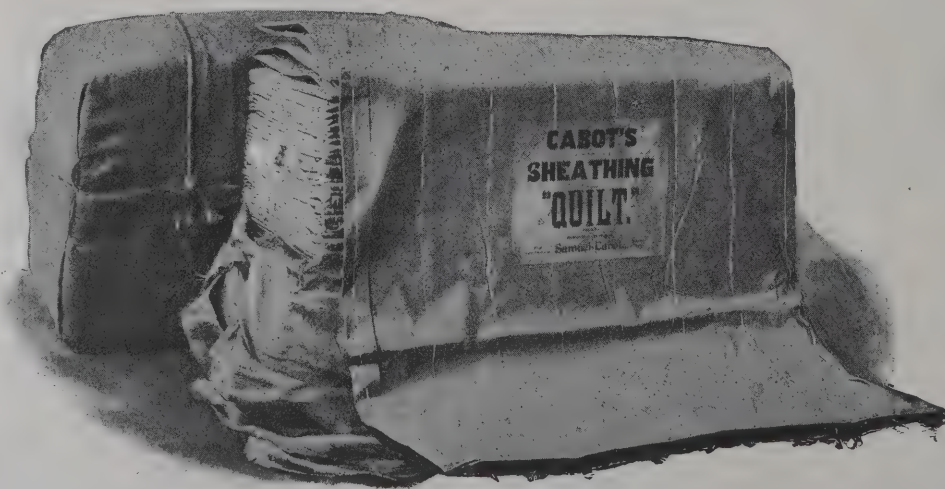
A LOCAL GOVERNMENT BOARD inquiry was held at the Surbiton Council Chambers last week by Mr. H. R. Hooper, respecting the application of the District Council to borrow 20,000*l.* for the purposes of their electric-lighting scheme. The original agreement entered into by the Council with the Messrs. Callender was that the Council would retain possession of the electric-light works at the end of twenty-five years, if desirable. In December, 1905, the engineers, Messrs. Talbot & Stevenson, recommended that a further loan was necessary to extend the works. The original loan, which

## CABOT'S INSULATING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other Deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND UNINFLAMMABLE.

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## ARTHUR L. GIBSON & COMPANY,

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had been expended, was 50,000*l*. A difficulty had arisen as to whether this agreement with Messrs. Callender was ultra vires, inasmuch as the formal sanction of the Board of Trade had not been obtained previously. That sanction was given in July 1907. The original loan had been exceeded by 2,600*l*. The demands on the works had increased. The money was required for an additional engine and dynamo, for which it would be necessary to extend the engine-house. They proposed to add 21 feet, giving sufficient accommodation for two engines. It was also proposed to extend the boiler-house, and there were additional services and heaters required as from March 1907 to 1910, and extension of mains.

### BUILDINGS ON SMALL FARMS.

An interesting scheme is being promoted in connection with the agricultural section of the Scottish National Exhibition in Edinburgh under the joint direction of the exhibition executive and the Highland and Agricultural Society. The competitions are promoted with the object of encouraging the devising of improved buildings for small holdings. The scheme falls into three classes, and under the first class a first prize of 5*l*. and silver medal, a second of 2*l*. and bronze medal, and third a bronze medal, are to be awarded for plans and specifications of buildings suitable for holdings not exceeding 20 acres in extent. The buildings are to include a dwelling-house of at least four apartments, and accommodation for one horse, two to four cattle, two to four pigs and poultry. The cost is not to exceed 350*l*. Slightly higher premiums are to be awarded for a one-pair of horse farm, and here the buildings are to include a dwelling-house of four to five apartments and accommodation for at least two horses, about ten to twenty cattle, four to six pigs and poultry, with cart and tool shed and barn suitable for small threshing machine. The cost should not exceed 50*l*. Special attention is asked as to economy in cost and durability and comfort, plans being drawn to a scale of a quarter of an inch to one foot. It is proposed that part or whole of the premiated designs should be erected in the exhibition grounds on a site to be allocated, and competitors are requested to state whether or not they would

be willing to erect full-sized models at their own cost, or upon what other conditions they would arrange to do this. Medals are also to be awarded for building materials suitable for the erection of small holdings with special regard to their economic value and ease of transport and accessibility, and implements for small holdings.

### DRY SANITATION.

The second edition of a brochure by Mr. J. Donkin, F.R.I.B.A., published by Messrs. Spon, Ltd., and entitled "Conservancy; or, Dry Sanitation *versus* Water Carriage," has appeared. As the title suggests, the author recommends that arrangements should be adopted for converting animal refuse into a dry manure. The London County Council cannot avoid dumping sludge into the sea. Mr. Donkin suggests the general use of earth closets of a special kind, of which several illustrations are given. He is supported in his conclusions by what has been laid down by sanitarians of large experience, and maintains that by an extension and improvement of the practice by the Rev. Henry Moule, the public health would be benefited and agriculture promoted.

A COUNTY sanatorium for Argyllshire is shortly to be erected near Oban, according to plans prepared by Mr. Neil Gillier, architect, London. The sanatorium will consist of a pavilion for patients in the initial stage of the disease, an isolation pavilion for the accommodation of serious cases and a pavilion for paying patients. The laundry block will be fitted up with the most modern plant for disinfecting, &c. The first-mentioned pavilion is to be built in butterfly form, after the style of the pavilions of the Victoria Hospital for Consumptives in Edinburgh. This pavilion will consist of a ward for male and female patients, each having accommodation for seven beds. The pavilion will be flat-roofed, and roofed-in shelters will be erected at each corner of the building. There will also be two dressing-rooms for patients and a nurses' room. The isolation pavilion will have a male and a female ward, each having three beds. Shelters and chalets will be erected in various parts of the ground.

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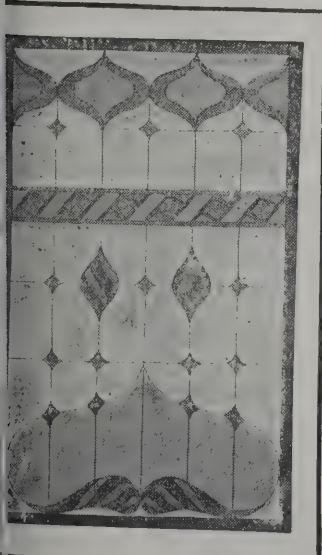
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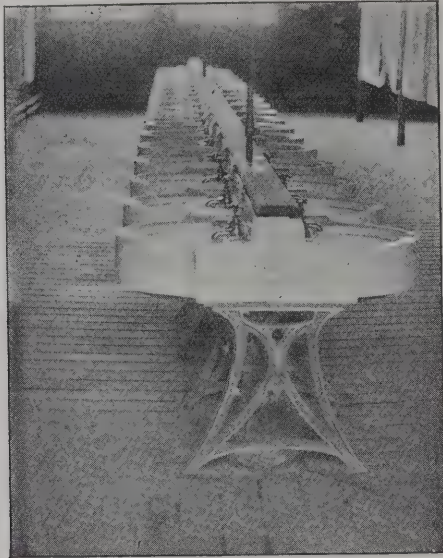
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## NEW CATALOGUES.

WE lately noticed the catalogue of sanitary specialties from Mr. W. E. Farrer, of Birmingham. We think it would be of advantage to the public to suggest a couple of the arrangements. One is a back-to-back fireclay lavatory, which has been adopted in some public institutions for boys. It will be observed that there are several inde-



FIRECLAY LAVATORIES.

pendent lavatories, but they are fixed back to back and supported on strong cast-iron standards. They are able to withstand rough usage should discipline be relaxed. The lavatories are fed through half-inch gun-metal valveless taps, and the supply is controlled by a stop-cock at the end of the range. Ordinary screw-down taps can be supplied, if desired, as well as galvanised wrought-iron waste-pipes discharging into a glazed fireclay channel. From the

character of the design a range of the lavatories, however long, has not the depressing appearance which is too common in schools and institutions. We also show one of the slop-hoppers for hospital use. It will be observed that this is a compound apparatus which serves several purposes. There are other varieties of the hopper, for Mr. Farrer has



HOSPITAL SLOP HOPPER.

given much attention to hospital work, and provides fittings, sinks, operation tables, baths on wheels, &c. The whole catalogue sustains his claim to be considered an engineer and sanitary specialist.

THE catalogue of the "Stellite" electric heaters, manufactured by the Electric and Ordnance Accessories Co. Ltd., Birmingham, has a double claim on our attention. It

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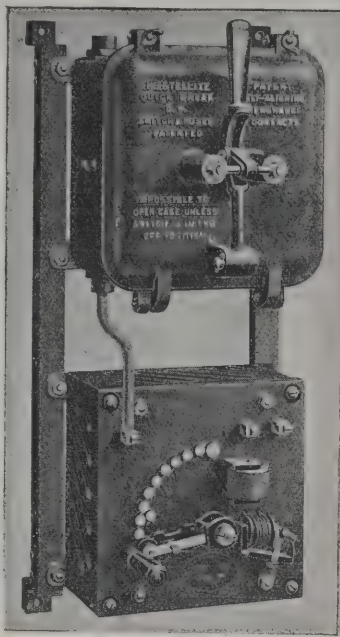
THE  
**Berkefeld Filter Co., Ltd.**  
121 OXFORD ST., LONDON, W.



the first place there are two systems of heating, viz. the "Rivers" system, in which a large number of heating units working at a low temperature are employed; the "Eclipse" system, in which fewer units working at a medium temperature are used. Both have already met with a large measure of success. The heating is accomplished by convection, the heaters being so designed that there is an induced draught of air entering at the bottom of the heater, which passes over and through the heating units and issues from the top at a considerably higher temperature. By this method great uniformity of temperature is attained, as all the air in a room is in a very short time rapidly passed many times through the heater. The designs for the heaters also demand attention, and might well be referred to as evidence of the designing power which is now, fortunately, characteristic of a great part of the products of Birmingham. In the first place the purpose of the heaters is frankly recognised. The cases or bodies have nothing in common with the old-fashioned grates or gas-stoves. Brass, copper, armour and wrought-iron are employed. But throughout handwork imparts character to the material. In the catalogue will be seen examples of the styles which are now preferred, and on a short notice special designs can be supplied in Sheraton, Adam, Chippendale, Jacobean, Georgian, Tudor, Queen Anne, Louis XVI. or any of the French styles. Ship-heaters of no less refined character, while suggestive, are adapted for use on ships, while others are well fitted for factory purposes.

The company also make a specialty of motor and starting gear which can be employed for industrial purposes. The block will suggest one of the arrangements showing the ironclad switch in the "on" position. It is claimed that "the complete panel, combining as it does the undoubted superiority of our ironclad switch with the absolute reliability of our various forms of starters, constitutes a very important advance on the apparatus hitherto employed, and one which has already met with the expressed approbation of leading consulting and electrical engineers, besides complying with the latest requirements of the Board of Trade, Home Office, fire insurance offices, &c. So far as the user is concerned, the compact, strong and simple nature of our panel, and the ease and certainty with which by its use any unskilled workman can operate the motor,

its perfect mechanical and electrical construction and the entire absence of fire risks are advantageous features possessed in their entirety by no other similar gear on the market, and therefore worthy of his closest consideration



MOTOR SWITCH-GEAR PANEL.

when comparing the 'Stellite' appliance with other makes. The prices are low consistent with the high-grade workmanship and materials employed throughout."

MESSRS. WILLIAM CUBITT & Co. have produced a catalogue of showcases, stands, &c. There are a large number taken from the examples which they constructed for the British Museum and the Natural History Museum. As they have been photographed in position the plates will suggest the variety of the contents of the two museums. As such the catalogue is a creditable production.

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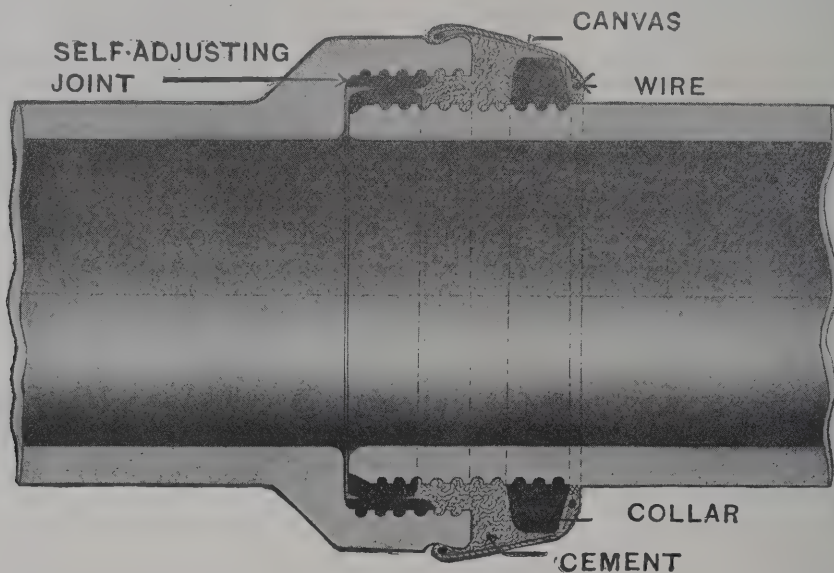


**DOULTON "GROUTED COMPOSITE" JOINT.**

UNLESS precautions are taken joints are the weakest part of most structures, for they cannot all be homogeneous, like immense castings. It is not therefore a peculiarity of drain pipes that, unless special methods are adopted, weakness should be exhibited in connecting them during laying. Two kinds of difficulties arise in attempting to make perfect joints in pipes. Objects of baked clay do

not lend themselves to the operations of workmen as readily as structures in timber or metal. It is also impossible to carry out the operations of jointing pipes as easily as can be accomplished with objects of another kind, when the operations can be performed in a workshop or with adequate space which enables the workmen to come in contact with all parts of the material. Trenches in which pipes are to be laid have to be narrow in order to save expense. They are often damp, and the work must

be carried out in weather however unfavourable. Under these circumstances efforts have been made to reduce the jointing to a sort of mechanical process which could be conducted under adverse circumstances and without any delicate manipulation. Messrs. Doulton have necessarily given much attention to the subject of connections, and their "self-adjusting joint" has been known and adopted in every country where care is given to drainage. In it rings of cheap and durable material are cast on the spigot and

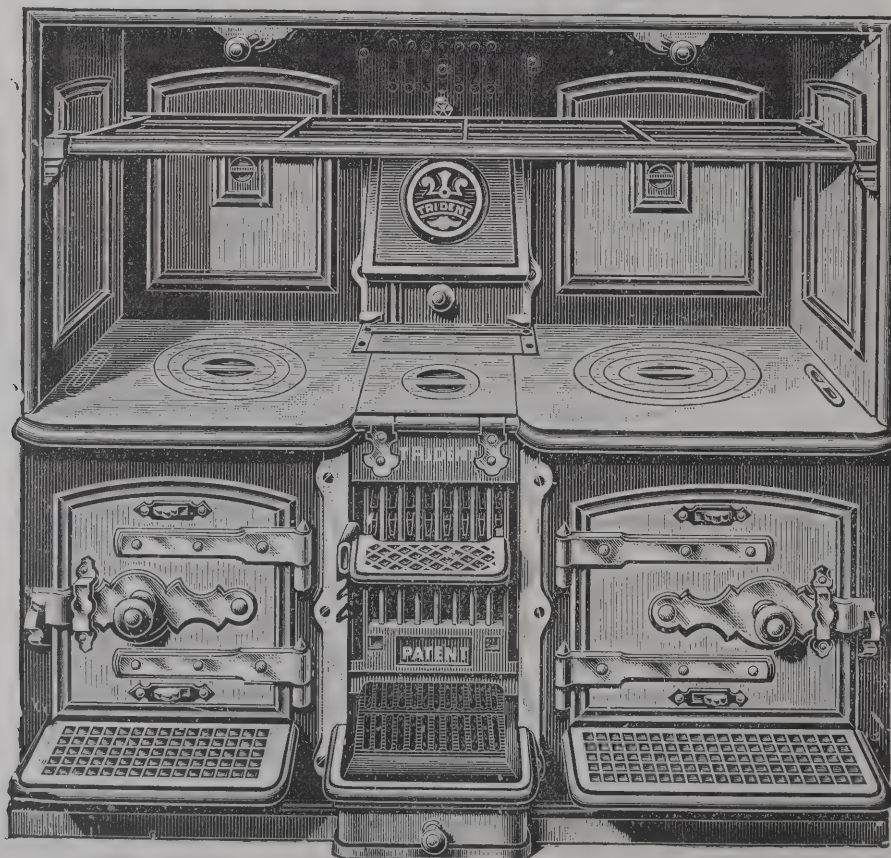


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socket, which fit mechanically when two pipes are put together, and it has formed unquestionably a most effective joint.

Messrs. Doulton do not believe in the French proverb that the best is the enemy of the good, and their self-adjusting joint in its turn has to submit to change. It continues to be as effectual as ever, and it will probably be never superseded. But assurance is made doubly sure by supplementing it with a joint of cement, which can be accomplished in

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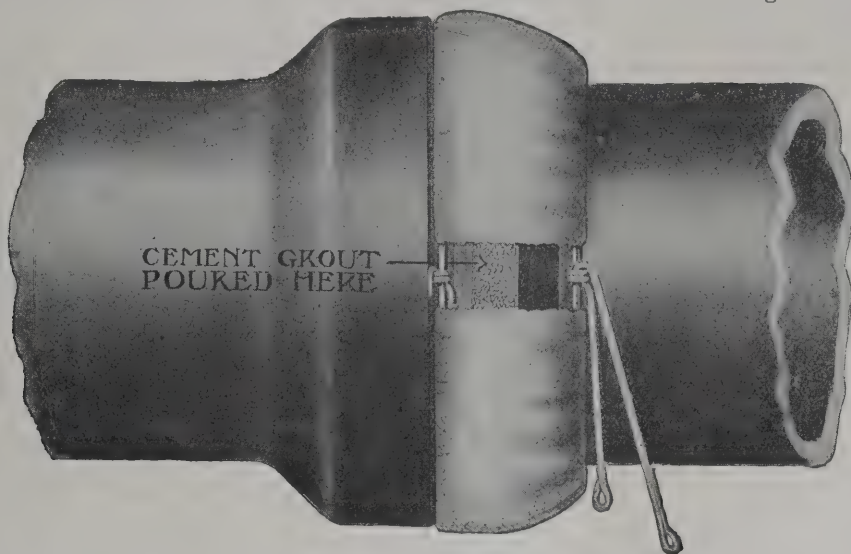
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the trench after the two pipes have been fixed in position by the self-adjusting joint. The system employed in the patent "grouted composite" joint is remarkable for its simplicity and ingenuity. Let the reader imagine a line of stoneware pipes lying in a narrow trench and partially submerged in water. Suppose an official told the foreman that all the pipes were to be surrounded with a belt of cement as neatly executed as a wiped joint with lead pipes. The foreman would become at once dubious about the sanity of the

annular chamber formed by a band of canvas enclosing a space between the end of the socket of one pipe and a collar on the spigot of the adjoining pipe. The band is secured to the pipes by binding wires. An opening is left to allow Portland cement to be poured in between the canvas band or pouch and the surface of the pipe. The operation is simple and involves no unusual toil or trouble nor skill in the workmen, but a perfect ring of cement is formed which will last as long as the pipe. The bottom,



man who gave the order, for he would point out the utter impossibility of insuring that any man could introduce cement around the lower part of the pipe, and that all that could be guaranteed would be a sort of make-believe band which would be visible on the upper part alone. It would possess no sanitary advantage, but, on the contrary, would be injurious rather than otherwise. The self-adjusting joint undoubtedly forms an inner seal to the pipe. But an outer seal of cement gives additional security. In the "grouted composite" joint the grout is poured into an

which is not accessible unless with difficulty, becomes as securely sealed as any other part. The introduction of canvas may surprise theorists, but it should be remembered that canvas bags filled with cement or concrete are known in connection with hydraulic works, and therefore the material is not out of place in a drain. It is simply an envelope, and when the material decays there is no loss, for it has done its work. Although grouting has been attempted in pipe-laying, no method yet adopted is equal to that of Messrs. Doulton's on account of its simplicity

## OUTSIDE FIRE ESCAPE STAIRCASE



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effectiveness, expedition in performance and perfection. A cement ring is formed which seals effectively the exterior of the pipe, and which is an additional guard against disturbance. Another advantage of the canvas envelope is that air and any excess of water in the grout can pass through it, and a perfect ring of cement is thus insured. The new joint has proved tight under an internal hydraulic pressure of 25 lbs. to the square inch. It may therefore be classed among the numerous triumphs of Messrs. Doulton in sanitary engineering.

### TIMBER IN LONDON HOUSES.

AN Act which was passed in 1774 has had an important influence on the building of London. The part relating to the use of timber was especially advantageous, for the careless employment of the material, which was for a long time passed over, was the cause of the destruction of a large amount of property by fire:—

Timber partitions between a building, and any building that was erected or begun to be erected before the passing of the Act, may remain till one of the adjoining houses is rebuilt, or till one of the fronts, or two-thirds of such fronts, which abut on such timber partition, is taken down to the bressummer or one pair of stairs floor and rebuilt.

No timber whatever is at any time hereafter to be laid into any party-arch other than for bond to the same. Nor into any party-wall other than for bond, &c., and the ends of the principal timbers to the floors and roof. But no timber bearer to wood stairs, where an old party-wall has been cut into for that purpose, must be laid nearer than  $8\frac{1}{2}$  inches to any chimney or flue whatever, or nearer than 4 inches to the internal finishing of the building adjoining. No timber to be laid in any oven, copper, stove, still, boiler or furnace, nor within 2 feet of the inside thereof.

No timber whatever to be laid nearer than 9 inches to the opening of any chimney, nor nearer than 5 inches to any flue of a chimney, oven, stove, copper, still, boiler or furnace, or nearer than 9 inches if such timber is placed nearer than 5 feet of the mouth of the same respectively. No timber to be laid under any hearth to a chimney nearer than 18 inches to the upper surface of such hearth. No

timber whatever to be laid nearer than 18 inches to any door of communication through party-walls between warehouses or stables. All woodwork whatever against any breast, back or flue of any chimney must be fixed by iron nails or holdfasts and not to be drove more than 3 inches into the wall or nearer than 4 inches to the inside of the opening of any chimney. Bressummers, storey-posts and plates thereto are only allowed in the ground storey, and may stand fair with the outside face of the wall, but to go no deeper than 2 inches into a party-wall, nor nearer than 7 inches to the centre of a party-wall where it is two bricks thick, nor nearer than  $4\frac{1}{2}$  inches if such party-wall does not exceed one brick and a half in thickness. All window-frames and door-frames to the first, second, third and fourth rate must be recessed in 4-inch reveals at least. Doorcases and doors, to warehouses only, as shall be of the first, second, third or fourth rate, may stand fair with the outward face of the wall. Every corner storey-post, which is fixed for the support of two fronts, must be of oak or stone, at least 12 inches square. No external decoration whatever to be of wood, except as follows:—Cornices or dressings to shop-windows, frontispieces to doorways, of the second, third and fourth rate; covered ways or porticoes to a building, but not to project before the original line of the houses in any street or way, and which covered ways or porticoes must be covered with stone, lead, copper, slate, tile or tin.

No covered way, or the cornice to any shop windows, nor the roof of any portico, is to be higher than the under side of the sill to the windows of the one pair of stairs floor. All other external decorations whatever to the first, second, third and fourth rate are to be of stone, brick, artificial stone, stucco, lead or iron.

Every flat gutter and roof, and every turret, dormer and lantern light or other erection placed on the flat or roof of any building of the first, second, third, fourth and also the fifth rate must be covered with glass, copper, lead, tin, slate, tile or artificial stone. No dripping eaves to be made next any public way, to any roof of the first, second, third or fourth rate, except from the roofs of porticoes or other entrances.

Wood trunks are not to be higher from the ground than to the tops of the windows of the ground storey; the pipes

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from thence upwards must be of lead, copper, tin or iron, and may discharge the water into channel-stones on or below the surface of the ground. Or the wood trunks may be continued down below the surface of the ground into drains, &c., or into brick or stone funnels, and such funnels must in every part thereof be below the surface of the foot pavement.

### LONDON COUNTY COUNCIL SCHOOLS.

WORK is proceeding in connection with the erection of five new schools, the rebuilding of one school, the enlargement of five schools and the improvement of five schools, giving a total additional accommodation of 6,620 at an estimated cost of 171,654*l*. Two secondary schools are in course of erection, and a training college is being enlarged, giving a total additional accommodation of 1,348, at an estimated cost of 55,250*l*. Three technical institutes and a day training college are in course of erection, at a total estimated cost of 167,610*l*. Two manual training centres for forty boys each, and three special schools, giving a total accommodation for 260 children are being built; alterations are being made at an existing special school; a laundry and housewifery centre is being erected, and additional temporary special school accommodation is being provided at a total estimated cost of 18,842*l*. A scheme of sanitary improvement is being carried out at one school at an estimated cost of 2,658*l*. Redivision of rooms, enlargement of playgrounds and other minor improvements have been carried out at fifty-five schools, at an estimated cost of 9,641*l*.

Tenders have been accepted for cleaning or painting work at 104 schools, heating work at seven schools, the erection of iron staircases at one school, the erection of a house for the accommodation of the schoolkeeper of a secondary school, the enlargement of the playground of one school, sanitary improvements at a secondary school, alterations to the classrooms of an industrial school and the erection of lightning conductors at a day training college and a technical institute. The estimated cost of these works is 30,109*l*.

Contracts for repairs to heating apparatus, boiler setting,

repairs to the brickwork of boilers, repairs to school buildings in the Brixton county electoral division and tar paving have been terminated and new tenders have been invited for the work. Tenders have also been invited for cleaning the windows of Council schools throughout the county, and contractors are required to state therein the rates of wages proposed to be paid by them.

Alterations at four secondary schools, a day training college, a pupil-teacher centre, a school of art, a technical institute and a special school have been authorised, together with the adaptation of three buildings for secondary school purposes, and alterations and repairs at three schools. The total cost of these works is estimated at 3,016*l*. Expenditure amounting to 3,033*l* has been sanctioned for certain necessary minor improvements and repairs at various schools including heating work, painting and cleaning.

### LONDON COUNTY COUNCIL AND THE TWELVE-MILE RADIUS.

A STANDING order of the London County Council provides that the rates of wages and the hours of labour to be paid and observed by the Council in works which are in the nature of construction or manufacture, and which the Council may resolve to execute without the intervention of a contractor within a radius of twenty miles from Charing Cross, shall be the rates and hours set forth in the Council's list, which is based on the rates and hours recognised by associations of employers and trade unions and in practice obtained in London. The standing order also provides that contractors for works of the nature above-named shall be required to pay wages at rates not less, and to observe hours of labour not greater, than the rates and hours in the Council's list. The radius within which the standing order operates was fixed by the Council on December 16, 1892, when it framed the standing orders as to rates of wages and hours of labour which are with slight alteration now in operation.

On November 30, 1897, the Council, when revising the standing orders as to rates of wages and hours of labour, altered the radius from twenty to twelve miles, the altera-



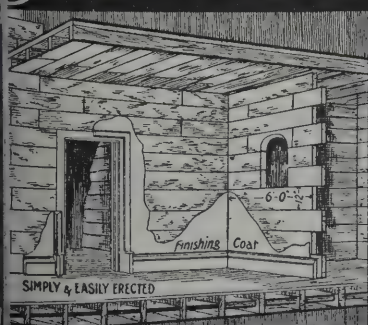
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tion being made as a result of representations made by the Institute of Builders and of objections raised before the special committee on the works department appointed in 1897, but on May 10, 1898, the Council decided to revert to the twenty-mile radius and this radius still obtains.

The working rule agreements between the London Master Builders' Association and the several metropolitan trade unions recognise the London area, within which such agreements are operative, as that within a radius of twelve miles from Charing Cross, and the Master Builders' Association have represented that the variation between the radius adopted by the Council and that jointly agreed to by the Builders' Association and the trade societies is calculated to cause friction between employers and workmen, and to breed discontent among workmen engaged by the same employer on works in close proximity to each other. They further point out that the application of London working rules to the larger area materially increases the cost to the Council of works situated between the two radii.

The general purposes committee consider that the area, with a radius of twelve miles, agreed upon between employers and workmen should be that within which the Council's list of rates of wages and hours of labour should apply, and it is recommended that "twelve" should be substituted for "twenty" in standing orders.

### LIVERPOOL DOCK WAREHOUSES.

It is only of comparatively recent date that attempts have been made in this country, says the *Liverpool Courier*, to employ the combination of metal and concrete in carrying out building operations on a large scale. The Mersey Docks and Harbour Board are adopting this system in connection with the new triple-storey shed or warehouse now being erected on the south quay of the Sandon Dock. This shed is intended for the accommodation of general produce. The general dimensions are—greatest length 630 feet, breadth 94 feet and height 56 feet. The work is now in an advanced state, and by the courtesy of the Dock Board and their engineer-in-chief (Mr. A. G. Lyster) the members of the Liverpool Engineering Society were enabled to inspect the

building last week. They were received by the Dock Board's resident engineer (Mr. R. W. Knollys), who conducted the party over the huge premises and explained the technical details, which proved of great interest to the members. In the building of the walls, columns, floors, staircases, &c., reinforced concrete is being used, that is, Portland cement concrete with steel rods and bands embedded therein.

The largest columns have each twelve steel rods of  $1\frac{3}{4}$ -inch diameter, and measure 21 inches by 24 inches. The largest beam has a 47 feet span containing twelve bars, eight of which are 2 inches diameter and four of  $1\frac{3}{4}$ -inch diameter. In the higher portions of the buildings there are beams with nine rods, six of which are  $2\frac{1}{4}$  inches diameter and three of 2 inches diameter. The foundations are on piles also composed of ferro-concrete. The area of the ground floor is about 5,400 square yards, whilst the upper floors, of which there are two, have an area of about 6,600 square yards. The roof is practically flat, and is constructed of the same materials as the rest of the building. It is anticipated that the work of erection will be completed early next year. The visit proved of undoubted interest to those engineers who were fortunate enough to be present, and it was felt that the Dock Board were to be congratulated upon the highly successful results obtained with this somewhat novel style of building, which will undoubtedly prove of great advantage to the port and ship-owners when brought into use.

THE amended plans of the new bridge to be erected over the roadway at Tynecastle have been approved by the streets and buildings committee of Edinburgh Town Council. The probable cost will now be increased from 4,500*l.* to 5,000*l.*, but the erection of the bridge will be delayed till after next year's exhibition.

A SCHEME prepared by the Salford borough engineer for constructing a relief sewer and storm-water overflow from the Dock Road, near the Weaste Cemetery, to Liverpool Street, opposite the recreation ground, at an estimated cost of 25,218*l.*, for the purpose of relieving the flooding in the Weaste district, is under the consideration of the Salford highway and paving committee.

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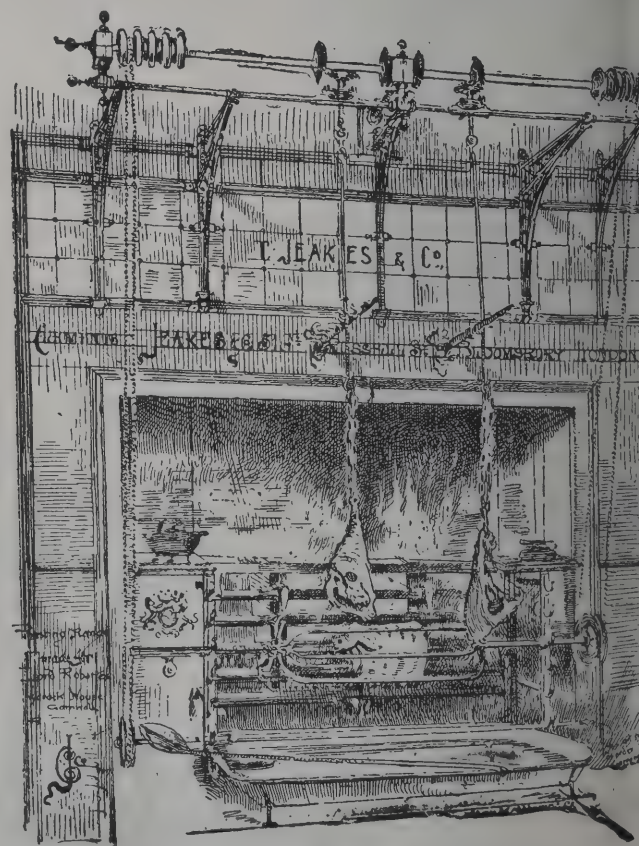
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THE

**Architect and Contract Reporter.**

FRIDAY, NOVEMBER 15, 1907.

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*P. A. GILBERT WOOD,*

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*Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.*

**EDITORIAL NOTICES.**

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

**TENDERS, ETC.**

*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

**COMPETITIONS OPEN.**

**HELSEBY.**—The Runcorn rural administrative sub-committee for education of the Cheshire County Council invite competitive designs for an elementary school to be erected at Helsby, to provide accommodation for 200 children, and to be suitable for subsequent extension. Deposit 2*l.* 2*s.* Mr. George F. Ashton, clerk to the sub-committee, 71 High Street, Runcorn.

**HERTFORD.**—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500*l.* Premiums of 50*l.* and 20*l.* will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

**THURLSTONE.**—Nov. 25.—The Thurlstone Urban District Council invite plans for council-room, offices, caretaker's house and outbuildings (cost not to exceed 650*l.* for building and heating apparatus only). For instructions and particulars apply to Mr. J. Wadsworth, clerk, Thurlstone, near Penistone.

**WARRINGTON.**—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1*l.* 1*s.* Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

**WIGAN.**—The committee appointed by the county borough of Wigan invite models and sketches for a statue to Sir Francis Sharpe Powell, Bart, M.P. An assessor will be duly appointed. Mr. Harold Jevons, Town Clerk's Office, Wigan.

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## CONTRACTS OPEN.

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**BLACKWELL.**—Nov. 19.—For alterations and improvements at Blackwell Council school. The County Education committee's architect, Shire Hall, Durham.

**BIRMINGHAM.**—Dec. 9.—For excavations, foundations and erection of lower ground floor of buildings in extension of Council House. Deposit 5*l*. 5*s*. Messrs. H. V. Ashley & Winton Newman, architects, 14 Gray's Inn Square, London, W.C.

**BRISLEY.**—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

**BRISTOL.**—Nov. 20.—For extension of asylum buildings. Deposit 5*l*. 5*s*. Mr. Peter Addie, city valuer, Bristol.

**BRIXHAM.**—Nov. 22.—For construction of a shelter at Brixham pier, adjoining steamer landing stage. Mr. Joseph L. Arlidge, clerk, Town Hall, Brixham, Devon.

**CADLEIGH.**—Nov. 16.—For renovation of Old Cadleigh farmhouse, Devon. Mr. J. Smith, Cadleigh Farm, Ivy-bridge.

**CARDIFF.**—Nov. 20.—For sundry alterations to Grange-town Conservative Club premises, Corporation Road, Grangetown. Mr. W. Caple, architect, 2 Church Street, Cardiff.

**CHATTISHAM.**—Nov. 30.—For rebuilding tower buttress of Chattisham Church, Ipswich. The Vicarage.

**CHEPPING WYCOMBE.**—For new elementary school at Chepping Wycombe, Bucks. Deposit 1*l*. 1*s*. Mr. Thomas Thurlow, architect, High Wycombe, Bucks.

**EAST HARTFORD.**—Dec. 2.—For erecting a Council school to accommodate 240 scholars at East Hartford, near Cramlington, Northumberland. Deposit 2*l*. 2*s*. Mr. C. Williams, secretary to the education committee, Pearl Buildings, Newcastle-upon-Tyne.

**FAILSWORTH.**—Nov. 30.—For erection of public library on site adjoining Council offices, Oldham Road. Deposit 2*l*. Messrs. Ogden & Hoy, architects, Examiner Buildings, Strutt Street, Manchester.

**GLASGOW.**—Nov. 25.—For (1) brick, (2) joiners', (3) plumbers', (4) plasterers', and (5) slaters' and rough-cast works required in erection of a shelter in the Richmond Park. The Office of Public Works, 64 Cochrane Street, Glasgow.

**HATFIELD.**—Dec. 2.—For alterations and additions at the Sawbridgeworth, Fawbert and Barnard County Council school. Deposit 2*l*. Mr. U. A. Smith, County Surveyor's Office, Hatfield.

**HEATON.**—Nov. 20.—For erecting stores, &c., at the carriage and waggon works, Heaton, Newcastle-on-Tyne, for the North-Eastern Railway Co. Mr. William Bell, company's architect, Central Station, Newcastle-on-Tyne.

**ILFRACOMBE.**—Nov. 19.—For constructing and erecting refuse destructor on land adjoining Hillside Road. Deposit 2*l*. 2*s*. Mr. Oswald M. Prouse, engineer and surveyor, Town Hall, Ilfracombe.

**IRELAND.**—Nov. 16.—For extension and improvements to National schoolhouse, Mell, Drogheda. Mr. Finian H. Tallan, architect and surveyor, 106 West Street, Drogheda.

**KEIGHLEY.**—Nov. 18.—For erection of retaining and fence walls adjoining the workhouse. Messrs. B. B. Broster & Sons, engineers and surveyors, Craven Bank Chambers, Keighley.

**KEIGHLEY.**—Nov. 20.—For erection of conveniences at Wellington Square. Mr. Fowlds, borough engineer.

**KEMPTON PARK.**—Dec. 11.—For construction of coal bays, fitting and other workshops, stores, tool houses, conveniences and other works to be erected at Kempton Park, for the Metropolitan Water Board. Deposit 5*l*. The Engineer of the Staines Reservoirs Communication Works, The Firs, Southern Road, Fortis Green, Finchley, N.

**KINVER.**—Nov. 25.—For construction of pumping station and turbine-house, sluice gates, pumping and delivery mains and reservoir, and other works in connection with water supply of Kinver, Seisdon, Staffs. Deposit 5*l*. 5*s*. Mr. Sidney R. Lowcock, engineer, Temple Courts, Temple Row, Birmingham, or 50 Queen Anne's Gate, Westminster, S.W.

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LEIGH-ON-SEA.—Nov. 20.—For erection of a purifier shed at the gasworks. Deposit 1*l*. 1*s*. Mr. John W. Liversedge, C.E., surveyor, the Leigh-on-Sea Urban District Council.

LONDON.—Nov. 19.—For erection of a county court at Westminster. Deposit 1*l*. 1*s*. Mr. H. N. Hawks, I.S.O., H.M. Office of Works, &c., Westminster, S.W.

LONDON.—Nov. 20.—For alterations at Paddington workhouse, Harrow Road. Deposit 3*l*. Mr. E. Howley Sim, architect, Mowbray House, 14 Norfolk Street, Strand, W.C.

MANCHESTER.—Nov. 20.—For erection of superstructure of new sorting office at Newton Street. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

MEXBOROUGH.—Nov. 18.—For erection of retaining wall, market shops, and other incidental works thereto, at Market Street. Deposit 1*l*. Mr. G. Fenwick Carter, surveyor.

NEWCASTLE-UPON-TYNE.—Nov. 18.—For construction of an underground public urinal at corner of North View and Heaton Road. Deposit 2*l*. 2*s*. The City Engineer's Office, Town Hall, Newcastle-upon-Tyne.

NEW HUNSTANTON.—Nov. 29.—For enlargement of New Hunstanton school, Norfolk. Deposit 2*l*. 2*s*. Mr. H. J. Green, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

NOTTINGHAM.—For pulling-down old walls, clearing site and erection of new Albert Hall. Deposit 2*l*. 2*s*. Mr. A. E. Lambert, architect, 22 Park Row, Nottingham.

OVERTON.—Nov. 30.—For pulling-down tower of church at Overton, Hants, and rebuilding same. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

PAIGNTON.—Nov. 23.—For erection of science and art school in Bishop's Place. Deposit 1*l*. 1*s*. Mr. W. G. Couldrey, architect, Palace Avenue, Paignton, Devon.

REDRUTH.—Nov. 27.—For erection of a police station and appurtenances at Redruth, Cornwall. Mr. Oliver Caldwell, architect, Penzance.

ST. MICHAEL'S MOUNT.—Nov. 30.—For erection of two cottages. Mr. W. G. Painter, Steward's Office, St. Michael's Mount, Marazion, Cornwall.

SCOTLAND.—Nov. 18.—For mason, carpenter, plumber, slater, plasterer and painter and glazier's work of proposed shop and tenement buildings in Marischal Street, Peterhead. Mr. Arthur Clyne, architect, 123½ Union Street, Aberdeen.

SCOTLAND.—Nov. 19.—For mason and brickwork, carpenter, slater and plumber's work of additions and chimney-stalk at Messrs. Low, Sons & Co.'s net factory, Elgin. Mr. Charles C. Doig, architect, Elgin.

SHEFFIELD.—Nov. 16.—For erection of tea and refreshment-room in Endcliffe Woods. Deposit 10*s*. City Surveyor's Office, Town Hall, Sheffield.

SILKSWORTH.—Dec. 3.—For erection of Silksworth school, Durham. Messrs. Brown & Spain, 51 Fawcett Street, Sunderland.

STOKE BARDOLPH.—Nov. 18.—For erection of cow-sheds, stabling, &c., at the Home Farm, Stoke Bardolph, Nottingham. Mr. Arthur Brown, M.I.C.E., city engineer, Guildhall, Nottingham.

STOKE EDITH.—Nov. 19.—For erection of station buildings and verandahs at Stoke Edith, near Hereford, for the Great Western Railway Company. The Engineer at Gloucester Station.

STYAL.—Nov. 28.—For erection of additions to senior schools at Styal Homes, Cheshire. Deposit 2*l*. 2*s*. Messrs. J. W. Beaumont & Son, architects, 10 St. James's Square, Manchester.

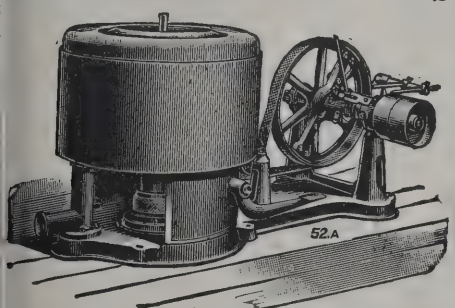
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TRELISSICK, IN ST. EWE.—Nov. 22.—For erection and reconstruction of new and existing farm buildings. Messrs. Carlyon & Stephens, solicitors, St. Austell.

WALES.—Dec. 5.—For building school at Cwmgwili, Cross Hands, Carmarthenshire. Mr. W. Vincent Morgan, county education architect, County Offices, Carmarthen.

WINLATON.—Nov. 19.—For alterations and improvements at Winlaton Council schools, Durham. The County Education committee's architect, Shire Hall, Durham.

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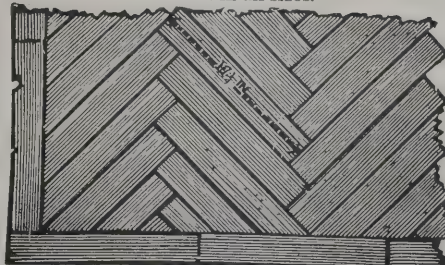
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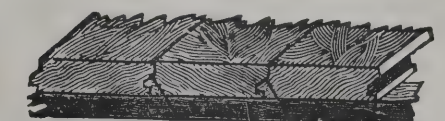
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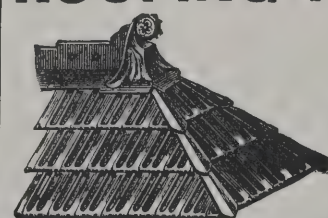


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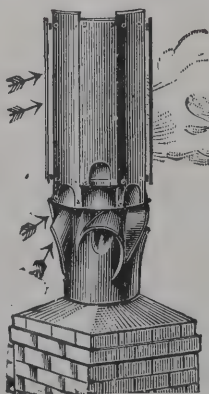
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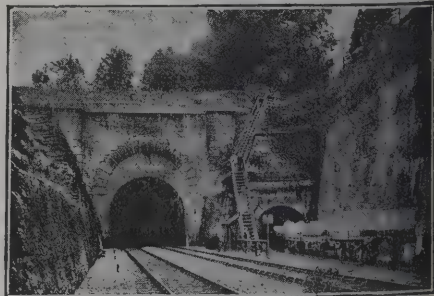
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Fenwick . . . . .	10,950	0	0
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Alley & McLellan . . . . .	724	0	0
Entwistle & Gass . . . . .	710	0	0
Brackett & Co. . . . .	697	0	0
Reavell & Co. . . . .	685	0	0
Fowler & Co. . . . .	681	15	0
British Westinghouse Co. . . . .	676	10	0
Worthington Pump Co. . . . .	663	10	0
Electrical Co. . . . .	662	0	0
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Saunders & Co. . . . .	2,500	0	0

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Simmonds . . . . .	£2,445	0	0
Kingscott & Winfield . . . . .	2,352	0	0
Jones . . . . .	2,290	0	0
King & Son . . . . .	2,278	0	0
Crane, Ltd. . . . .	2,144	0	0
Byard & Sons . . . . .	2,144	0	0
Bowers & Co. . . . .	2,120	0	0
ESTCOURT & SONS, Gloucester (accepted) . . . . .	2,100	0	0
Freeman & Jones . . . . .	2,097	0	0
Gurney . . . . .	2,090	0	0

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For erection of technical institute. Messrs. JARVIS & RICHARDS, architects, 36 Victoria Street, S.W.

Wallis . . . . .	£11,249	0	0
Salter . . . . .	11,219	0	0
Cæsar Bros. . . . .	11,719	0	0
Fry . . . . .	11,050	0	0
Drowley & Co. . . . .	10,991	0	0
Haslemere Builders . . . . .	10,920	0	0
Potter Bros. . . . .	10,900	0	0
Mitchell Bros. . . . .	10,700	0	0
Patrick . . . . .	10,699	0	0
Chessum & Sons . . . . .	10,697	0	0
Hawkins & Co. . . . .	10,607	0	0
Nightingale . . . . .	10,600	0	0
Fitt . . . . .	10,578	0	0
Highlett & Hammond . . . . .	10,497	0	0
Cropley Bros. . . . .	10,470	0	0
Wall . . . . .	10,429	0	0
Tribe & Robinson . . . . .	10,400	0	0
Wakeham Bros. . . . .	10,391	0	0
Stephens, Bastow & Co. . . . .	10,319	0	0
Martin, Wells & Co. . . . .	10,315	0	0
Rowland Bros. . . . .	10,299	0	0
Jarman, Dawes & Co. . . . .	10,188	0	0
Moss & Co. . . . .	10,152	0	0
Allen, Fairhead & Son . . . . .	10,146	0	0
Saunders . . . . .	10,142	0	0
Higgs & Outhwaite . . . . .	10,025	0	0
Foster . . . . .	9,917	0	0
LAWRENCE & SON, Waltham Cross (accepted) . . . . .	9,884	0	0

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For repairs to roof and interior of church. Mr. R. G. M.  
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Ridger . . . . .	£203	11	0
Moth . . . . .	182	17	0
Simmons . . . . .	169	0	0
Hudson . . . . .	161	0	0
MacEntee . . . . .	145	0	0
Choat & Sons . . . . .	144	0	0
Woodward . . . . .	126	0	0
Avey . . . . .	125	10	0
Harris Bros. . . . .	121	0	0
FORDHAM, Billericay (accepted) . . . . .	105	15	0
Jarvis . . . . .	108	0	0
Burtwell . . . . .	96	10	0
Pavitt & Sons . . . . .	95	10	0

## HAM.

For erection of Board-room and stable and cart-shed. Mr.  
H. J. TURNER, surveyor, Ham Common.

Abbot & Charlton . . . . .	£679	0	0
Spencer & Harris . . . . .	655	0	0
Rice & Sons . . . . .	519	0	0
Budd . . . . .	495	10	0
Roberson, Ltd. . . . .	495	0	0
Earland . . . . .	495	0	0
Eldridge & Sons . . . . .	492	0	0
Jarmen, Daws & Co. . . . .	489	0	0
Sansom & Bishop . . . . .	470	0	0
Lawrence . . . . .	467	0	0
Richardson . . . . .	458	0	0
Hawkey . . . . .	450	0	0
McDonald Bros. . . . .	450	0	0
Christie . . . . .	443	0	0
Smith & Co. . . . .	437	0	0
Collins . . . . .	432	10	0
Selway . . . . .	432	0	0
Bendon, Ltd. . . . .	419	0	0
Hidden . . . . .	418	0	0
SIMS, Ham Common (accepted) . . . . .	398	0	0

## LAMBOURN.

For constructing abutments for Lambourn bridge, supplying and fixing steel troughing and handrailing, &c.  
Mr. J. FRED. HAWKINS, county surveyor, Reading.

## Building.

Godwin . . . . .	£428	0	0
Chick, Carden & Co. . . . .	395	0	0
Hammond & Co. . . . .	314	12	2
Wheeler & Co. . . . .	310	14	6
Tucker . . . . .	297	0	0
Adams . . . . .	283	5	10
Brain & Son . . . . .	269	15	9
Ellis . . . . .	267	10	0
Edwardes & Son . . . . .	221	5	6
LANGLEY & JOHNSON (accepted) . . . . .	217	13	0

## Steelwork.

Edwardes & Son . . . . .	375	0	0
Wheeler & Co. . . . .	319	10	0
Lambourne & Co. . . . .	275	0	0
Needham & Lowe . . . . .	270	13	3
Findlay & Co. . . . .	255	0	0
Adams . . . . .	252	5	9
Hammond & Co. . . . .	247	4	9
Ellis . . . . .	240	16	0
Dawnay & Sons . . . . .	240	0	0
Westwood & Co. . . . .	232	18	2
LANGLEY & JOHNSON (accepted) . . . . .	197	0	0

## LONDON.

For erecting sixty-seven cottages on the second part of  
Section C of the Totterdown Fields Estate, Tooting, for  
the London County Council.

Gale . . . . .	£17,735	0	0
Leslie & Co. . . . .	17,213	0	0
Parsons . . . . .	16,963	0	0
Spencer, Santo & Co. . . . .	16,341	0	0
Holloway . . . . .	16,200	0	0
F. & H. F. Higgs . . . . .	15,523	19	0
F. & T. Thorne . . . . .	14,900	0	0
Ditto, reduced . . . . .	14,648	0	0

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For erection of iron annexes at the workhouse, Swaffield Road, Wandsworth.			
Ellis . . . . .	£4,328	0	0
British Iron Buildings Co. . . . .	3,499	0	0
Daws & Co. . . . .	3,197	0	0
Wood Bros. . . . .	3,125	10	0
Jewell . . . . .	2,982	0	0
Stimpson & Chambers . . . . .	2,854	0	0
Palmer & Co. . . . .	2,841	12	0
McManus . . . . .	2,806	0	0
Humphreys, Ltd. . . . .	2,779	0	0
Boulton & Paul . . . . .	2,777	0	0
Harbrow . . . . .	2,697	0	0
Hawkins & Co. . . . .	2,650	0	0
Harrison & Co. . . . .	2,583	0	0
Hyde & Co. . . . .	2,526	0	0
Jones & Co. . . . .	2,491	0	0
Wire-Wove Roofing Co. . . . .	2,281	0	0
WALL, Summerstown, S.W. (accepted)	2,145	0	0

For erection of cottage hospital, Park Lane, Hornsey, N.  
Mr. GEORGE LETHBRIDGE, architect, 7 Drapers' Gardens, E.C.

Lidstone . . . . .	£4,495	0	0
Jarvis & Son . . . . .	4,370	0	0
Carmichael . . . . .	4,195	0	0
Dove Bros. . . . .	4,135	0	0
Thompson & Beveredge . . . . .	4,089	0	0
Mattock Bros. . . . .	4,047	0	0
Higgs . . . . .	4,042	0	0
General Building Co. . . . .	4,042	0	0
Craig & Shaw . . . . .	3,993	0	0
McCormick & Son . . . . .	3,987	0	0
Lawrence & Son . . . . .	3,838	0	0
Dearing & Son . . . . .	3,769	0	0
MATTOCK & PARSONS, 165 Gray's Inn Road, W.C. (accepted)	3,765	0	0

LONDON—continued.

For electric-light installation at Charlton fire station.			
Smeeton & Page . . . . .	£166	5	0
Nursey & Marr . . . . .	147	0	0
Fryer & Co. . . . .	147	0	0
Cannon & Sons . . . . .	122	7	0
SPAGNOLETTI, LTD., Goldhawk Road (recommended)	109	15	0

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For supply and delivery of about 1,500 tons of cast-iron pipes and special castings. Mr. FRANK HOWARTH, water engineer.			
Birtley Iron Co. . . . .	£11,345	5	0
Holwell Iron Co. . . . .	8,983	19	9
Spittle, Ltd. . . . .	8,836	17	0
Maclaren & Co. . . . .	8,825	10	7
Macfarlane, Strang & Co. . . . .	8,402	15	2
Stewart & Co. . . . .	8,400	5	0
Needham & Sons . . . . .	8,362	18	7
Clay Cross Co. . . . .	8,341	16	1
Cochrane & Co. . . . .	8,278	9	8
Oakes & Co. . . . .	8,199	14	3
Cochrane & Co. . . . .	8,183	17	2
Staveley Coal and Iron Co. . . . .	7,818	17	8
STANTON IRONWORKS Co. (accepted)	7,392	14	2

PONTEFRACT.

For alterations to Board-room and offices at the workhouse. Mr. ARTHUR HARTLEY, architect, Castleford.			
Wright & Son . . . . .	£596	8	1
Gallagher Bros. . . . .	586	13	3
Gelder Bros. & Woodcock . . . . .	541	15	11
Walker & Ward . . . . .	517	2	7
JACKSON, Pontefract (accepted)	512	18	7

SWANSEA.

For addition to technical college. Mr. G. E. T. LAURENCE, architect, 22 Buckingham Street, S.W.			
Morgan . . . . .	£11,475	8	5
Jones . . . . .	11,420	0	0
Thomas & Sons . . . . .	10,661	0	0
Davies . . . . .	9,799	10	11

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Richards	9,142	0	0
Pye, Parkinson & Co.	9,129	10	0
Davies & Sons	8,758	0	0
Billings	8,600	0	0
Davies	8,513	0	0
Exors. of D. Jenkins	8,500	0	0
Turner & Sons	8,450	0	0
J. & D. Jones	8,400	0	0
Colborne	8,087	0	0
Bennett Bros.	7,997	0	0
Lloyd Bros.	7,733	8	0
J. & F. Weaver, Manselton, Swansea (recommended)	7,500	0	0

## TAMWORTH.

For the construction of about 11,100 yards of stoneware and cast-iron pipe sewers and other works. Mr. F. E. G. BRADSHAW, C.E., borough engineer.

Holmes	£11,637	6	11
Reid Bros.	10,394	14	8
Pedrette	9,793	6	8
Currall, Lewis & Martin	9,757	0	11
Johnson & Son	9,135	3	9
Rowell & Son	9,053	15	11
Smith & Co.	8,667	13	9
Mackay	8,635	19	3
Moss	8,626	14	7
Ireland	8,539	18	7
Sutherland & Thorpe	8,202	14	3
Lock, Andrews & Price	7,921	9	8
Mackay & Son	7,855	12	1
Wilmott	7,772	0	0
Firth & Co.	7,675	6	2
Underwood & Bro.	7,296	7	9
Bell & Son	7,288	0	0
MacDonald	7,176	0	0
Crawford	7,149	3	1
Doleman	7,033	18	4
Mason	6,994	0	3

## TAMWORTH—continued.

Johnson & Langley	£6,991	16	5
Warner	6,938	7	0
Osenton	6,927	16	9
Johnson & Son	6,871	0	0
Hawley & Son	6,786	10	6
Johnson Bros.	6,749	0	0
Dean, Ltd.	6,737	18	11
Moran & Son	6,695	7	10
Riley	6,470	9	8
Mitchell & Son	6,430	14	7
Moss & Sons	6,362	0	0
Neal, Ltd.	6,300	2	6
Edwards & Co.	6,298	18	1
Taylor & Son	6,227	17	7
Turner	6,214	18	9
Trentham	6,162	3	2
McElhatton & Nicol	6,063	16	8
Harper	5,943	10	0
Buckley	5,942	1	8
MANDERS, Leyton (accepted)	5,886	17	5

## WATFORD.

For extensions to public library and technical school. Mr. W. H. SYME, architect, Watford.

Goss	£1,524	0	0
Darvill	1,501	0	0
Waterman	1,479	0	0
Wiggs	1,476	0	0
Clark Bros.	1,458	0	0
ENSOR (accepted)	1,429	0	0

THROUGH an oversight the highest tender for the works at the Portsmouth Workhouse was described as accepted. We apologise to the builders and other traders who have suffered any inconvenience in consequence.

MESSRS. CHAS. BAKER & SONS, of 249-53, East Street, Watford, write us:—"Although a considerable portion of our factory has been burnt out, we are glad to say that it will not interfere with our output, and that business will be carried on as usual, and delivery can be made immediately in all departments."

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## TRADE NOTES.

WE have received from Messrs. Pinchin, Johnson & Co., of Minerva House, Bevis Marks, E.C., some show-cards relating to their Satinette and Minerva paints. They are beautifully reproduced. The one in connection with Satinette, the well-known white enamel, illustrates in colours the latest Cunard boat, the *Mauretania*, where Satinette was used exclusively. Copies may be obtained by any of our readers on application.

MESSRS. D. G. SOMERVILLE & Co., of 72 Victoria Street, S.W., have secured the contract for supplying and erecting the steel framing and forming reinforced concrete roofing to workshops for the new electricity works at Hendon.

MESSRS. WARING & GILLOW's place in Oxford Street was beautifully decorated for the procession of their Majesties the Emperor and Empress of Germany. The imitation stone columns, bases and cornices were effectively treated with Coatstone, giving quite the effect of a stone construction and showing admirably how the material will undoubtedly become popular for the purposes of street and exhibition decoration.

OWING to the retirement of Mr. George Wragge, of the firm of George Wragge, Ltd., Messrs. Samuel Humphries, James Jackson and J. Finlayson Ambler have formed a new company at Brook House Works, Manchester. Among their specialties are casements with special opening gear, decorative metalwork, gas and electric fittings, steel door furniture, &c. From their training under Mr. George Wragge and their experience in co-operating with him, they are in a position to carry out his principles faithfully in all departments of the business.

ANOTHER variety of reinforced concrete, known as the Herbst Armocrete, has been tested by the British Fire Prevention Committee. Two of the beams were 14 feet span and one 28 feet. The concrete webs were L-shaped, and embedded in each was a wrought-iron corrugated bar. Hollow concrete tubes were made to correspond with the rebate on the webs. One slab, 14-foot span, was loaded with over 12 cwt. per square foot before it broke in the centre. The 28-foot slab was loaded with 7½ cwt. per super foot before cracks were visible, and the third slab of 14 feet, 6½ cwt. per foot super before it broke in the centre. The results were remarkable.

UNDER the direction of Mr. J. E. Swindlehurst, city engineer, the "Boyle" natural system of ventilation, embracing the latest patent air-pump ventilators, has been applied to the School of Art, Coventry.

MESSRS. JOYCE & Co., of Whitchurch, Salop, have just completed the fixing of a clock and bell at Tarporley, Cheshire, for the Hon. Marshall Brooks. The same firm are making a striking clock for Greenbank school, Sefton Park, Liverpool; and also one for Lamport Hall, Northampton, the residence of Lord Ludlow, and are also fixing a bracket clock with two dials in Oxford Street, London.

TRAVELLERS on the main line of the North-Eastern Railway to the north will have noticed a pretty church near the railway just before entering Gateshead and Newcastle: this was rebuilt in 1758 and the tower in 1821, and a chancel was added afterwards by the first Earl of Ravensworth. Now a new clock with two new external dials, chimes and bells have been added by the Countess of Mount Edgumbe as a memorial to the late Earl of Ravensworth, the work having been carried out by Messrs. Wm. Potts & Sons, Ltd., of Leeds and Newcastle-on-Tyne, generally on the lines laid down by the late Lord Grimthorpe. Messrs. Potts are also fixing a new large clock at Dover for H.M. Government.

ALL SAINTS CHURCH, Lower Sydenham, was consecrated by the Bishop of Woolwich on Thursday, Nov. 7. The chancel, vestry, transepts and three bays of the nave were completed and dedicated for use some four years ago, since which time many additions of suitable fittings have been made, and the debt on the building fund practically paid off, and it is the intention of the committee to proceed with the completion of the church as soon as funds will allow. The church, when completed, will be large and lofty, with accommodation for about 850 adults. The materials used are red and stock bricks with dressings of Box ground stone. One of the main features of the interior is the stone traceried screen, carried to the full height of the chancel arch, a large rood-cross being formed in the stone tracery, and spaces for the addition of figures on either side. The architect is Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., of 6 Queen Anne's Gate, Westminster, and the builders are Messrs. Goddard & Sons, of Farnham.

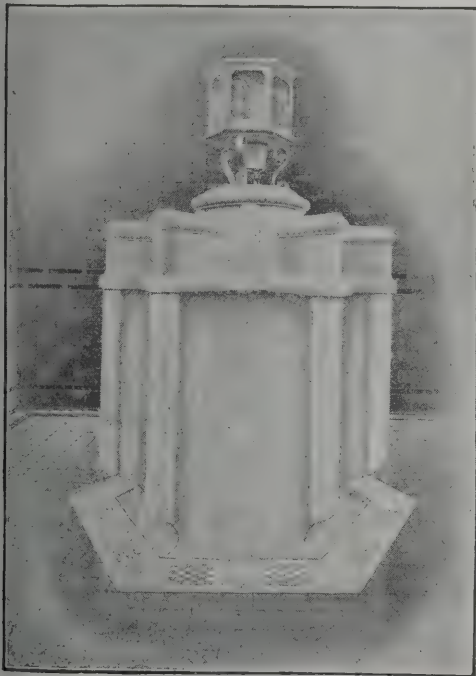


Fig. 1528.—The "KORRIS" (Regd. Trade Mark).

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## BUILDING AND BUILDERS.

Nos. 20, 21, 22 and 23, Holborn, which include the old Barnard's Inn tavern, and also the entrance to the Mercers' Company's School, are to be demolished immediately, and an imposing building, seven storeys high, and of a very ornate character, is to be erected thereon under the direction of Messrs. Palgrave & Co., architects, Westminster, S.W. The scheme provides for a restaurant, shops and offices above, approached by electric lifts. Provision is to be made under the terms of the lease, which is held from the Mercers' Company, that a new entrance to the school is to be provided under the new frontage, eight feet wide, while the license of the Barnard's Inn tavern is surrendered. The quantities are being prepared by Messrs. Westropp, Sweetnam & Co., Parliament Chambers, Westminster, S.W. A block of business premises consisting of five shops, with dwellings above, is to be erected at the corner of Uxbridge Road and Ormiston Road, Shepherd's Bush, W. Mr. H. F. Webb, of Spencer Street, Goswell Road, E.C., is the contractor whose tender has been accepted; Messrs. Palgrave & Co., are the architects, with Mr. J. Farrell as quantity surveyor.

THE litigation between the Lancaster Rural District Council and Messrs. Fisher & Le Fanu, contractors for a large portion of the second line of pipes for the Manchester water supply from Thirlmere, has ended. The Council sued the contractors for damages to the highways in the townships of Ellel and Wyresdale, and at Liverpool Assizes were awarded 500*l.*, it being contended that the roads required remaking because of the holes the traction engines had made in hauling pipes. The contractors appealed against the verdict and the appeal was allowed. Surveyors were appointed to estimate the proportionate damage caused to the road, and have now agreed to the sum of 175*l.* being paid to the District Council, instead of 500*l.*

THE estates committee of the Sheffield City Council have considered letters from the builders of the model cottages at Wincobank, with reference to the proposal of the Corporation to take possession of the cottages on November 1, and to pay interest at the rate of 4 per cent. on the agreed purchase money from that date until the completion of the purchase. Most of the owners accepted

the proposal, but some of them asked for interest at the rate of 5 per cent. instead of 4 per cent., which they stated is less than they are paying for borrowed money. The committee have agreed to pay 5 instead of 4 per cent., as previously recommended. The city treasurer has been instructed to take steps to forthwith let the cottages.

AN interlocutor has been issued in an appeal to Sheriff Ferguson in an insurance case by Charles Johnston, contractor, Lochee, against James Fettes, insurance agent, Dundee. Plaintiff sought to recover 200*l.*, being the loss which he had sustained through defendant having failed to properly insure his workmen. He pleaded that defendant had for years been entrusted with effecting all his insurances, and that in 1900 he called upon him to insure him against liability for injury to his workmen, and more particularly while they were removing stones and excavating. Two of his workmen were injured while excavating and defendant repudiated the insurance claims. Defendant averred that plaintiff agreed to insure his carters and labourers only, and refused to take out a policy for quarry risks. The sheriff sustained the appeal by defendant and dismissed the action, and found the plaintiff liable in expenses. Any claim by the plaintiff was, he said, out of the question in view of the acceptance of the policy, which was clearly expressed.

A MEETING of the Council of the National Association of Master House Painters and Decorators of England and Wales (Incorporated) was held on Tuesday at the Acorn Hotel, Birmingham. Mr. G. H. Morton (Liverpool), the retiring president, occupied the chair at the commencement of the proceedings. Statements of accounts were presented which showed that after the payment of all accounts there remained a balance in the bank of 200*l.* Mr. Morton retired from the office of president, and transferred the chain of office to the newly-elected president, Mr. A. J. Teall (Birmingham). It was decided to hold the next annual convention in Birmingham from September 29 next to October 3, and also that the exhibition in connection with the convention be held in Bingley Hall. It was further decided that the next meeting of the Council should be held at Newcastle-on-Tyne on February 6.

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## VARIETIES.

ADJOINING the new county hall at Northallerton it is proposed to erect for the North Riding new police offices.

MESSRS. W. J. MORLEY & SON, architects, of 269 Swan Arcade, Bradford, have taken Mr. Eric Morley into partnership, and the firm will be carried on as W. J. Morley & Sons in future.

THE Auckland City Council has accepted the tender of Billington & Co. at 29,112*l.* for the big impounding dam at Waitakerei Falls. This was the lowest tender. The engineer's estimate was 34,537*l.*

THERE has just been completed and erected over the main entrance to the municipal buildings, Bank Street, Alloa, a very handsome piece of sculptural work representing the new coat-of-arms of the burgh, recently gifted to the Town Council by the Earl of Mar and Kellie.

DURING the past few years Bacup has spent 34,409*l.* in erecting new and altering existing day schools, and last year 5,500*l.* was contributed from the rates. This year the amount will be 6,000*l.*, and another new school will have to be built for Weir district at a probable cost of 6,000*l.*

AT a meeting of Port Glasgow School Board held last week, it was agreed to build a new elementary, higher grade and supplementary course school on the lands of Highholm, at a cost of 14,200*l.*, capable of accommodating 900 scholars.

THE Birmingham Tame and Rea District Drainage Board have been informed by their finance committee that the Local Government Board had sanctioned the application of the Board to borrow 45,000*l.* for the construction of bacteria beds, &c., at Minworth Greaves, and 1,908*l.* for the extension of the sludge conveying scheme, the money to be repaid within thirty years.

MR. F. J. WHITEAR has been appointed highway surveyor to the Fareham Rural District Council. For the post there were 160 applications, and of these six were sent forward by a special committee for final decision by the Board. There was a tie between Mr. Harvey, of Gosport, and Mr. F. J. Whitear, assistant surveyor at Alton, and the chairman gave his casting vote in favour of the latter.

THE opening of the Congregational church at Ashwell, Herts, took place on Thursday, November 14. The building has been entirely remodelled and redecorated and new oak seating, &c., introduced. The work has been carried out by Mr. F. J. Bailey, of Ashwell, from the designs and under the superintendence of Messrs. Geo. Baines & Son, 5 Clement's Inn, Strand, W.C.

A BAPTIST church in High Street, Ilford, was opened on Wednesday, November 13. The cost of erection is nearly 5,500*l.* The design is in Late Gothic. The church accommodates about 950 persons. A large institute and school is to be at once erected on the same site. The architects for the scheme are Messrs. Geo. Baines & Son, of 5 Clement's Inn, Strand, W.C., whose designs were selected in competition. The contractors are Messrs. Kerridge & Shaw, Sturton Street, Cambridge.

THE picturesque Scottish mansion known as Calderwood Castle in the West of Scotland and the large estate were purchased in 1904 by the Scottish Co-operative Wholesale Society, Ltd., for 37,500*l.* The fittings appear to have been specially designed, and a most elaborate firegrate and fender is now on view in the spacious show-rooms of Alexander Ritchie & Co., 12 and 13 Upper Thames Street, E.C. It is deserving of a visit as a survival of a time when the applicability of Gothic forms was supposed to be unlimited. There is much besides in the galleries worthy of attention.

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AN admirably-written and well-illustrated article on quaint, old-time "Charleston," by Charles H. White, appears in the current issue of *Harper's Monthly Magazine*, which also contains, among much other readable matter, an interesting account of "A Plantation in the African Hills," or the districts round ancient Carthage, including Medjes-el-Bab, which is literally covered with crumbling attestations to the supremacy of the Cæsars—cisterns, baths, triumphal arches and mausoleums.

THE British Mannesmann Tube Company, Landore, has applied to the Swansea Corporation for a supply of electric current, and the question will be discussed at the next meeting of the electricity committee. Other owners of big works are understood to be contemplating a similar course, and a proposal is therefore to be considered for extending the present electricity works at a cost of 30,000*l.* or of constructing subsidiary works nearer to the industrial localities.

THE St. Pancras Borough Council is carrying out a much-needed scheme for the housing of the working-classes, which includes erection of a large block of dwellings in Brantome Place, off Euston Road. The area was cleared some years ago, and the small property with which it was formerly covered will now be replaced by buildings of the most approved type. The buildings are designed to contain forty-eight three-room tenements and thirty-six two-room tenements, affording altogether accommodation for about 432 persons. It is estimated that the dwellings, of which the foundation-stone has been laid, exclusive of the site, will cost 22,000*l.*, and the rents will be so adjusted as to make the undertaking self-supporting.

A RETURN issued from the Treasury in response to a motion in the House of Commons by Sir Howard Vincent shows that Government contracts amounting to 519,000*l.* went abroad in the course of the last financial year, either direct or through contractors who obtained the required articles from foreign countries. It is difficult to see why many of the articles enumerated should not have been made at home. The War Office, for instance, spent 1,924*l.* on foreign horseshoes and nails, and smaller sums on such things as practice swords, a cycle ambulance, stoves, lamps, and so on; whilst the Office of Works imported a lawn-

mower, gas fittings and globes, paint, door springs, ironmongery, locks and keys and bentwood chairs.

A MEETING of the governors of the Cumberland infirmary held at Carlisle last week approved a scheme for the extension of the institution at a cost of 25,000*l.* The committee of management have adopted plans which provide for the erection of a new west pavilion, containing on the ground floor a new ward for twelve men and on the first floor a new children's ward with twenty-four cots. It is also proposed to build a kitchen block, to remodel the laundry and fit with modern steam-worked machinery, to reorganise the heating and hot-water services, to add a storey to the nurses' home, to enlarge the out-patient department, erect ophthalmic and X-rays departments, and provide better facilities for the treatment of casualties and to make structural alterations in the central block.

At the last meeting of Paisley Dean of Guild Court Dean of Guild M'Naughton stated that during the past year seventy-seven applications for linings had been brought before the court as against seventy-nine in the previous year. The total value of the property in question amounted to 118,420*l.*, an increase of 3,110*l.* as compared with 1906. Amongst the properties passed were ten four-storey tenements, four three-storey tenements, seven villas and thirty-six semi-detached villas, halls, &c., the remainder of the applications being made up of alterations and additions. Permissions were also granted in twenty-one minor cases by the master of works in virtue of the powers conferred upon him by the Paisley Police Act, 1901.

THE Local Government Board have sent a letter to the town clerk of Coventry on the subject of a loan for the shops, part of the municipal building scheme in Earl Street, which has been the subject of controversy for some time past. The Local Government Board were asked to state definitely whether they would sanction a loan for such a purpose. The answer now to hand is that "it is the Board's intention to exclude from any loan they may find themselves able to sanction, on being furnished with the further particulars asked for in their letter of September 2, the estimated cost of adapting the ground floor of the proposed buildings for shops." The inference drawn is that shops, if erected, will have to be paid for out of current rate.

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THE question of electric lighting for Dunfermline was revived at the last meeting of the Town Council. A committee that was appointed several months ago recommended that, looking to the diversity of opinion in the Council on the different schemes proposed and the large amount of capital expense involved, Professor Sir Alexander Kennedy, Edinburgh, the adviser of the Edinburgh Corporation on electric lighting, be asked to report to the Council on the following questions :—Whether the Council should establish a separate generating station, take a bulk supply from the City Electric Power Company, transfer the provisional order to that company, or allow the order to drop? This recommendation was adopted last week by a majority of the vote.

MR. W. S. WILSON, engineer for the carrying-out of the preservative works on Ayr Auld Brig, has sent in the following report, dated November 8, on the work being done on the bridge :—"The pointing of the fourth arch was completed at the end of September, and six masons were then paid off. A portion of the underpinning of pier No. 1 has been done, and, having ascertained the difficulties to be contended with, I expect that this part of the work will go on more rapidly. During the heavy floods of last month a good deal of water reached the works, and [a 4-inch centrifugal pump had to be fitted up. So far as opened up, the ground below No. 1 pier consists of very hard boulder clay, and this makes an excellent foundation for the underpinning. The concrete floor and sump of pier No. 2 have been finished, and when the necessary pump has been provided underpinning operations will be started here also. Owing to the restricted nature of the work, only twelve men are employed at present. The expenditure to this date is £180l.

It is understood that a start will be made with the newaval base at Rosyth early in the new year, and that an initial sum of one million will be allowed for the work in the new Estimates. Sir John Jackson, Ltd., have received instructions to sink the trial concrete cylinder caisson 50 feet deeper than it has now reached, viz. 72 feet, for the purpose of proving the depth of the stratum of boulder clay which was met at about 60 feet below present surface level. The whole of the water has been pumped out of the

caisson to allow the additional sinking operations to be begun at once. It has been decided to proceed with constructional work on the cement-concrete monolith principle, the intention meantime being to proceed with a sea wall, a wet basin and graving dock. A bore has just been sunk on the shore to test the depth of sand, and here will be quarried the sand necessary to mix with the whinstone, which also abounds here, in the formation of concrete blocks.

AFTER a long controversy concerning the restoration of the Dundee city kirks, the Kirk Session and Presbytery approved of the offer of the Town Council to execute the work, according to plan, at a cost of 4,500l., the Corporation to carry it out by their own workmen. It is against this latter proposal that the master-builders protest. They have lodged a memorial and asked to be heard before the Town Council comes to a final conclusion on the matter. The master-builders contend that a slur has been put upon them and upon their skill as tradesmen. Further, it is urged that, as the building trade of the city is not particularly brisk, they and their men should get a chance. Another point on which the Association lays insistence is that it is not in the interest of the community that the work should be executed by Corporation employ  s, inasmuch as operations so conducted cost fully 20 per cent. more than if fulfilled by contract.

THE town clerk of Scarborough has received the award of Sir William Matthew, the engineer, with respect to the damage to the sea wall caused by the tidal wave of January 1905 and storms since that period. The award is as follows :—"I hereby certify that I have inspected the works which, under Clause 2 of my award, I determined that the contractor was bound to execute in order to fulfil his obligations as therein mentioned, and I certify that such works have been carried out to my satisfaction." This award virtually settles the contention between the Scarborough Corporation and the contractor. The professional adviser to the Corporation, Mr. James Walker, of Newcastle, recently inspected the wall on their behalf, and specified certain work which he considered should yet be done by the contractor under the maintenance clause in the contract, but it is of a comparatively unimportant character and no

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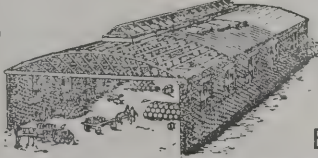
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difficulty will be caused in that respect. There is now every prospect that the long-delayed completion of the works will speedily be witnessed, and that the important undertaking will be formally opened early next season.

ACCORDING to the reports for last year of H.M. Inspectors of Mines, at the 2,783 mines in England and Wales there were 831 coal-cutting machines in use which mined 7,169,823 tons. In the 512 Scottish mines the 305 machines cut out 3,032,683 tons of coal. As regards motive-power, so much has been heard in recent years of the rapid strides made by electricity that many would regard this power as paramount. In England and Wales it certainly is not, for there 551 machines have compressed air as their driving power as against 280 only using electricity. In the mines of Scotland, however, the balance does favour electricity, but it is not considerable, being only 171 to 134 working by compressed air. When the electrical machines are better adapted for use in mines this power may displace compressed air. Mr. A. H. Stokes, H.M.I.M. for the Midland inspection district, has declared that the method of driving the coal-cutter by electricity appears to be not only the cheaper, but the easiest of application, an objection to compressed air being the noise, preventing the men from hearing any subsidence or breaking of the roof or timber. The

In the annual public lands report for the colony of Queensland particulars of the forest department are given. In Queensland there are 337 timber reserves, comprising 3,460,826 acres, and fresh reserves are being constantly declared. The Director of Forests points to the necessity of increasing these national supplies of timber, and states that 26 per cent. of the whole of Germany is devoted to forests, producing a yearly yield of 9,000,000,000 superficial feet; in France 20 per cent. of the whole country is forest area. In India the Government are compelled to scour the world for railway sleepers, notwithstanding a forest outturn of 3,018,819,312 feet of timber. The consumption of forests all over Australia is very large, and Queensland is no exception. Last year 82,800,000 superficial feet of manufactured timber was cut in the colony; soft woods, 49,588,575 feet; hard woods, 32,364,046 feet; and cedar, 849,001 feet. A motion was carried in Parliament some years ago recommending the replanting of the forests and the appointment of a Department of Forestry. Queensland

has been a great supplier of sleepers to India; in 1906 sent 25,000*l.* worth of sleepers to that country.

THE Rhyl Council spent several hours on Monday discussing the details of an improvement scheme which is proposed to carry out on the sea front. While all members were in favour of a pavilion being erected which high-class concerts can be given in the season, there were three members who opposed the ornamental garden scheme, but by twelve votes to three the Council decided to go in for the two schemes. It was stated that 3½ acres of foreshore between Edward Henry Street and Queen Street will be enclosed as marine and ornamental gardens. There will be a row of double shelters. The side will be open to the sea, with plate-glass backs, and the other side will open to the enclosed gardens. It is contemplated that 10,000*l.* will be spent on the pavilion and 4,000*l.* on the gardens. Sketch plans and suggestions are to be laid before the Council on Monday next by several architects.

### LIVERPOOL CATHEDRAL.

On Monday there was a monthly meeting of the Liverpool Cathedral committee. Sir William Forwood presided. On the proposition of the chairman, a vote of condolence was passed with the family of the late Mr. G. Bodley, the joint architect of the cathedral. A resolution was afterwards adopted investing Mr. Gilbert Scott with full power to act for the future in the construction of the cathedral, but reserving to the committee the right at any time to appoint a joint architect if at any period it became advisable in their opinion to do so.

The treasurer reported that there was at the present time a sum of 165,000*l.* in hand, this amount including a donation of 10,000*l.* given anonymously since the last meeting of the committee. It was stated that the sum of 40,000*l.* had so far been contributed by the children of the diocese. The total amount up to date which has been received and promised is 283,000*l.*

The clerk of the works reported that the building was being proceeded with most satisfactorily, 220 men being present employed on the site.

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**SOCIETY OF ENGINEERS.**

A PAPER ON Bridle Roads in the West Indies, by H. C. Huggins, was read at the meeting on Monday, November 4. The author first referred to the old abandoned hillside road tracings in the island of Tobago, B.W.I., as originally laid out by former French military engineers, and their conversion now into economical natural soil bridle roads to meet the present growing demands for the opening up and developing the country. Respective road sections were then discussed in the re-forming of these traces and cutting into the solid banks shown to be the most satisfactory and economical method to be eventually employed. The value of banking to form parapets and the advantage of dispensing with side drains on this class of road were alluded to. Reference was made to the many streams which intercept these roads and the method of dealing with them; also the building of retaining walls for larger streams to avoid inundation, and the method of erecting them suitable for subsequent conversion into culverts was dealt with. The felling of forest trees was next referred to. The effects of over-felling and the advantages to be derived from the moderate use of the axe were considered. Suggested clearings for permanent bridle roads and those to be converted into cart roads in the near future were made. The frequent occurrence of road slips during the rainy season on these roads in a country of this nature was noted and the importance of carefully locating the lowest point of subsidence was dwelt upon. The author gave a description of a landslip where, owing to sea encroachment and other causes, a portion of the whole roadway subsided, danger to building being involved. The mode of repairing the slip by means of a surcharged retaining wall at the base of the cliff was explained and the method adopted for the final restoration of the roadway was illustrated. Attention was directed to river encroachments and the diversion of watercourses by means of temporary groynes, and practical suggestions were made as to the relative positions of such structures to effect the required result. Bridle bridges were discussed and the necessity of regulating their design in accordance with future development of the roads was

insisted on. Finally, the author's method of utilising steel rails in the construction of bridle bridges was described in detail.

**THE SESAME DOORS.**

ONE of the principal novelties at the International Building Trades Exhibition was undoubtedly the exhibit of the Carey's Sesame doors. Since that time they have been introduced into a number of buildings, and in every case are understood to have given complete satisfaction. The illustration shows the doors which have been fitted up at



Messrs. Story & Triggs's premises in Queen Victoria Street, E.C. The doors open automatically on the approach of any person and close immediately on passing through. The mechanism required is very little, as only 8 inches space has to be cut away, and it is therefore possible to fix them in almost any building. The makers are Messrs. Pemberton, Arber & Co., of Gray's Inn Passage, W.C.

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**LEICESTERSHIRE AND RUTLAND ASYLUM.**

THE new Leicestershire and Rutland county lunatic asylum at Narborough was opened recently. The estate has an area of over 186 acres.

The main asylum buildings are placed on an excellent plateau on high ground, occupying the northern portion of the land, from which good views of the surrounding country are obtained. The aspect of the wards generally is to the south-east, every patient's day-room being so planned that it will, during some portion of the day, receive direct sunlight.

Provision is made for separating the male and female patients respectively into six classes on the male side and eight classes on the female side, and this permits of sick, infirm, recent, acute, epileptic and chronic patients being treated in wards set apart for the special treatment of the various forms of insanity from which they may be suffering. No wards (with the exception of the charity blocks) are arranged for a less number of patients than thirty-six. This is done in order to facilitate the economical working of the asylum, as every ward must have not less than three attendants.

All the wards are arranged in buildings of two storeys in height only. Formerly three-storey buildings, which are cheaper, were allowed by the Lunacy Commissioners for all classes of lunatics, but in recent times they have not sanctioned three-storey wards excepting for quiet chronic patients. All the day sleeping space required for the patients lodged in each ward is provided on the same floor.

The sick and infirm wards, male and female, each accommodate forty-six patients on the ground floor and forty-six patients on the first floor, and occupy the central positions adjoining the assistant medical officer's quarters and near to those of the matron and head attendant. These four wards each consist of a dormitory for twelve beds, a dormitory for twenty-four beds, ten single rooms, three day-rooms, together with the necessary attendants' rooms, store-rooms, ward scullery, bath-rooms, clothes lobbies, lavatories and other sanitary arrangements. There are also special recent and acute wards and epileptic and chronic wards for male and female patients.

The outlying blocks on each side of the main buildings

connected by corridors at an oblique angle are each for the reception of thirty charity and private patients. The arrangements on both sides are quite similar, and consist of two large day-rooms, three single rooms, three attendants' rooms, a ward scullery, pantry, store-room, visiting-room, lavatory and w.c. accommodation, also a wide corridor, which it is intended to use for dining purposes, all on the ground floor. The first floor is occupied by two dormitories, each for ten beds, seven single rooms, bath-room and other sanitary arrangements. The wide corridor on this floor contain all the wardrobes for patients' clothing, in order that they may not readily obtain materials for suicide. The arrangement has also the advantage of reducing the quantity of furniture in the sleeping-rooms, which, for a variety of reasons, is a very desirable thing to do. The accommodation provided in the charity blocks is of a more spacious character, and the fittings are rather better than those of the ordinary wards.

The first floor over the entrance block is occupied by the nurses' bedrooms and sitting-rooms, a separate bedroom being provided for every nurse. This is considered a wise provision, because of the complaints that are made in many other asylums by the nurses against associated bedrooms. This block is approached by a staircase entered from the corridor on the female side, a second escape staircase being placed at the opposite end of the building, giving access to the garden court, which also has a door into the same corridor.

A recreation hall of ample size is planned to the south of the kitchen, between which apartment and the hall there is placed the hall scullery, which is provided in accordance with the wishes of the Lunacy Commissioners in case the hall should be used as a general dining-room for the patients. At one end is a gallery for visitors, and at the other a spacious stage with dressing-rooms adjoining. The recreation hall has two entrances from each side for the patients. For stage entertainments one-half of the hall will be set apart for females and the other half for males, each sex being able to approach their seats without crossing the portion of the hall allocated to the opposite sex.

On the west side of the administration buildings the male attendants' block is situated. On the ground floor a large day-room, a dining-room, the head attendant's office,



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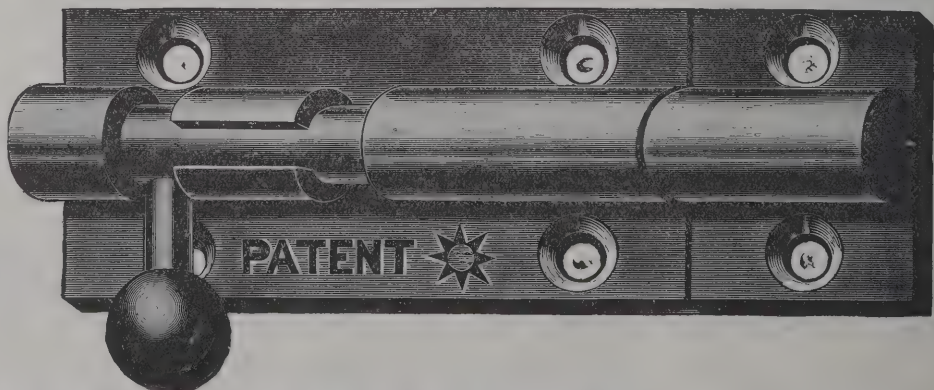
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a scullery, an officers' dining-room, and necessary lavatory accommodation is provided. The first floor is occupied by bedroom accommodation, proper bath-rooms and other sanitary arrangements, also a box-room being placed in convenient positions. It should here again be pointed out that the comforts proposed for the attendants are much greater than was thought sufficient in days gone by.

On the east side in a corresponding position to that just described for the male attendants the nurses' block is located. The accommodation on the ground floor is similar to but slightly larger than that provided for the male attendants, in consequence of there being a greater number of nurses than male attendants.

The chapel, with seating accommodation for about 100, is a detached building, easy of access from both the male and female sides of the asylum. It contains no special features except distinct entrances for each sex. A small closed porch or lobby is placed on each side of the entrances, so which epileptic patients seized by fits during service may be removed.

The buildings are erected entirely in brickwork, with a very sparing use of stone for window sills and other special dressings.

Fire-resisting staircases of shallow risers and without winders or long straight flights, are placed in the best positions for providing at least two exits from every ward in case of fire, and for giving access from all the wards to the recreation hall, chapel, workshops or airing courts without passing through other wards. All the ceilings next below the roof in all parts of the asylum occupied by patients are constructed throughout of incombustible materials in accordance with the Lunacy Commissioners' requirements.

The internal walls of kitchens, ward sculleries, sculleries, larders, laundries, engine-houses, water-closets, bath-rooms, dry linen and slop-rooms and lavatories are in some cases to be wholly faced with glazed brickwork and in other cases with glazed tiles up to dado height. The workshops are lined internally with common brickwork fair pointed. The whole of the remaining internal wall facing is done in cement and plaster, some of the walls and ceilings to single courses for dirty cases being faced with polished cement over.

In accordance with the requirements of the Lunacy Commissioners the administrative departments are all made larger than the present number of patients call for. The new buildings at present provide accommodation for 688 patients, and the plans are sanctioned for a complete asylum accommodating 912 patients, exclusive of hospital block and any villas which may be hereafter erected for special purposes. This matter was fully considered by the committee, who, after taking into consideration the increasing number of lunatics, agreed with the Lunacy Commissioners, who deem it would be unwise to provide for a smaller extension than this. Including land and furnishing the cost is 261,000*l*.

The architects are Messrs. Everard, Son & Pick, of Leicester. The main contract for the asylum buildings, medical superintendent's house, church, isolation hospital, entrance lodge, stables, head attendant's house, attendants' cottages, roads, cold-water mains, drainage, was entrusted to Messrs. W. Moss & Sons, Ltd., Loughborough. The sanitary fittings were by Messrs. Doulton & Co.; the laundry machinery and fittings by Messrs. Summerscales & Sons. The architects' clerk of works was Mr. George Wise.

#### IMPROVEMENT OF PORT OF LONDON.

In July it was reported by the rivers committee of the London County Council that they thought it desirable that members of the committee should visit some of the principal ports on the Continent, in view of the probability of the Port of London being the subject of a Bill in the next session of Parliament. When, however, the matter came before the Council, objection was taken to the proposal that expenditure should be authorised to meet the travelling expenses of members, and the recommendation was lost on a division. Accordingly they resolved that the visit should be made by the members at their own cost, and the only expenditure to which the Council has been put has been the small sum necessary for the expenses of the officers accompanying the committee.

It is somewhat remarkable that, though the great question of the Port of London has been the subject of inquiries and resolutions on the part of the Council during the past

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ten years, culminating in the introduction by the Council itself of a Bill dealing with the matter, no personal investigation by members of the Council into the actual conditions prevailing at other ports has ever been previously undertaken. The committee think, therefore, the Council will agree that the time had arrived for such an investigation.

They have inspected the docks in the Port of London, and paid visits to the following ports:—Manchester, Liverpool, Southampton, Cardiff, Barry, Bristol, Avonmouth, Antwerp, Rotterdam, Bremen, Bremerhaven and Hamburg. The object of the visits was twofold—in the first place, to obtain directly the latest information; and in the second place, to be in a position to present that information in a compact form, so that members of the Council generally might be able to appreciate the importance of the subject so far as London is concerned, and draw, it may be, some useful deductions and comparisons. The committee say:—We were particularly impressed by the very extensive improvements which had recently been, or were being effected at all the ports visited. At Antwerp, for instance, a great scheme of dock development has been sanctioned and is in progress, which is estimated ultimately to cost about 12,000,000*l.* This is exclusive of what is known as the Grand Coupure, and is, of course, in addition to the large extensions which have taken place during recent years both in dock and river quay accommodation. At Rotterdam, besides great improvements to the waterway, a large new dock has been recently completed, and an extensive area of land acquired for further developments, which are proceeding. Great improvements have been effected both in the river and docks at Bremen and Bremerhaven, while at the latter port it is intended to construct at a cost of some 2½ millions two new docks capable of accommodating the largest vessels, as well as a large graving dock. At Hamburg also very extensive improvements have recently been effected, the river channel having been dredged to a depth of 26 feet at low water, and new or improved docks having been provided.

In the British ports visited it was also found that considerable developments were in progress or had been recently completed. The Mersey Docks and Harbour Board has this year obtained authority to expend a further sum of about 4,000,000*l.* in new docks. At Southampton,

Cardiff and Avonmouth large new docks are in process of construction, while the docks at Manchester and Barry have only recently been completed, and the expenditure on new works at these five ports has not been less than 10,000,000*l.*

In London the only development of any consequence which has taken place during the last ten years is the construction of the new Greenland dock by the Surrey Commercial Dock Company, at a cost, including equipment, of about 1,400,000*l.* As is well known, the London and India Docks Company have for some years proposed to effect a large extension of the Royal Albert Docks at a cost of about 2,000,000*l.*, and they have recently bought land for this extension at a cost of about 130,000*l.* This proposal is, however, in abeyance, owing to the unsettled state of the Port problem.

The general deductions which we have drawn as the result of our visits may conveniently be summarised as follows:—

1. That extraordinary rapid and extensive improvements in accommodation and equipment are taking place, and have recently taken place in all the ports visited, and that no effort is being spared both to attract business and to anticipate growing requirements, and that, although it is true that since 1886 the tonnage of shipping entering the Port of London annually has increased from 12 to 17½ million tons, and while this increase appears fairly to keep pace with that of the principal British and continental ports, yet there is good reason to fear that the rate of increase in London shipping must be retarded unless prompt measures are taken to provide additional and up-to-date accommodation.
2. That a general comparison between London and the continental ports visited is rendered difficult by the fact that in all those ports the docks and quays lie close to the centre of the city, and are not scattered, as in London, over a wide area extending to 20 miles from the centre; but that as regards depth of water, the Thames compares not unfavourably with the Maas, and has the advantage of the Scheldt, the Elbe and the Weser.
3. That a comparison cannot well be drawn from the continental ports with regard to the system of levying dues and charges, inasmuch as those ports are administered and financed wholly from imperial or municipal sources (save in the case of Bremerhaven so far as that port receives

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financial support from the North German Lloyd Company) and no separate accounts of the ports are available, but it is a fact that there are practically no port dues on goods in these ports.

4. That the question of the adoption of closed docks as against open ones or river quays would appear to be governed by tide conditions, and that wherever the range of tide is in excess of 13 or 14 feet closed docks are considered essential for large vessels.

5. That there should be no delay in constituting some authority for the Port of London, so composed as to command not only public confidence, but the confidence of the commercial and trading interests concerned in the port, and which may be able to decide the main issues at stake, viz. what are the deficiencies of the Port of London and how they are to be met.

### UNDERWATER CONSTRUCTION.

In the course of his presidential address at the Institution of Civil Engineers, Sir William Matthews, K.C.M.G., said that hitherto it had been taken that 70 feet was the maximum depth in which divers could work with economical results or sustained effort. Where works had to be carried on at greater depths, men employed for any length of time under such circumstances, either in the dress or in bells, were liable to a species of "caisson" disease, partaking of the nature of cramp or paralysis. Mr. Moir, who supervised the construction of the Blackwall Tunnel on the part of Messrs. Pearson, the contractors for that work, experienced the same difficulty with the men engaged there when under air-pressure, and with a view to mitigate the extent and effects of the disease, provided, for the first time, a chamber for the reception of patients, where, under the influence of reduced pressure, intermediate between the intensified atmosphere in which they had been employed and the normal condition at the surface, they were gradually brought to a state of recovery. With respect to tunnelling under air-pressure, it had been long observed that when two cross diaphragms with their necessary air-locks were in use in a tunnel during its construction, the men were much freer from caisson disease than when only one

diaphragm was employed. Recent experiments by the Admiralty, under the direction of Professor Haldane, on deep diving in the dress by navy divers, seemed to afford a reason for this fact, which, as pointed out by Professor Haldane, appeared to be due to the lowering of the pressure in steps or stages, rather than by allowing a continuous and regular drop of gauge-pressure per unit of time. By adopting stage decompression, accompanied by a very slow rising of the diver to the surface, some hitherto unworkable depths have been recently reached, the divers remaining in these depths for thirty minutes at a time, the complete ascent being ultimately made without any observed damage to the men employed. He understood that on more than one occasion a depth of 210 feet had been attained. The experiments had not as yet been carried sufficiently far to show that men in large numbers could be found who could stand this pressure for any length of time, and be able to do hard manual work, but it was possible that these experiments might lead to developments of an important character in subaqueous working. As regards future development of harbours, docks and waterways, they were fully alive to the importance of making due and adequate provision for larger and deeper draught ships, in the designs to be prepared for new works, and also where harbours and docks existed of inadequate dimensions for present requirements. It must not be forgotten, however, that although, all around, ships of increased capacity would have to be accommodated, it was at comparatively few ports that the very largest vessels would be found, at all events for a long time to come, and therefore it might be preferable, in many cases, in view of the exigencies of finance, to proceed tentatively, and to extend hereafter, rather than, in the first instance, to carry out works of undue magnitude, which might remain unremunerative for considerable periods. As to the actual construction of sea-works, the arrangement of their design so that their execution might entail, as far as possible, repetitions of the same process, with the use of heavy masses and the generous application of suitable plant, might be usually expected to produce satisfactory and economical results, as far as the structures themselves were concerned. There are, however, many and not infrequently highly important and sometimes complex considerations associated with such

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works, in regard to which it was not possible to lay down general rules, and where the conditions appertaining to each special case should largely determine the procedure to be adopted. Under the most favourable circumstances the carrying out of such works entailed anxiety, the latter being generally equalled, however, by the special interest awakened.

### BRICKWORK AND BOILER EXPLOSIONS.

THE report of Messrs. A. A. Hudson and J. H. Hallett, the commissioners appointed by the Board of Trade to hold an inquiry into the boiler explosion which occurred a year ago at Messrs. Hinks, Wells & Co.'s works, Buckingham Street, Birmingham, has appeared. The report states that the explosion was caused by the failure of the third ring of the left lower drum of the boiler, in a line with the brickwork forming the cover to the lower flues, the metal of the plate at this point having been reduced by corrosion to the thickness of a piece of ordinary brown paper. The corrosion had been partly caused by contact with damp brickwork. The commissioners add that the boiler was insured, but certificates were not given to the owners until the year 1901. From that year the boiler was regularly inspected by Mr. Edward Robinson, an engineer inspector employed by the insurance company. The certificates and reports of Mr. Robinson all showed that the scaling and cleaning were properly carried out by the owners, except in two cases. In the first, in 1902, the scaling did not prevent him giving a certificate, but in 1904 he deferred giving his certificate until more scale was taken off. In this case, however, after the boiler was properly scaled he issued his certificate in due course. He told them (the commissioners) that except in the year 1902, when dampness was discovered at the back end of the boiler, he never required any of the brickwork to be removed. The commissioners relieve Mr. Robinson of any responsibility, and also the owners, who had willingly offered every facility for the examination of the boilers. With regard, however, to Mr. Crosland, the chief engineer to the insurance company, and Mr. Robinson's chief, the commissioners state that he, as a competent person under the Factory Act, in issuing certificates, ought to have exercised his judgment as an engineer,

apart from the policy of the company. The policy of the company not to require brickwork to be removed unless there is either dampness or suspicion of defects is not, in the commissioners' judgment, a sound one, certainly not as regards the safety of the public, although it may be a good business policy. As applied to this case, their chief engineer would not, as a prudent man and an engineer, say that the brickwork ought not to have been removed, and the commissioners do not see how he could have said otherwise, for while the boiler, owing to its peculiar construction, required special attention, the brickwork had never, for the purposes of an examination of the boilers, been removed for thirty years, except a small portion at one end in 1902. They consider, therefore, that the engineer, in carrying out the policy of the company in their commercial interest, contrary to his better judgment as an engineer, is responsible with the company for this explosion. The commissioners remark they are always told the brickwork cannot be removed without dislocating business, but they fail to find any particle of reason why the brickwork in this case should not have been removed. No suggestion has been made that the owners would have raised the slightest objection to doing anything required of them by the company, and as to dislocation of business, they always had a spare boiler which they could use at any time. In fact, only two boilers were ever used at one time in the business out of the three which were on the works.

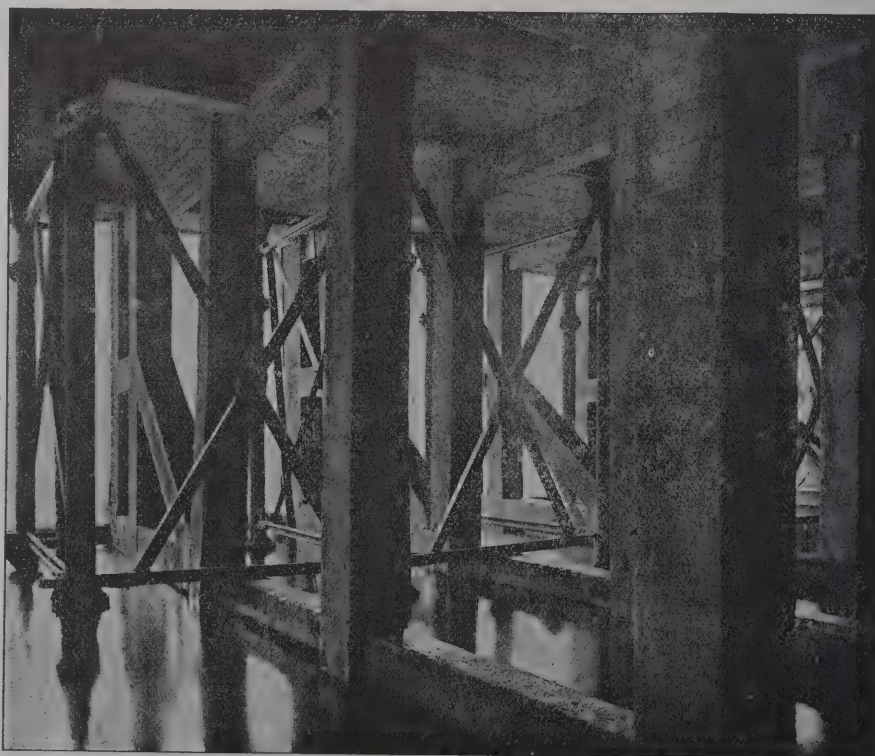
The commissioners directed that Mr. J. F. L. Crosland should pay the sum of 50*l.*, and the Vulcan Boiler and General Insurance Company the sum of 100*l.* to the Solicitor to the Board of Trade towards the costs and expenses of the investigation.

THE ceremony of cutting the first sod of the Harborne Tenants' Estate was performed recently on the site which adjoins Park Hill Road, Harborne. The Harborne Tenants' Society has been formed to promote the erection of co-operative ownership and administration of houses on principles similar to those at Ealing Garden City and Bournville. The site contains 53 acres of land, for which 15,500*l.* has been paid. It is of an undulating character and within easy access of the main Harborne Road and the railway station.

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THE  
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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

HERTFORD.—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500l. Premiums of 50l. and 20l. will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

THURLSTONE.—Nov. 25.—The Thurlstone Urban District Council invite plans for council-room, offices, caretaker's house and outbuildings (cost not to exceed 650l. for building and heating apparatus only). For instructions and particulars apply to Mr. J. Wadsworth, clerk, Thurlstone, near Penistone.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

WIGAN.—The committee appointed by the county borough of Wigan invite models and sketches for a statue to Sir Francis Sharpe Powell, Bart., M.P. An assessor will be duly appointed. Mr. Harold Jevons, Town Clerk's Office, Wigan.

CONTRACTS OPEN.

ALDERSHOT.—Nov. 29.—For rebuilding the Princess Hotel, Union Street. Messrs. Friend & Lloyd, architects and surveyors, Grosvenor Road, Aldershot.

ANNFIELD PLAIN.—Nov. 25.—For erection and completion of two houses at Lanchester, and additions to boot and shoe department at Annfield Plain, for the Co-operative Society. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

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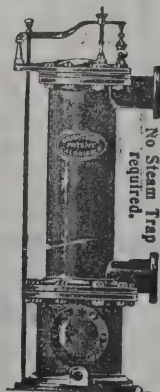
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**BEN RHYDDING.**—Dec. 6.—For erection of a school at Ben Rhydding, Ilkley, West Riding. Deposit 1*l*. Mr. J. Vickers-Edwards, architect, County Hall, Wakefield.

**BIRMINGHAM.**—Dec. 9.—For excavations, foundations and erection of lower ground floor of buildings in extension of Council House. Deposit 5*l*. 5*s*. Messrs. H. V. Ashley & Winton Newman, architects, 14 Gray's Inn Square, London, W.C.

**BRADFORD.**—Dec. 7.—For alterations to drying closets at the Union hospital laundry. Deposit 1*l*. 1*s*. Mr. Fred Holland, engineer and architect, 11 Parkinson's Chambers, Hustlergate, Bradford, Yorks.

**BRISLEY.**—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

**BURY.**—Dec. 11.—For heating proposed Council schools, Pine Street, with or without ventilation. Deposit 2*l*. Mr. Arthur W. Bradley, borough engineer and surveyor, Bury, Lancs.

**CAVERSHAM.**—Nov. 25.—For alterations and additions to property in Gosbrook Street, Caversham, Oxon. Mr. Alf. J. Smith, surveyor, 11 Bridge Street, Caversham.

**CHANDLERSFORD.**—Nov. 23.—For erection of a club-room and other work at the Half-Way House. Deposit 1*l*. Mr. J. Ashton Sawyer, chartered surveyor, Winchester.

**CHATTISHAM.**—Nov. 30.—For rebuilding tower buttress of Chattisham Church, Ipswich. The Vicarage.

**COSHAM.**—Nov. 29.—For works in new R.A.M.C. barrack block and alterations to existing cook-house and bath-rooms, also sundry services connected with the main hospital at the Alexandra Hospital, Cosham, near Portsmouth. Mr. Harry B. Measures, F.R.I.B.A., director of barrack construction, War Office, London, S.W.

**DARTFORD.**—Dec. 4.—For construction of pump-house, storage tank, &c., off Victoria Road, Dartford. Mr. T. E. Tiffin, surveyor, Council Offices, Dartford.

**EAST HARTFORD.**—Dec. 2.—For erecting a Council school to accommodate 240 scholars at East Hartford, near Cramlington, Northumberland. Deposit 2*l*. 2*s*. Mr. C. Williams, secretary to the education committee, Pearl Buildings, Newcastle-upon-Tyne.

**EDINBURGH.**—Nov. 30.—For erection of the fine-art building at Saughton Park, for the Scottish National Exhibition, 1908. Deposit 1*l*. 1*s*. Mr. James D. Gibson, surveyor, 60 Frederick Street, Edinburgh.

**FAILSWORTH.**—Nov. 30.—For erection of public library on site adjoining Council offices, Oldham Road. Deposit 2*l*. Messrs. Ogden & Hoy, architects, Examiner Buildings, Strutt Street, Manchester.

**GLASGOW.**—Nov. 25.—For (1) brick, (2) joiners', (3) plumbers', (4) plasterers', and (5) slaters' and rough-cast works required in erection of a shelter in the Richmond Park. The Office of Public Works, 64 Cochrane Street, Glasgow.

**HARROGATE.**—For whole or separate trades required in alterations and additions to the Dirlton private hotel, Ripon Road. Mr. John Whitehead, architect, Herald Buildings, Harrogate.

**HATFIELD.**—Dec. 2.—For alterations and additions at the Sawbridgeworth, Fawbert and Barnard County Council school. Deposit 2*l*. Mr. U. A. Smith, County Surveyor's Office, Hatfield.

**HULL.**—Nov. 27.—For additions to Grammar school, Leicester Street. Deposit 2*l*. 2*s*. Mr. Joseph H. Hirst, city architect, Town Hall.

**KEMPTON PARK.**—Dec. 11.—For construction of coal bays, fitting and other workshops, stores, tool houses, conveniences and other works to be erected at Kempton Park, for the Metropolitan Water Board. Deposit 5*l*. The Engineer of the Staines Reservoirs Communication Works, The Firs, Southern Road, Fortis Green, Finchley, N.

**KINVER.**—Nov. 25.—For construction of pumping station and turbine-house, sluice gates, pumping and delivery mains and reservoir, and other works in connection with water supply of Kinver, Seisdon, Staffs. Deposit 5*l*. 5*s*. Mr. Sidney R. Lowcock, engineer, Temple Courts, Temple Row, Birmingham, or 50 Queen Anne's Gate, Westminster, S.W.

**LEEDS.**—Dec. 20.—For construction of a watertight reservoir, to be known as Leighton reservoir, comprising an earthwork embankment about 630 yards long, deep puddle and concrete trench, discharge tunnel, valve shaft, gauge basin, waste weir and by-wash, catchwater aqueduct

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LONDON.—Nov. 26.—For construction of a storm relief sewer between Upper Road and Greengate Street, Plaistow; erection of a boundary wall, &c., at the West Ham Corporation pumping station, Abbey Mills; erection of a house for the superintendent of the West Ham Corporation pumping station, Abbey Mills. Deposit 1*l* each. Mr. John G. Morley, Borough Engineer, Town Hall, West Ham, E.

LONDON.—Nov. 28.—For sundry works in providing and laying patent terrazzo floor, plastering walls and sundry decorative works to wards Nos. 14 and 15 of the Infirmary, Marloes Road, Kensington. The Kensington Board of Guardians, Marloes Road, Kensington.

LONDON.—For steel buildings in connection with the Franco-British exhibition. Director of Works, Franco-British Exhibition Grounds, Shepherd's Bush, London, W.

MAIDENHEAD.—For erection of one or two private residences at Maidenhead Court. Mr. Davy, architect, High Street, Maidenhead.

NEW HUNSTANTON.—Nov. 29.—For enlargement of New Hunstanton school, Norfolk. Deposit 2*l*. 2*s*. Mr. H. J. Green, Castle Meadow, Norwich, and Paradise Chambers, King's Lynn.

OVERTON.—Nov. 30.—For pulling-down tower of church at Overton, Hants, and rebuilding same. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

PAIGNTON.—Nov. 23.—For erection of science and art school in Bishop's Place. Deposit 1*l*. 1*s*. Mr. W. G. Couldrey, architect, Palace Avenue, Paignton, Devon.

PARKSTONE.—Dec. 2.—For erection of three shops with residences, &c., in Bournemouth Road. Messrs. Smart & Wyeth, architects and surveyors, Bank Chambers, 220 Ashley Road, Parkstone, Dorset.

REDRUTH.—Nov. 27.—For erection of a police station and appurtenances at Redruth, Cornwall. Mr. Oliver Caldwell, architect, Penzance.

ST. ANNES-ON-SEA (LANCS).—For Imperial Hydro, St. Annes-on-the-Sea (150 bedrooms). Deposit 2*l*. 2*s*. Messrs. J. D. & S. J. Mould, architects, 52 Queen Victoria Street, London, and Walmersley Road, Bury.

ST. ANNES-ON-SEA.—Nov. 30.—For supply of an ornamental iron bandstand of 26 feet or 27 feet diameter, the price to include cost of bandstand and fixing same (the Council will provide the foundations). Mr. Thos. Bradley, clerk, St. Annes-on-Sea.

ST. MELLION.—Dec. 3.—For building an organ-chamber and vestry, &c., at St. Mellion Church. Rev. F. Wintle, St. Mellion Rectory, East Cornwall.

ST. MICHAEL'S MOUNT.—Nov. 30.—For erection of two cottages. Mr. W. G. Painter, Steward's Office, St. Michael's Mount, Marazion, Cornwall.

SCOTLAND.—Nov. 27.—For mason, carpenter, slater, plasterer, plumber, glazier and painter, ironfounder and blacksmith's work of new elementary school to be erected at Broadsea, Fraserburgh. Messrs. D. & J. McMillan, architects, 105 Crown Street, Aberdeen.

SILKSWORTH.—Dec. 3.—For erection of Silksworth school, Durham. Messrs. Brown & Spain, 51 Fawcett Street, Sunderland.

SOUTHWICK.—Nov. 25.—For erection of small addition to town hall. Deposit 1*l*. 1*s*. Mr. George Walter Warr, surveyor, Town Hall, Southwick, Sussex.

STYAL.—Nov. 28.—For erection of additions to senior schools at Styal Homes, Cheshire. Deposit 2*l*. 2*s*. Messrs. J. W. Beaumont & Son, architects, 10 St. James's Square, Manchester.

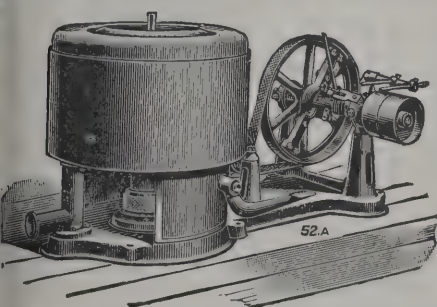
SUTTON COLDFIELD.—Dec. 12.—For enlargement of Boldmere and Hill girls' school. Deposit 1*l*. 1*s*. Mr. W. A. H. Clarry, borough surveyor, Council House, Sutton Coldfield.

WALES.—For extensions to engineering works, for Messrs. Mountford, Phillips & Co., Pontyclun, Llantrisant. Messrs. W. B. Jones & Peregrine, architects and surveyors, Bank Chambers, Station Road, Port Talbot.

WALES.—For new power station at Fforchdwm, for the Whitworth Collieries. Mr. J. Cook Rees, architect, Neath.

WALES.—Nov. 26.—For alterations to 55 High Street, Bargoed. Deposit 1*l*. 1*s*. Mr. Wm. Harris, architect and surveyor, Bank Chambers, Bargoed.

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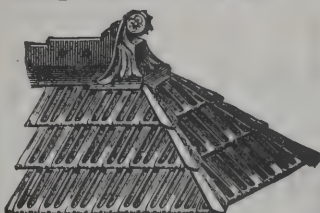
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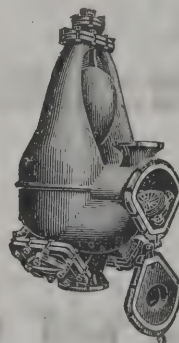
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WALES.—Dec. 7.—For erection of forty houses at Dyffryn, Goodwick, Pembroke. Mr. Hugh Thomas, architect and surveyor, 9 Victoria Place, Haverfordwest.

WEST ARDSLEY.—Nov. 25.—For various works (mason, joiner, slater and plumber) required in erection of a playshed at the Westerton school. Mr. Alexander Angus, West Riding Education Office, Northgate, Wakefield.

## TENDERS.

### BECKENHAM.

For street works in May's Hill and Kingswood Roads. Mr. J. A. ANGELL, engineer.

Wood & Sons	£1,592	0	0
Pearce	1,587	0	0
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MOWLEM & Co., Westminster (accepted)	1,488	0	0

### BLYTH.

For kerbing, flagging and channelling Freehold Street. Mr. ROBERT GRIEVES, engineer.

Crombie & Sons	£130	12	9
McLaren	116	6	1
McKinnon	116	1	2
ROBSON, Newcastle-on-Tyne (accepted)	109	16	9

### BOSHAM.

For alterations and additions to Bosham Council school. Mr. H. P. ROBERTS, architect, Horsham.

Pannett	£750	0	0
Linfield & Sons, Ltd.	649	0	0
Lindfield & Son	594	0	0
Hillman & Murrell	590	0	0
Tanner	581	0	0
Wiggins	567	10	0
POTTER, Selsey (accepted)	555	0	0

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For construction of sewers and sewage disposal.

Shannon	£1,692	15	3
Manners	1,010	0	0
Oliver	999	19	7
Reavell	958	2	1
CARRICK (accepted)	956	15	1

### COLWALL.

For construction of bridge sewer with manholes, &c. Mr. R. G. GURNEY, surveyor, Ledbury.

Johnson Bros.	£341	0	0
McCann	335	0	0
Meredith	334	0	0
Cooper	320	0	0
J. & A. Brazier	316	0	0
Westwood	268	8	0
JAMES, Colwall (accepted)	269	13	7

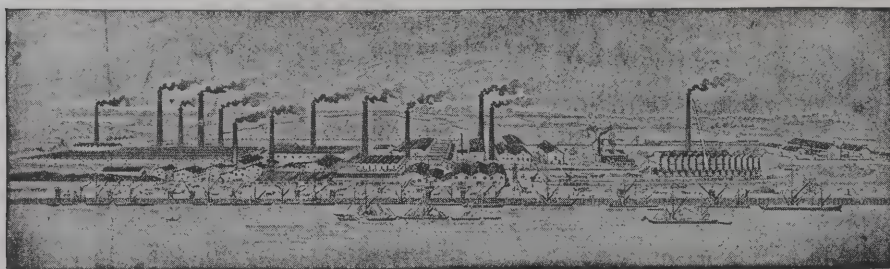
### CONWAY.

For excavation of trenches, providing, laying and jointing about eight miles of cast-iron water-pipes, and other works. Mr. T. B. FARRINGTON, engineer, Llandudno.

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Tate & Gordon	40,619	0	0
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Law	35,999	0	0
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Blackwall & Co.	35,000	0	0
Moffat	30,476	3	0
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Rowell & Sons	28,112	16	6
Graham	27,994	17	0
Jones	27,826	0	0
Bell & Sons	27,745	12	5
Hill & Co.	27,475	0	0
Johnson Bros.	27,149	0	0
Allen	26,164	17	0
Firth & Co.	25,804	15	2
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For reconstruction of premises in Stephen Street. Mr. GEO. F. BECKETT, architect.

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Pillar	£1,012	10	0
Maunder	880	0	0
Knight	875	0	0
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Watts & Back	865	0	0
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Bradshaw Bros.	839	6	0
Batchelor & Sons	804	14	0
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Phipps	788	0	0
Greaves & Farmer	773	4	3
Clarke	769	15	0
Davey	751	0	0
Rowley	725	0	0
Lockley	717	16	6
Garner	710	0	0
BENNETT, Earl Shilton (accepted)	695	0	0

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For outfall works for the workhouse. Mr. A. ROBERT BOWLES, engineer, Folkestone.

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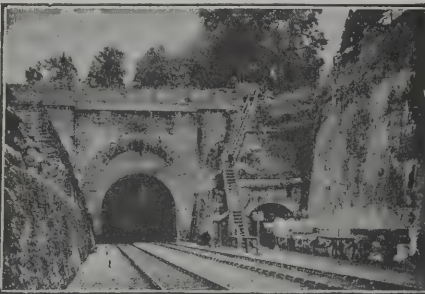
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Dove . . . . .	1,450	0	0
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For alterations and additions to the Seven Stars hotel. Mr. H. SPENCER, architect, Nottingham.			
Cuthbert . . . . .	£635	10	0
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BECKLEY & TURPIE ( <i>accepted</i> ) . . . . .	1,150	0	0

**LLANISHEN.**

For erection of lodge, stable buildings and motor-house.			
Mr. G. E. HALLIDAY, architect, Cardiff.			
Gibson . . . . .	£1,640	0	0
Jones . . . . .	1,627	4	11
Cox & Bardo . . . . .	1,547	0	0
Knox & Wells . . . . .	1,525	0	0
Blacker Bros. . . . .	1,509	0	0
Allen & Sons . . . . .	1,485	0	0
Evans . . . . .	1,457	1	7
Hallett . . . . .	1,453	0	0
Beams . . . . .	1,444	0	0
Melhuish Bros. . . . .	1,404	0	0
Howells . . . . .	1,404	0	0
Turner & Sons . . . . .	1,396	0	0
Gay . . . . .	1,380	0	0
Davies . . . . .	1,284	0	0
TOTTERDELL, Cardiff ( <i>accepted</i> ) . . . . .	1,241	4	6

**LEWISHAM.**

For kerbing, channelling and making-up the roadways in Lewisham.

<i>Rubens Street.</i>			
PEARCE ( <i>accepted</i> ) . . . . .	£314	0	0
<i>Tugela Street.</i>			
PEARCE ( <i>accepted</i> ) . . . . .	407	0	0
<i>Bargery Road.</i>			
WOODHAM & SONS ( <i>accepted</i> ) . . . . .	1,567	0	0

**LONDON.**

For making-up and paving roads in Streatham and Clapham.

<i>Cato Road.</i>			
ILES, Wimbledon ( <i>accepted</i> ) . . . . .	£860	0	0
<i>Mantilla Road.</i>			
MOWLEM & Co. ( <i>accepted</i> ) . . . . .	399	0	0
<i>Nimrod Road.</i>			
WOOD ( <i>accepted</i> ) . . . . .	1,193	0	0

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LONDON—continued.

For erection of school adjoining the Southfield school Wandsworth.

Parker	£21,245	0	0
Ingleton	20,863	18	8
Garrett & Son	20,037	0	0
McCormick & Sons	19,219	0	0
Appleby & Sons	19,215	0	0
Johnson & Co.	18,991	0	0
Wallis	18,957	17	1
Treasure & Son	18,884	0	0
Grover & Son	18,683	0	0
Wall	18,676	0	0
Davies	18,662	2	2
Nightingale	18,643	0	0
Smith & Sons	18,479	0	0
J. & C. Bowyer	18,376	0	0
Wallis & Sons	18,276	0	0
Waring-White Building Co.	18,220	0	0
Holliday & Greenwood	17,992	0	0
Leng	17,949	0	0
Davey	17,807	0	0
F. & E. Davey	17,551	3	3
Galbraith Bros.	17,326	13	2
J. & M. Patrick	17,099	0	0
Rowley Bros.	16,612	0	0
Coles, Town Hall Extension, Chelsea (recommended)	16,525	11	5
Architect's estimate	18,479	0	0

For the erection of additional day-room accommodation in connection with Block M at Banstead asylum.

Lawrance & Sons	£1,384	0	0
Foster & Dicksee	1,336	0	0
Holliday & Greenwood	1,333	0	0
Lovatt, Ltd.	1,331	0	0
Holloway	1,325	0	0
Patman & Fotheringham	1,284	0	0
Greenwood, Ltd.	1,209	0	0
Wiles & Sons	1,178	4	1
Potter	1,071	6	1
F. & H. F. Higgs	1,048	0	0
LESLIE & CO., LTD., London (accepted)	1,031	0	0
Architect's estimate	1,530	0	0

LONDON—continued.

For erection of manual training centre for twenty boys and science-room for girls in connection with the Thomas Street School, Limehouse.

Perry & Co.	£1,718	0	0
Snwin Bros. & Co.	1,695	0	0
Killby & Gayford	1,686	0	0
Wall	1,674	1	10
Grover & Son	1,619	0	0
Willmott & Sons	1,581	0	0
Thompson & Beveridge	1,567	0	0
F. & T. Thorne	1,563	0	0
Lawrance & Sons	1,555	0	0
Symes	1,529	0	0
Chessum & Sons	1,491	2	10
McCormick & Sons	1,476	0	0
Lawrence & Son, Waltham Cross (recommended)	1,457	0	0
Architect's estimate	1,524	0	0

For providing, laying, repairing, &c., tar pavement in playgrounds of L.C.C. schools.

1. In the whole County.

Hobman & Co.	£4,816	19	10
Chittenden & Simmons	4,805	15	6

2. North of the Thames.

Hobman & Co., Bermondsey (recommended)	2,374	7	11
Chittenden & Simmons	2,341	9	10

3. South of the Thames.

Hobman & Co.	2,584	17	9
Chittenden & Simmons, West Malling (recommended)	2,494	2	10

Schedule of prices to be adopted.

For supply and erection of wrought-iron boundary and internal fencing at Eaglesfield, Shooter's Hill.

Elwood	£261	12	10
McVey & Co.	166	15	9
Bayliss, Jones & Bayliss	163	17	0
Hill & Smith	155	10	7
Faulkner & Sons	154	6	2
ELWELL, Phoenix Ironworks (recommended)	149	0	0

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## LONDON—continued.

For external painting, &amp;c., at workhouse, Homerton.

Keetch	£740	0	0
Ashby Bros.	660	0	0
J. P. McCarthy	599	0	0
Rogers	596	0	0
Whitaker & Sons	589	0	0
Vigor & Co.	560	0	0
Castle & Son	550	0	0
Barrett & Power	549	0	0
Greaves	520	0	0
Jolly	515	0	0
Inns	500	0	0
Cordell & Sons	457	0	0
M. McCarthy	397	0	0
BUTTERS, 19 Shore Road, N.E. (accepted)	385	0	0

For erection of school for the accommodation of 120 mentally defective children, Priory Road, Kennington.

Everitt	£6,012	0	0
J. & M. Patrick	5,710	0	0
Spencer, Santo & Co.	5,617	14	6
Lathey Bros.	5,535	0	0
Downs	5,483	0	0
Wall	5,435	14	5
J. Smith & Sons	5,410	0	0
W. Smith & Son	5,406	0	0
Jewell	5,402	0	0
Whitehead & Co.	5,255	0	0
Akers & Co.	5,252	0	0
Johnson & Co.	5,160	0	0
Bulled & Co.	5,139	0	0
Triggs	5,122	0	0
Garrett & Son	5,096	0	0
Galbraith Bros.	4,984	10	11
Rice & Son (recommended)	4,937	0	0

For erection of a block of tenement buildings and workshops at rear of Cannon Street Road, E. Messrs. W. H. WHITE &amp; SON, architects, Eldon Street, E.C.

Hayworth & Sons	£2,747	0	0
Holliday	2,685	0	0
Allen, Fairhead & Sons	2,395	0	0
White	1,770	0	0
CASTLE & SON (accepted)	1,726	0	0

## LONDON—continued.

For adaptation of the Grove Road school, Marylebone, for the accommodation of sixty mentally defective children.

Wall	£1,813	0	0
McLaughlin & Harvey	1,405	15	5
Williams & Son	1,350	0	0
Staines & Son	1,327	0	0
Marchant & Hirst	1,294	0	0
Waring-White Building Co.	1,283	0	0
McCormick & Sons	1,234	0	0
Lawrance & Sons	1,228	0	0
Stevens & Sons	1,227	0	0
Kearley	1,216	0	0
Godson & Sons	1,174	0	0
Thompson & Beveridge (recommended)	1,148	0	0
Architect's estimate	1,150	0	0

## MEXBOROUGH.

For erection of new school.

## Accepted tenders.

Smith, building boundary walls, slating, plastering and painting	£9,125	14	1
Wade	3,998	0	0

There were thirty-two tenders.

## MUMBLES.

For erection of bungalow. Mr. A. LESLIE LEWIS, architect, Mumbles.

Lloyd Bros.	£1,300	0	0
Evans J.	778	0	0
MORRIS, Mumbles (accepted)	692	0	0

## PORTSMOUTH.

For widening the South Parade pier and erection of central hall and other buildings thereon.

YELF (accepted)	£34,994	19	2
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For construction of filtration works.

MOWLEM & Co., Westminster (accepted)	£73,092	0	0
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## REDHILL.

For erection of elementary school at Hooley Mead. Messrs. T. R. &amp; V. HOOPER, architects, Redhill.

Worsell	£7,645	0	0
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For supply of cast-iron pipes, excavating and laying. Mr.			For cloak-rooms, latrines, &c., at Council schools. Mr. J. L.		
W. F. BICKFORD, surveyor, Scunthorpe.			SMITH, architect, Merthyr.		
Waghorn	£322	12 7	DAVIES, Cardiff (accepted)	£1,564	0 0
Chamberlain	320	0 0	<b>WEALDSTONE (MIDDLESEX).</b>		
Brebner & Co.	307	0 0	For making-up Northwick Park and Gayton Roads on the		
Buckley	280	10 9	Northwick Park estate. Mr. H. WALKER, C.E., sur-		
Woodcock & Riley	278	3 10	veyor.		
Clark	266	2 3	<i>Northwick Park Road.</i>		
Huntsman	262	14 9	Griffiths & Co.	£735	1 11
Temperton	261	10 8	Rogers & Co.	704	4 4
Knight	258	11 4	Trueman	700	2 1
Egan & Co.	244	9 4	Free & Son	678	4 5
Hannay	239	14 11	Brummell	674	18 8
Cooper & Berry	225	0 0	Adams	647	16 0
THOMPSON, Scunthorpe (accepted)	210	0 0	MANN, Edgware (accepted)	628	15 9
<b>SLOUGH.</b>			<i>Gayton Road.</i>		
For erection of stabling at the Manor Farm, Dorney. Mr.			Griffiths & Co.	2,220	10 6
W. W. COOPER, surveyor.			Rogers & Co.	2,157	5 9
Lovell & Son	£514	0 0	Trueman	2,083	6 0
Smith & Co.	425	0 0	Brummell	2,035	12 8
Burfoot & Butler	311	0 0	Free & Son	2,035	6 1
Atkins	305	0 0	Adams	1,976	12 2
Jones & Son	298	0 0	MANN (accepted)	1,906	9 3
BOWYER, Slough (accepted)	297	0 0	<b>WOLVERTON.</b>		
Burfoot & Son	290	0 0	For demolition of two dwelling-houses and erection of new		
<b>TUNSTALL.</b>			business premises, &c. Mr. A. W. WILSON, architect,		
For erection of elementary school. Mr. A. R. Wood,			Stantonbury.		
architect, Tunstall.			Sturgess & Sons	£1,379	0 0
Sherratt	£10,900	0 0	Tranfield	1,377	0 0
Tompkinson & Betteley	10,500	0 0	Kemp & Sons	1,312	9 0
Cooke	10,068	0 0	Archer	1,269	0 0
Yorke & Goodwin	9,850	0 0	Heap	1,211	0 0
Godwin	9,844	0 0	Revitt	1,203	0 0
Smith	9,700	0 0	Co-operative Builders	1,198	19 0
Hodges	9,560	0 0	Green	1,197	0 0
J. Grant	9,594	0 0	Fisher	1,172	0 0
W. Grant & Sons	9,516	0 0	Higgs	1,095	0 0
Broadhurst & Son	9,450	0 0	HAWTIN, Northampton (accepted)	1,089	0 0
Gallimore	9,293	0 0			
WILTON, Newcastle (accepted)	8,900	0 0			



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## WORKINGTON.

For erection of pavilion for Golf Club. Messrs. W. G. Scott & Co., architects, Workington.

Boulton & Paul	£263	0	0
Blakeley & Co.	191	5	0
Simon	158	0	0
Carruthers	145	16	0
Bragg	142	10	0
Chambers	142	5	0
Douglas	136	0	0
STEEL, Workington (accepted)	120	0	0

## TRADE NOTES.

MESSRS. BASTON & Co., who are known for their contractors and builders' machinery, have introduced an improved "elephant" which adds vastly to the power of vertical spindle machines. Their patent "One and all" seems to be equal to every requirement, such as moulded sunk panels, undercut mouldings, difficult stair shaping, tracery-work, mortising, geometrical forms for seat ends, stop chamfering, &c. Many builders have testified to its value in joinery, and there can be no question that it will soon save the outlay on it by the saving of labour.

AGAIN it is a duty to call the attention of all engaged in building to the special diaries and blotting-pads which Messrs. Hudson & Kearns have been producing during a great many years. They have been loyal to the representatives of construction and are entitled as such to general recognition. Purchasers have become accustomed to special kinds, but the blotting-pads marked "No. 8" and "Bankers" will be found most convenient in offices.

A LARGE clock is just being erected in the church at Clifford Chambers, Stratford-on-Avon, by Messrs. John Smith & Sons, Midland Clock Works, Derby. It is being fitted with all the latest improvements and generally to the designs of the late Lord Grimthorpe. The same firm made a clock for Halford Church about thirty years ago.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have recently supplied their warm-air ventilating patent Manchester grates to the Council schools, Lewes.

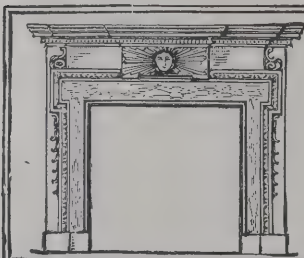
ONE of the special constructional features in the London County Council Day Training College just opened in Southampton Row relates to the floorings adopted there, which are on the well-known "immovable-acme" system of "dowelled" wood blocks (W. Duffy's patents), used for many years by the late School Board for London, and continued by them up to the time of the London County Council taking over the educational department, who continue to use this system throughout the schools, institutes, &c., coming within their jurisdiction. This decision is the result of it having been found that in the cases of school floors particularly—which are necessarily subjected to hard wear and tear—it is imperative that a really durable description of flooring should be adopted.

MESSRS. BRUCE PEEBLES & Co. have been provisionally awarded the contract for the electrification of the Moscow tramway system. The total cost will be upwards of 2,000,000*l.*

THE tender of Messrs. Underwood & Brother, of Dukinfield (23,237*l.*), has been accepted by the Cowlyd Water Board (Conway) for the laying of a new water main from Dolgarrog to Sarn Mynach.

THE Edinburgh Lunacy Board have agreed to a recommendation by the works committee to approve of a plan for the completion of the water supply to Bangour village in view of the probability of a greater supply being required in future, and the serious expense which would be entailed in obtaining a provisional order for extension of time to complete the works at Bangour. It was stated the cost would be about 1,000*l.*

THE health committee of the Birmingham City Council held a special meeting on Tuesday to consider the building plans of the chalets to be erected at Salterley Grange, near Cheltenham, on the estate already acquired by the Corporation for the purpose of providing a sanatorium for consumptives. In addition to the chalets, considerable structural alterations to the house are necessary in order to adapt it to the requirements of an administrative block. Plans for this were also considered, and the committee will shortly make a recommendation on the subject to the City Council.



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## ILLUSTRATIONS.

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TULLYLAGAN, CO. TYRONE, IRELAND.

RAVENSMOUNT, ALNWICK, NORTHUMBERLAND.

DESIGN FOR CLOCK TOWER, SALISBURY.

## VARIETIES.

THE Admiralty have decided to rebuild at a cost of about 50,000*l.* the western section of the Admiralty break-water at Dover, which was broken through the *Finland* collision. The operations will occupy about a year.

At Kilmarnock Dean of Guild Court on Monday plans were passed for the erection of a technical school in Elm-bank Drive at a probable cost of 16,000*l.*

THE Admiralty has decided to erect a large electricity station at Dover for power and lighting for the naval harbour. The contract for the work has been secured by a Dover contractor.

THE Corporation of Shoreditch were ordered in the King's Bench Division last week to pay to Mr. T. S. Harman, a contractor, 2,250*l.* and costs in respect of a fire at his premises, caused, in the opinion of the jury, by an electric motor which the Corporation had supplied.

THE Bury Joint Water Board have informed Haslingden Corporation that the high-level reservoir at Scout Moor will not be completed next summer as was hoped, and that they propose to ask Parliament for an extension of the time allowed for completion.

MR. G. W. CHILVERS has been appointed, in consequence of the death of the late Mr. E. Tidman, surveyor and secretary to the London and Suburban Sanitary Survey Association, 28 Victoria Street, S.W., with which his private practice has been merged.

THE town authorities of Winnipeg, Canada, have secured power to put plumbing into houses, calculating the expenses on a seven years' basis, the cost being levied on the property

thus improved. The aim is to help people who cannot afford the whole cost at once to make their houses sanitary.

MR. W. H. TRENTHAM, consulting engineer, informs us that he has taken into partnership Mr. A. E. Heming, recently constructional engineer to Marconi's Wireless Co., Ltd. The title and address of the firm will be "Trent-ham & Heming," 39 Victoria Street, Westminster.

THE *Pall Mall Magazine* Christmas Number has just been issued, and is up to the usual standard of this excel-lently produced magazine. An interesting illustrated article appears from the pen of Mr. Egan Mew, entitled "The Collection of Antiques."

MESSRS. PATMAN & FOTHERINGHAM, of 100-2 Theo-bald's Road, have secured the contract for the Norwich Union Insurance Society at the corner of St. James's Street, W., and Piccadilly. This is to be a very handsome building, with marble front, &c. Messrs. Rüntz & Ford are the architects, of Brook House, Walbrook, London, E.C.

THE Southwark Borough Council are diverting the mains at the Elephant and Castle preparatory to construct-ing subways for pedestrians, which have become necessary owing to the enormous pressure of motor-bus, tram and general traffic which now pertains to this point. In all the work will cost something like 13,000*l.*

THE Llandudno Pier Company announce that they intend to apply to the Board of Trade next session for a provisional order empowering them to widen the pier, to erect and maintain pavilions and other buildings, to acquire certain lands, to lay down a line of tramway, to supply electrical energy and issue new by-laws and regulations.

At the meeting of the Salford Board of Guardians last week tenders were opened relating to an extensive alteration of the drainage at the infirmary. Many of the tenders exceeded 8,000*l.* in amount, much to the surprise of the members of the Board. After the lowest tender by a local firm had been considered, it was agreed to appoint a special committee in order to see if a couple of thousand pounds could be saved.

THE Woodbridge Urban District Council have accepted the offer of the Suffolk Electrical Supply Company to light the streets of Woodbridge during the next seven years for 350*l.* per annum, the company to reimburse the Council for

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TO H.M. THE KING

1730

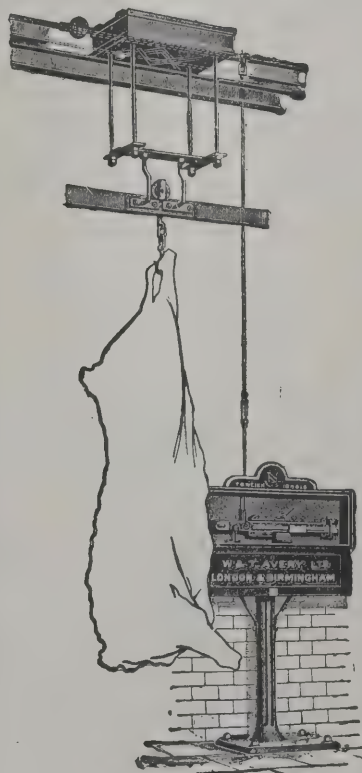
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obtaining expert advice. Electric lamps of the Osram type are proposed, and the contract is to include the provision, erection and maintenance of all the machinery and apparatus required. The average annual outlay for gas during the last four years has amounted to about 370*l*.

A PARLIAMENTARY return has been issued of all contracts made in the United Kingdom for manufactured articles by the various Government departments in the past year, either with contractors outside the United Kingdom or with contractors or agents who obtain the articles from abroad. From this it appears that the Admiralty contracts of this kind were 97,827*l*; War Office, 325,584*l*; Home Office, 1,726*l*; Metropolitan Police, 706*l*; prisons, 13,704*l*; Post-office, 56,340*l*; stationery, 16,131*l*; and works, 6,565*l*.

The large building known as Parkside, which adjoins the French Embassy at Knightsbridge, has been completed. On the ground floor are twelve shops, and above are forty-six suites of rooms. The architects are Messrs. A. H. Hart & Paul L. Waterhouse. On Tuesday Sir Thomas Brooke-Hitching and Mr. W. B. Essen, the owners, were entertained at luncheon by the architects. Among those who spoke on the occasion were Mr. Beattie, secretary of the Waring-White Building Company, Ltd.; Mr. Denell, the managing director; and Mr. Leaning, the quantity surveyor.

THE Teddington Urban District Council have considered the question of the erection of a new bridge over the Thames at Teddington, and have unanimously adopted the following resolution:—"That the County Council of Middlesex be requested to consider whether the time has not arrived when a bridge across the Thames at Teddington for vehicular traffic might, with advantage to the counties of Middlesex and Surrey, be erected, and thereby relieve the congested state of traffic at Kingston and Richmond bridges and certain other roads leading thereto." At present there is a suspension bridge for foot passengers at Teddington, but no bridge for vehicular traffic between Richmond and Kingston, a distance of about five miles.

THE Chemical Cleaning and Drying Company, 6 Argyll Street, W., of which Mr. T. Harris is manager, in order to carry out their numerous orders have introduced four of

the new Barbe machines by means of which the acme of dry cleaning can be reached. They are specially adapted for furniture fabrics: they are of large size, and all goods go through a series of processes until by means of force and special cleaning spirit every particle of foreign matter is removed. When the goods are dry they are taken out and subjected to the finishing operations. The system is well adapted for antique and valuable textiles. The chemical action of ordinary drystuffs and cleansing mixtures is to affect colours and often injuriously. But by the Barbe system there is no risk of that kind, and the colours are restored to their pristine beauty. Architects who may be consulted concerning valuable furniture fabrics would do well to visit the establishment.

THE Birmingham Corporation gas department has issued a circular letter to certain customers resident outside the city, who have been approached with a view of inducing them to discard the use of gas in favour of electricity for lighting their premises. The letter states:—"For lighting residential property, electricity at 4*d*. per unit is several times more costly than an up-to-date system of lighting with gas at 2*s*. 6*d*. per 1,000 cubic feet. One ordinary incandescent gas burner, lighted an average of three hours per day throughout the year, and yielding sixty-five candles of light, costs 12*s*. 4*d*. per annum with gas at 2*s*. 6*d*. per 1,000 cubic feet; whilst a similar volume of light from ordinary carbon filament electric lamps, with current at 4*d*. per unit, would cost 4*l*. 13*s*. 5*d*. The combustion of gas in a properly-ventilated room creates a good current of air, which helps to change and freshen the atmosphere of a room to a greater extent than would be the case if electricity were used.

THE proposed acquisition of "Beckett's Park" for Leeds at a cost of over 250,000*l*., is causing much discussion locally. The park was the seat of Lord Grimthorpe, and the Leeds Corporation, by a majority of two, have rejected the proposal to purchase the estate. A special committee recommended that the estate should be acquired by the Council, a portion of the 464 acres to be used as a site for permanent training colleges, about 92 acres to be made a public park and the remaining portion of 290 acres to be sold off as building land.

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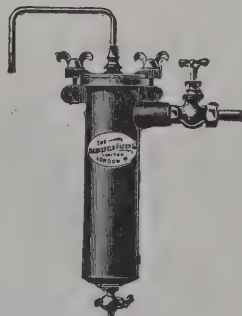
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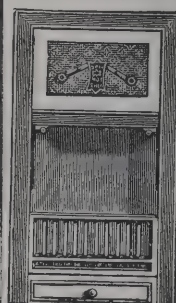


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Best Architects.  
IT IS USED by the Best  
Builders.

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THE City lands committee of the City Corporation has issued an order asking for the rigorous closing of the windows in the new Central Criminal Court. The chairman states that it has been pointed out that the efficiency of the system of heating and ventilating which has been installed in the structure at very great expense is seriously impaired by the opening of the windows. Enormous volumes of warmed and purified air have, he states, been allowed to escape in this way, and the interference with regular currents of air flowing through the ducts has resulted in a disorganisation of the system not confined merely to the rooms where windows have been opened.

GLASS telegraph poles are to be manufactured in a factory recently built at Grossahmerode, Germany. An architect of Cassel has been granted patents in Germany and other European countries and in the United States for a machine to be used in their manufacture. The glass is reinforced by wires suitably disposed. These poles, it is believed, will be particularly adapted for use in countries where wooden poles are quickly destroyed by insects or climatic conditions.

ACCORDING to the annual report of the inspector of plumbing at Washington, U.S.A., the labour troubles that have existed in this city during the year have greatly retarded building activities. The report shows that there were 32,100 inspections made, which is an increase over that of last year of 1,915, and 4,763 over the year previous. Inspector Davis points out that there are only six field inspectors employed in his office, who have to look after the work of 195 registered plumbers. The sum of 50,000 dols. is suggested as necessary for similar work for the coming fiscal year. Public baths and baths for the public schools are urged as public necessities.

THE November report of the Amalgamated Society of Carpenters and Joiners states that the total membership is 70,100. On unemployed benefit there are 3,854 members, and on sick benefit 1,519 members. Mr. Chandler announces that the South-western Counties Federation of Building Trades' Employers have joined the National Conciliation Board of the Building Trades. This embraces the towns of Bath, Bridgwater, Bristol, Cheltenham, Exeter, Gloucester, Hereford, Stroud and Taunton. Liverpool branch pro-

poses:—"That this branch considers the Conciliation Board is of no advantage to the joiners' societies, and asks the Executive Council to place the question of withdrawing from it before the members."

A HIGH tribute is paid to the progressiveness of some of the Chinese by Mr. A. W. Pontius, the United States Vice-Consul-General at Newchang, in a report to the Washington Bureau of Manufactures. He says the Chinese authorities are making good progress in establishing a proper drainage system throughout the Chinese city of Newchang, and although some hundreds of feet of drains have already been constructed, the work is still far from completion. Several of the main roads have been macadamised, and the clean appearance of the streets is evidence of the painstaking work of the Board of Sanitation. No refuse of any nature is allowed to be promiscuously dumped, and all shopkeepers are instructed to keep their premises in a sanitary condition. The foreign quarter has not been neglected, and the principal streets are all being macadamised, which is commendable on the part of the Chinese authorities, as very little in the way of taxes is realised from the foreign section. The authorities, in realising the fact that they must keep up the work so ably conducted by the Japanese, are more than anxious to demonstrate their capabilities in governing and regulating a treaty port which is practically controlled by them.

THE town clerk of St. Pancras has received a letter from the London County Council with regard to the Borough Council's refusal to contribute specially towards the formation of a new road between Gray's Inn and Pentonville Roads, and the erection of a bridge, 60 feet wide, over the Metropolitan Railway station at King's Cross, stating that, in the event of the continued refusal of a contribution, the County Council will have to consider the advisability of merely building a bridge sufficient for tramway purposes, without providing for ordinary pedestrian and vehicular traffic. It is mentioned that, by an alteration of the original plan, the greater improvement can be effected for 35,000*l.* instead of 40,000*l.*, the first estimate. The view of the general purposes committee of the Borough Council was that the improvement should be charged to the tramway account, or undertaken as a metropolitan, and not simply as a local, improvement; but they have addressed

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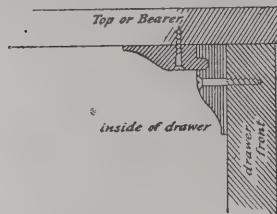


another communication to the County Council in reply to the last letter, and promise to report on receiving an answer.

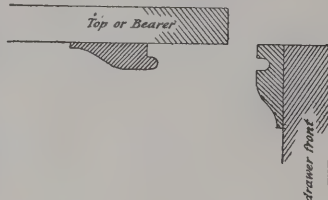
### A DRAWER STOP.

A common cause of complaint with housekeepers is that with even expensive drawers it is not possible to make them dust-proof. In museums costly construction in metal has to be adopted to attain that end. Mr. James Parkinson, of Liverpool, has patented a drawer stop which is easy of application and is effective. It will be seen from

Section showing Drawer Closed.



Section showing Drawer Open.

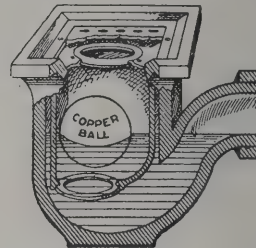


the wood-block that a slip is screwed on the inside of the front of the drawer. The top or bearer has another slip, and, as will be observed, the projection in one fits into the hollow of the other slip, and the drawer becomes more tightly closed than is possible with plain surfaces. Like many of the most useful inventions it appears simple. But there is little doubt it can securely answer the purpose for which it was intended.

### DRY BASEMENTS.

In our changeable climate, it is impossible to foretell when sewers will be found not equal to unanticipated demands on their capacity. In such cases the basements of houses suffer. To meet those emergencies is the object of Couzens' patent gully trap, manufactured by Messrs. G. & F. Couzens, of Cardiff. By means of a copper ball with an india-rubber casing above and below it, water is prevented from rising above the level of the gully. In dry weather

when the water runs low the ball subsides, and becomes an efficient obstacle to bar the entrance of sewer-gas. The arrangement is so simple, there is little likelihood of either



the ball or the seating failing in effect. A copper ball is also made an auxiliary in an interceptor, by which stoppage can be remedied simply by removal of an iron cover without opening the ground. The drain-rods can then have sufficient space to work in without the body of the water being increased.

### NEW CATALOGUES.

The catalogue of the chimney-pots and cowls belonging to the "Empress" smoke cures of Messrs. Ewart & Son, Ltd., clearly illustrates all the varieties which are adapted to meet the varying whims, as it were, of an enemy who unfortunately is allowed to have too much power. The principle is a movable head, which is noiseless owing to the ingenious method adopted for lubricating the parts. When oil is mentioned it might be supposed that constant attention is required. But the inventors say that when once oiled the cowl will work for many years without attention. There are special chimney-shafts, flues, wind-guards and slips, and the prices are moderate.

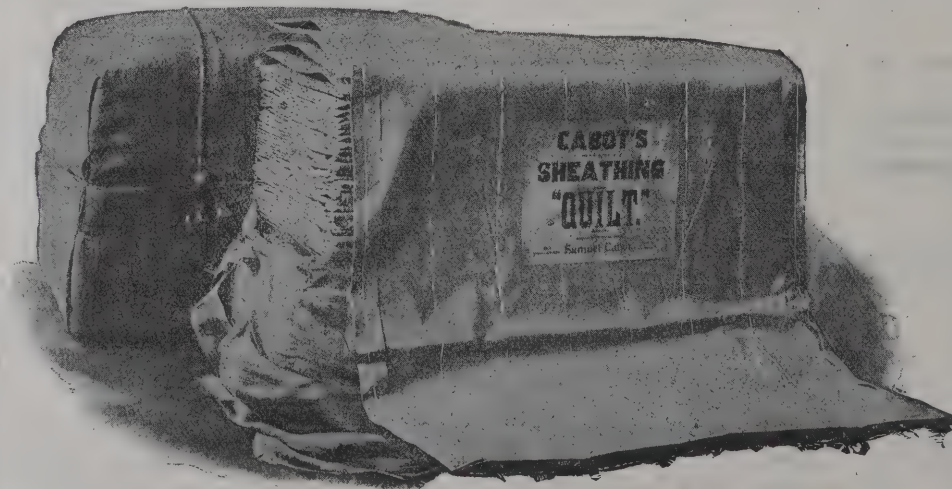
For a great many purposes concrete blocks and bricks are serviceable and they have been extensively employed in the United States. Some may suppose that they are

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easily made. But if they are to compete with bricks or machine-cut ashlar it is necessary that appearance should be considered. The Swansea Stone Block and Machine Company, Ltd., produce machines which are adapted to all the varieties of concrete blocks which are now in use. They are obtainable at so low a price they are enough to tempt any steady workman to set up in business as a concrete builder. One man can work the machine and turn out from twenty to twenty-four blocks in an hour. The catalogue supplies sufficient information about the whole process to enable anyone to conduct it. The outlay is so moderate that managers of estates would find it advantageous to have one or more of the machines in order to meet sudden demands where neither skilled labour nor bricks are at command. In the Colonies the machines would be invaluable. There is also one adapted to produce hollow blocks with plain faces, or rough faced, or as smooth as tooled ashlar. There are special machines for window and door sills, pavement blocks and fencing. The company also produce machines for bricks of sand and cement. It may be said without exaggeration that the system bids fair to cause a revolution in many kinds of building construction.

### TRAINING OF ENGINEERS.

An address was delivered by Professor S. M. Dixon, as president of the Birmingham Association of Students of the Institution of Civil Engineers. He said that although in the Birmingham University there were three separate departments of engineering, it was important to note that the work of these three departments was most intimately connected. All students working for the degree (which carried exemption from the examination for Associate Membership of the Institution of Civil Engineers) were required to work in the three departments. In fact, the existence of these three departments was as essential for the organisation of the work of instruction for that part of the course which was taken by all students as for the specialisation of the work for the advanced students. Specialisation began partly in the third year, and was carried out completely in the fourth year of study. It must be remembered, therefore, that many of the courses

both in the lecture-room and laboratory given in the civil engineering department were taken by students who were specialising in electrical and mechanical engineering, and in the same way those students who were looking forward to degrees in civil engineering spent a large portion of their time in the workshops, laboratories, drawing offices and lecture-rooms of the mechanical and electrical departments. In fact, the aim of those in charge was to make the training broad as well as thorough. Those who had drawn up schemes of university education for engineers had generally found that the limits of the course in civil engineering were more difficult to determine than any of its branches. In laying down the courses the most important question to decide was which of the many important subjects might be omitted, for few people realised sooner than engineers that the day contained only twenty-four hours. Once they fully grasped the fact that it was impossible in any university course to accomplish more than a small part of the preliminary training of the engineer, and that the work of the university school was not to make engineers but to fit men in the best way possible to become engineers, they found that it was the principles and not the innumerable details of engineering practice on which stress should be laid in a college course.

At the close of the lecture Professor Dixon conducted the party through the laboratories of the university, and gave demonstrations with the various testing and hydraulic machines.

### THE FORTH BRIDGE FOUNDATIONS.

A STATEMENT gained currency on Saturday that the Dunfermline Incorporation of Guildry had the power, if they so desired, of excavating the whin rock beneath the north cantilever of the Forth bridge, and that an omission on the part of the Forth Bridge Railway Company to obtain more than a surface right when the ground was acquired for the purposes of the bridge might result in compensation having to be paid to the Guildry and its tenants. We are informed, says the *Scotsman*, that the facts are as follows:—The main pier of the bridge adjoining the quarry worked by Messrs. Brunton, the quarry tenants, is not, as was stated, erected upon property formerly belonging to the Guildry, but upon

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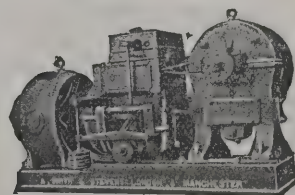
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a site purchased from other proprietors, so that the present dispute in no way affects the stability or safety of that pier, for the better protection of which an additional area of rock was, we understand, taken some three years ago, so as to form a buttress between the pier foundation and the rock being quarried. We learn also that the railway company in 1883 served upon the Guildry the usual statutory notice of their intention to take certain adjoining lands, one part of them lying to the south of the present pier opposite the quarry, and another part further to the east, on which the present coastguard station was erected. Having failed to arrive at an amicable settlement of the price, the matter was referred to arbitration, under which the Guildry claimed for their interest in the rock as well as in the surface, and were paid for both, the amount awarded being made up of something like seven-eighths of the total for the rock, and the oversman's formal award contains an express obligation upon the Guildry to convey the subjects, and also to discharge the railway company of all claims at their interest therein. A conveyance was taken on these lines. Lately the quarry tenants in prosecuting their operations reached the boundary of part of the property acquired from the Guildry situated under one of the spans of the bridge, and as it appeared not to be the intention of the quarry tenants to discontinue the removal of the rock at what was considered the boundary, the company called the attention of the Guildry to the matter, and were surprised to learn that the latter claimed to be still owners of the rock underneath that ground, on the plea that the conveyance to the company does not specially mention minerals, and that as the deed is a statutory one it does not therefore carry the rock. The question is to be submitted for adjudication, and not a little interest attaches to the point, because one element of contention will doubtless be whether whinstone, in the general acceptance of the term, is or is not a mineral, or at least was so regarded at the time of the transfer. It was only within the last few years that a judicial deliverance was obtained by another company regarding freestone, which has been defined to be a mineral. Clay other than surface clay was generally supposed to be in the same category, until the House of Lords recently decided otherwise in the case of the North British Railway Company *v.* Turners, Ltd., relating to the clayfield at Portobello.

### MANCHESTER CATHEDRAL.

UNDER the advice of the architect the fabric of the Manchester Cathedral is at present undergoing thorough repair. Much of the stonework and roof requires immediate attention. The cost will be heavy, and it is estimated that the portion for which the churchwardens are liable will alone be about 1,000*l.* Although the revenue from the Chapter estates is very large, amounting to more than 45,000*l.* (the greater portion being handed to the Ecclesiastical Commissioners and by them distributed amongst the incumbents of churches within the old parish of Manchester), no part of it comes into the hands of the churchwardens, who have to rely entirely on voluntary contributions, mainly made at Divine service. This resource is not sufficient to meet an extraordinary outlay, and the Dean and churchwardens have issued an appeal for funds.

### THE QUEBEC BRIDGE.

At the annual general meeting of the Royal Scottish Society of Arts, Professor T. Hudson Beare, of Edinburgh University, the president, occupied the chair.

The President, after referring to the losses by death which the Society had sustained during the preceding session, and to the papers which had been read, passed on to the main subject of his address, which was entitled "Some Notable Events in the Engineering World during the Session 1906-7." The lecturer first dealt with the Quebec bridge. This bridge, which will cross the St. Lawrence close to Quebec—about 350 miles above the mouth of the river—was of the cantilever type. It had an overall length of 3,240 feet, with two anchor spans of 500 feet each and one 1,800 feet central span, at a height of 150 feet above water level. The big span exceeded those of the Forth bridge by 90 feet. The total weight of the superstructure was about 40,000 tons. The bridge was designed and constructed by the Phoenix Bridge Company, who were also responsible for the erection up to the time of the disaster. The consulting engineer was Mr. T. Cooper. In the Quebec bridge, following the usual American custom, the various parts of the structure were pin-connected, the top chords of the cantilevers being built up of huge eye-bars, while the lower compression chords

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were rectangular boxes, built up of four webs, each constructed of steel plates. This form of construction of the compression members was open to criticism, as such struts were far less rigid than the cylindrical compression members of the Forth bridge. Claims had been made that the Quebec bridge showed considerable economy in design as compared with the Forth bridge, since the ratio of dead load to live load in the case of the latter bridge was  $9\frac{1}{2}$  to 1, while in the Quebec bridge it was designed to be only  $4\frac{1}{2}$  to 1. This economy had been obtained, however, only by materially increasing the working stresses in different parts of the structure. In the case of the Forth bridge, where the steel used had a tenacity of 34 tons to 37 tons per square inch, the working stress adopted in the compression members was only  $7\frac{1}{2}$  tons per square inch, and this after making allowance for a wind pressure of 56 lbs. per square foot. In the Quebec bridge, though the tenacity of the material only ranged from 27 tons to 30 tons per square inch, very much higher working stresses had been adopted. In its general details the bridge corresponded closely with those of other large American cantilever bridges, and there was no doubt that the greatest care had been taken in securing the best quality of material and the very best workmanship. The work of erection had been in progress for three seasons, and it was expected to complete the entire bridge in the year 1909. The overhang at the time of the accident was apparently about 800 feet. On the afternoon of August 29 last the entire completed superstructure on the south side collapsed instantaneously, killing 75 out of the 86 men who were working on it. From reports by those on the spot, it appeared that the whole structure fell within probably half a minute of the first collapse. At the time of the collapse all conditions were normal, and there was nothing, therefore, from this point of view to account for the disaster. A careful examination of the wreckage showed that the anchor arm moved bodily forwards towards the river, and its upper tension chords apparently maintained to a considerable extent their relative position. It had been stated that two days before the actual collapse the webs of this chord showed signs of buckling. Unfortunately, steps were not taken to remove at once the men erecting the bridge until the cause of this weakness could be investigated; and this

led to a lamentable loss of life, which might otherwise have been saved. The lecturer stated that it was not desirable nor right that any positive opinion should be expressed with regard to the cause of this disaster until the completion of the inquiry which had been undertaken by the bridge builders and by the Canadian Government. He himself, however, was of opinion that the ultimate cause would be found to be faulty design, and not bad workmanship or bad material.

### FOLKESTONE PIER.

At the ordinary meeting of the Institution of Civil Engineers on the 12th inst., a paper read was "The Extension, Widening and Strengthening of Folkestone Pier," by Mr. Hugh Torrance Ker. The author described the important harbour works which were carried out by the South-Eastern Railway Company at Folkestone during the eight years 1897 to 1905. A short historical account was given of the early works carried out for the purpose of providing shelter, and of the continuous fight against the travelling shingle which tended to block the harbour entrance. The accumulation of shingle against these earlier works resulted in high-water mark being pushed about 900 feet seaward and the reclamation of about 26 acres from the sea.

The old pier, in 1897, was in a very dilapidated condition and ill adapted for the rapidly increasing traffic. The number of passengers by the Folkestone-Boulogne route in the year 1905 was 257,000 and the value of the goods dealt with was 12,500,000*l.* The new works, designed to meet the increased traffic requirements, comprise the extension of the old pier by 900 feet of solid work, with the provision of four new berths available at all tides and in all weather; the protection of the west face of the old pier by a solid wall carried down to a secure foundation; the strengthening of the root of the pier by a wall founded on cylinders and protected by a wave-breaker of 20-ton blocks deposited pell-mell; the renewal of the east face of the old pier in greenheart piling, and the provision of a new deck throughout its length. The pier is provided with a sheltering parapet along the whole of the western side. The parapet covers the railway-platforms

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and provides a public promenade on the top. The main lines and sidings on the pier are controlled by electric signalling, and the whole of the pier, landings, station-buildings, &c., are lighted by electricity. The pier terminates in a round head 65 feet in diameter, upon which stands a granite lighthouse, exhibiting a fourth-order double-flashing light; and a fog-horn house with air-compressing machinery.

The paper proceeds to describe the construction of the new works, and gives details of the extension, which was composed of 20-ton concrete blocks, of which 133,500 cubic yards were used in the works.

Reference is made to the methods adopted for testing cement, and particulars are given of the boiling-test used as a measure of the aeration necessary. Experiments were made with 100-ton lots to ascertain the increase of volume due to aeration, and particulars are given of one of the consignments tested in this manner which continued to increase at a rate sufficient to pay the cost of turning the cement up to the twenty-second turn. Tests extending to three years were also made of cement which had been adulterated with gypsum to control its setting properties, and the results are given, showing a serious diminution of strength in the last year of the test with neat cement, but a steady increase with the mortar test.

After a description of the block-making and stacking, mention is made of the staging from which the actual building was carried on. This staging was 101 feet wide and 400 feet long, with its rail-level 21 feet above high water. It was formed of Oregon pine piles 18 inches by 18 inches, carrying lattice girders of 40 feet span. The staging carried two 30-ton and two 20-ton goliath cranes. The 30-ton goliaths were used for handling the diving-bells, of which there were two, each 13 feet by 10 feet by 6 feet, weighing 26 tons. The 20-ton goliaths were used mainly for block-setting. The blocks below low water were set block to block, without beds, by the divers. Above low water the blocks were set in beds of 2-to-1 mortar, and the joints were grouted. At the outer end of the pier the foundation was 63 feet below high water. The whole of the west side of the pier is protected against undermining by a concrete apron 13 feet wide. Above low water the pier is faced with granite which was built into the blocks

in the yard. Grooves are formed in the granite where the landings occur, to receive the greenheart piles which carry the decks of the landings. Each berth is provided with a lower landing, 20 feet wide, so that passengers may embark with convenience at any state of the tide. Slipways are also provided for the shipment of horses, of which traffic there is a considerable amount passing through Folkestone.

The paper next describes the strengthening works at the root of the pier where, owing to the proximity of the old work and the amount of cover to be removed before obtaining a good foundation, it was necessary to resort to cylinders to obtain a secure footing in the lower greensand beds. The site of the cylinder foundation was in a re-entering angle exposed to a heavy wave-stroke. The cylinders, which were 11 feet in diameter, were in two rows. Those in the front row were built up of steel rings 5 feet deep, while in the back row the cylinders were made of concrete in sections, each weighing nearly 20 tons. The steel cylinders were sunk by means of compressed air, and the concrete cylinders by grabbing in the usual way. The obstructions met with during the process of sinking consisted of the debris of the old pier in the shape of rocks, concrete and old rails, which had to be cut through. The blockwork wall built on the top of the cylinders was backed with chalk filling, upon which the main pier-station was built. The cylinder-wall was protected from the abnormal wave-stroke at this point by a wave-breaker composed of 460 blocks, each weighing 20 tons, placed as irregularly as possible.

The main passenger-lines running on to the pier had been liable to damage during stormy weather owing to the loss of shingle which occurred during gales. Foreshore-protection works of a permanent character were therefore constructed, consisting of groynes, breast-walls and rock-work barriers.

The paper concluded with a description of the greenheart face and new landings provided on the east face, and with a notice of the special cranes provided for the rapid handling of baggage. The works were designed by Messrs. Coode, Son & Matthews, and were carried out by Mr. Wm. Rigby, as contractor. Mr. Ker acted as resident engineer during the construction.

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

DUDLEY.—The Dudley education committee propose to erect a day training college. Architects desirous of sending a competitive design for the building are requested to make application to Mr. J. M. Wynne, secretary and director, Education Offices, Dudley, giving full particulars of similar work already carried out by them.

HERTFORD.—Nov. 30.—The Corporation of Hertford invite designs for the erection of offices at a cost not exceeding 3,500l. Premiums of 50l. and 20l. will be awarded. Particulars can be obtained from Mr. John H. Jevons, A.M.I.C.E., borough surveyor, Hertford.

MAIDENHEAD.—Designs for a new secondary school, for the Berkshire education committee. Awards of 100l., 50l. and 25l. respectively. Assessor to be nominated by President of R.I.B.A. Particulars and conditions, 5s. The Education Secretary, the Forbury, Reading.

WALES.—Dec. 19.—The Llandrindod Wells Urban District Council invite competitive schemes for (a) laying-out recreation ground; and (b) erecting a pavilion and other buildings. Full particulars are obtainable from Mr. D. C. Davies, clerk, Llandrindod Wells.

WARRINGTON.—Nov. 30.—The Directors of Warrington Garden Suburbs, Ltd., invite architects practising within a 30-mile radius of Warrington and architects having previous experience in the planning of garden suburbs to submit competitive designs for laying-out their estates at Great Sankey and Morrisbrook Farm, Grappenhall. Conditions and particulars may be obtained on deposit of 1l. 1s. Mr. A. Bennett, Secretary to the Company, Market Gate Chambers, Warrington.

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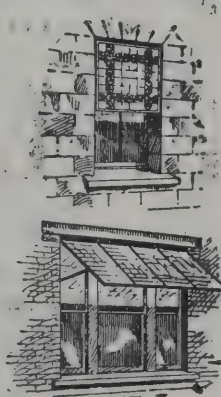
ARMY CONTRACTS.—The Secretary of State for War gives notice that builders desirous of being applied to when tenders are invited for work in the several military districts of the United Kingdom, and whose names are not already on the War Office List, should address the General Officer

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commanding the district in which they desire to carry out such services, giving trade and bank references, and stating whether they wish to tender for (a) jobbing work, painting and repairs; (b) new buildings or works up to 5,000*l.* estimated value; (c) new buildings or works of any magnitude above 5,000*l.* Applications unaccompanied by reference will not be noticed.

BELFAST.—Dec. 9.—For erection of one single-storey cottage in brickwork at Belfast, for the Great Northern Railway Company (Ireland). Deposit 2*s.* Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

BEN RHYDDING.—Dec. 6.—For erection of a school at Ben Rhydding, Ilkley, West Riding. Deposit 1*l.* Mr. J. Vickers-Edwards, architect, County Hall, Wakefield.

BIRMINGHAM.—Dec. 9.—For excavations, foundations and erection of lower ground floor of buildings in extension of Council House. Deposit 5*l.* 5*s.* Messrs. H. V. Ashley & Winton Newman, architects, 14 Gray's Inn Square, London, W.C.

BRADFORD.—Dec. 7.—For alterations to drying closets at the Union hospital laundry. Deposit 1*l.* 1*s.* Mr. Fred Holland, engineer and architect, 11 Parkinson's Chambers, Hustlergate, Bradford, Yorks.

BRISLEY.—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

BURY.—Dec. 11.—For heating proposed Council schools, Pine Street, with or without ventilation. Deposit 2*l.* Mr. Arthur W. Bradley, borough engineer and surveyor, Bury, Lancs.

BUSHEY.—Dec. 3.—For erection of a small sub fire station in Bushey Hall Road. Mr. John Wilson, clerk, Council Chamber, Bushey, Herts.

CADISHEAD.—Dec. 16.—For erection of a public elementary school at Cadishead, near Manchester, to accommodate 450 children. Deposit 2*l.* Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

CHATTISHAM.—Nov. 30.—For rebuilding tower buttress of Chattisham Church, Ipswich. The Vicarage.

CLITHEROE.—Dec. 3.—For erection of 19 houses in Low Moor. Mr. Edmund T. Welch, architect and surveyor, York Street, Clitheroe.

DARTFORD.—Dec. 4.—For construction of pump-house, storage tank, &c., off Victoria Road, Dartford. Mr. T. E. Tiffin, surveyor, Council Offices, Dartford.

DEWSBURY.—Dec. 5.—For works required in the reconstruction of Cut End Mills, Savile Town. Deposit 1*l.* 1*s.* Messrs. C. H. Marriott, Son & Shaw, civil engineers, Church Street Chambers, Dewsbury.

EAST HARTFORD.—Dec. 2.—For erecting a Council school to accommodate 240 scholars at East Hartford, near Cramlington, Northumberland. Deposit 2*l.* 2*s.* Mr. C. Williams, secretary to the education committee, Pearl Buildings, Newcastle-upon-Tyne.

EDINBURGH.—Nov. 30.—For erection of the fine-art building at Saughton Park, for the Scottish National Exhibition, 1908. Deposit 1*l.* 1*s.* Mr. James D. Gibson, surveyor, 60 Frederick Street, Edinburgh.

FAILSWORTH.—Nov. 30.—For erection of public library on site adjoining Council offices, Oldham Road. Deposit 2*l.* Messrs. Ogden & Hoy, architects, Examiner Buildings, Strutt Street, Manchester.

HALIFAX.—Dec. 12.—For works comprised in erection of stabling and loose-boxes for 18 horses, cart shed, fire-brigade station, three dwelling-houses, extensive yard formation and setting, also approaches and other works. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HANDSWORTH.—Dec. 9.—For heating, cookery and laundry extensions, Wattville Street Council school, and laboratory and woodwork shops, &c., in Rookery Road Council school. Deposit 1*l.* 1*s.* Messrs. Wood & Kendrick, architects, West Bromwich.

HATFIELD.—Dec. 2.—For alterations and additions at the Sawbridgeworth, Fawbert and Barnard County Council school. Deposit 2*l.* Mr. U. A. Smith, County Surveyor's Office, Hatfield.

HULL.—Dec. 11.—For widening William Wright Dock entrance, comprising removal of about 2,700 cubic yards of old masonry, the construction of about 1,850 cubic yards of new-wall in concrete brickwork and masonry, and about 11,000 cubic feet of timberwork in jetty, &c., for the North-Eastern Railway Co. Mr. T. M. Newell, Dock Engineer's Office, Hull.

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IPSWICH.—Dec. 9.—For alteration of and additions to the Municipal secondary school for girls, Bolton Lane. Deposit 1*l*. 1*s*. Mr. E. T. Johns, architect, Tower Chambers, Tower Street, Ipswich.

KEMPTON PARK.—Dec. 11.—For construction of coal bays, fitting and other workshops, stores, tool houses, conveniences and other works to be erected at Kempton Park, for the Metropolitan Water Board. Deposit 5*l*. The Engineer of the Staines Reservoirs Communication Works, The Firs, Southern Road, Fortis Green, Finchley, N.

LAMBERHEAD GREEN.—Dec. 18.—For erection of a public elementary school at Lamberhead Green, near Wigan, to accommodate 500 children. Deposit 2*l*. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

LEEDS.—Dec. 3.—For heating by hot water the Zion chapel, Victoria Road, Kirkstall. Particulars on application to the chapel keeper on the premises.

LEEDS.—Dec. 20.—For construction of a watertight reservoir, to be known as Leighton reservoir, comprising an earthwork embankment about 630 yards long, deep puddle and concrete trench, discharge tunnel, valve shaft, gauge basin, waste weir and by-wash, catchwater aqueduct about a mile in length, construction of a road, bridges, boundary walls, caretaker's house and other incidental works in connection therewith, situate on the Pott Beck in the urban district of Masham. Deposit 10*l*. Mr. C. G. Henzell, waterworks engineer, Leeds.

LONDON.—Dec. 3.—For supplying and fixing a temporary school building, for the Wood Green education committee. Deposit 1*l*. 1*s*. The Surveyor, Town Hall, Wood Green.

LONDON.—Dec. 28.—For erection on school premises of a small house, North Surrey district school, Anerley, S.E. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

MIRFIELD.—Dec. 6.—For erection of a school at Mirfield, Yorks. Deposit 1*l*. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

NEWCASTLE-UPON-TYNE.—Dec. 9.—For supply and erection of a small two-storey steel-framed structure, with panels filled in with brick and covered with corrugated sheeting, for bath and mess-room in connection with the

Benwell refuse destructor. Deposit 1*l*. 1*s*. The City Engineer, Town Hall, Newcastle-upon-Tyne.

NORWICH.—Dec. 6.—For erection of Wensum View Council school. Deposit 10*s*. Mr. C. J. Brown, architect and surveyor, Cathedral Offices, The Close, Norwich.

NOTTINGHAM.—Dec. 4.—For minor repairs to school buildings for the two years ending December 31, 1909, in each of the following districts, for the education committee:—Bulwell and Basford; Hyson Green, New Basford and Sherwood; Eastern; Lenton and Central; Sneinton and Meadows. Contract No. 1 includes bricklayer, slater and mason's work; (2) includes carpenter and joiner's work; (3) includes plumber and glazier's work. Deposit 1*l* for each contract. Mr. Frank B. Lewis, city architect, Guildhall.

OVERTON.—Nov. 30.—For pulling-down tower of church at Overton, Hants, and rebuilding same. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

PARKSTONE.—Dec. 2.—For erection of three shops with residences, &c., in Bournemouth Road. Messrs. Smart & Wyeth, architects and surveyors, Bank Chambers, 220 Ashley Road, Parkstone, Dorset.

ROCHESTER.—Dec. 24.—For construction of a covered service reservoir (in concrete) at Broom Hill, Stroud. Deposit 2*l*. 2*s*. Mr. William Banks, A.M.I.C.E., city surveyor, Rochester.

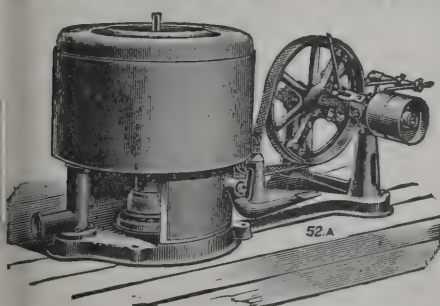
ST. ANNES-ON-SEA.—Nov. 30.—For supply of an ornamental iron bandstand of 26 feet or 27 feet diameter, the price to include cost of bandstand and fixing same (the Council will provide the foundations). Mr. Thos. Bradley, clerk, St. Annes-on-Sea.

ST. MELLION.—Dec. 3.—For building an organ-chamber and vestry, &c., at St. Mellion Church. Rev. F. Wintle, St. Mellion Rectory, East Cornwall.

ST. MICHAEL'S MOUNT.—Nov. 30.—For erection of two cottages. Mr. W. G. Painter, Steward's Office, St. Michael's Mount, Marazion, Cornwall.

SCARBOROUGH.—Dec. 11.—For erection of a post office. Deposit 1*l*. 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

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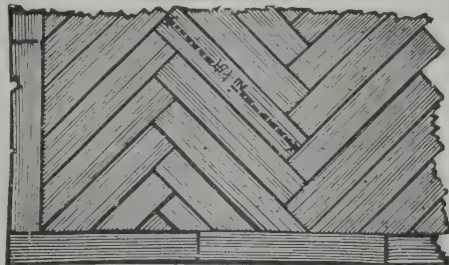
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SCOTLAND.—Dec. 9.—For mason, carpenter, plumber, slater, plasterers and painter's work of alteration and repairs to manse of Cromdale. Mr. John Wittet, architect, Elgin.

SILKSWORTH.—Dec. 3.—For erection of Silksworth school, Durham. Messrs. Brown & Spain, 51 Fawcett Street, Sunderland.

SOUTHAMPTON.—Dec. 4.—For alterations and additions to Warehouse F, Town Quay. Deposit 1*l*. Mr. E. Cooper Poole, A.M.I.C.E., engineer, Harbour Board Offices, Town Quay, Southampton.

SUTTON COLDFIELD.—Dec. 9.—For erection of a school for 120 children in Hollyfield Road. Deposit 3*l* 3*s*. Messrs. Crouch, Butler & Savage, architects, 39 Newhall Street, Birmingham.

SUTTON COLDFIELD.—Dec. 12.—For enlargement of Boldmere and Hill girls' school. Deposit 1*l* 1*s*. Mr. W. A. H. Clarry, borough surveyor, Council House, Sutton Coldfield.

TOW LAW AND HOWDEN-LE-WEAR.—Dec. 3.—For alterations and improvements at the Tow Law and Howden-le-Wear Council schools, Durham. The County Education Committee's Architect, Shire Hall, Durham.

TUNSTALL (Staffs).—For supply and erection of a greenhouse in the park, 45 feet by 18 feet. Mr. A. R. Wood, surveyor, Tunstall Urban District Council Offices, Staffs.

WALES.—Dec. 4.—For renovating the Farmers' Arms, Dowlais. Mr. C. M. Davies, 112 High Street, Merthyr.

WALES.—Dec. 4.—For erection of twelve cottages at Newtown, Mountain Ash, for Messrs. Nixon's Navigation Company. The Navigation Offices, Mountain Ash.

WALES.—Dec. 7.—For erection of forty houses at Dyffryn, Goodwick, Pembroke. Mr. Hugh Thomas, architect and surveyor, 9 Victoria Place, Haverfordwest.

WILLAND.—Nov. 30.—For erection of a dwelling-house at Willand, Devon. Mr. Wm. Barrons, Tiverton.

WRENTHORPE (Yorks).—Dec. 2.—For erection of boundary wall and laying of new playground at the school. Mr. A. Angus, West Riding Education Office, Northgate, Wakefield.

## TENDERS.

### ASPLEY HEATH.

For new dining-room at Brackenside, for Mr. J. C. Cleghorn. Messrs. STONEBRIDGE & FOLL, architects, Bedford and Woburn Sands.

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### BEDLINGTON.

For laying sewers and accessories. Mr. J. E. JOHNSTON, surveyor.

Young . . . . .	£820	0	0
Coxon & Son . . . . .	763	3	0
Henderson . . . . .	721	8	4
Carr . . . . .	666	7	3
McLaren . . . . .	621	1	0
Simpson . . . . .	615	16	3
Robson . . . . .	600	10	0
EDGAR, Whitley Bay (accepted) . . . . .	538	13	9

### BILSTON.

For erection of Roman Catholic schools. Mr. J. P. BAKER, architect, Willenhall.

Marchant . . . . .	£2,594	19	8
Jones . . . . .	2,589	0	0
Speake & Sons . . . . .	2,540	0	0
Wistance . . . . .	2,510	0	0
Herbert . . . . .	2,472	0	0
J. M. Tildesley . . . . .	2,440	0	0
Cave & Son . . . . .	2,430	0	0
T. Tildesley . . . . .	2,415	0	0
T. & S. Ham . . . . .	2,397	0	0
Gough & Son . . . . .	2,360	0	0
Hammonds Bros. . . . .	2,326	0	0
Griffiths . . . . .	2,277	0	0
Guest & Son . . . . .	2,230	0	0
Tooley . . . . .	2,223	0	0
HICKEN & SONS, Willenhall (accepted) . . . . .	2,222	0	0
Jordan . . . . .	2,193	0	0

### BIRMINGHAM.

For erection of school at Acocks Green, for 1,200 children.

WHITEHOUSE & SON, Monument Road, Birmingham (accepted) . . . . . £13,083 0 0

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Cutting and Formation.

Glaister . . . . .	£299	15	0
RIGG & BURNS, Buttermere (accepted) . . . . .	225	0	0
Fencing.			
BAYLISS, JONES & BAYLISS (accepted) . . . . .	140	0	0

CARSHALTON.

For repairs and tar paving in Talbot Road and The Square. Mr. W. W. GALE, surveyor.

Talbot Road.

Potter & Co. . . . .	£384	14	4
Catley . . . . .	369	4	0
Kavanagh & Co. . . . .	359	12	6
E. & E. Iles . . . . .	343	1	0
Free & Sons . . . . .	342	3	7
Chittenden & Simmons . . . . .	313	16	10
Potter . . . . .	313	2	4
Woodhams & Co. . . . .	307	0	0
MAY, Ashstead (accepted) . . . . .	281	0	0

The Square.

Potter & Co. . . . .	393	4	4
Catley . . . . .	295	18	0
Free & Sons . . . . .	264	8	6
E. & E. Iles . . . . .	260	8	2
Kavanagh & Co. . . . .	260	1	11
Woodhams & Co. . . . .	237	0	0
Potter . . . . .	236	4	0
Chittenden & Simmons . . . . .	236	2	9
Aedy . . . . .	233	16	9
MAY, Ashstead (accepted) . . . . .	218	0	0

CUBBINGTON.

For erection of a clubhouse for Manchester Unity of Odd-fellows. Mr. FRANCIS P. TREPESS, architect, Warwick.

Lord . . . . .	£895	0	0
Smith & Sons . . . . .	885	0	0
Bowen . . . . .	876	0	0
Bailey & Co. . . . .	812	0	0
Pratt . . . . .	795	0	0
Gathercole . . . . .	759	16	0
Smith & Son . . . . .	750	0	0

DUNDEE.

For supply of 1,000 6-inch pipes and 1,000 4-inch pipes, for the Water Commissioners. Mr. G. BAXTER, engineer.

Clay Cross Co. . . . .	£1,794	12	3
Maclaren & Co. . . . .	1,698	17	10
Macfarlane, Strang & Co. . . . .	1,686	18	4
Cochrane & Co. . . . .	1,643	7	2
STEWART & Co., St. Rollox, Glasgow (accepted) . . . . .	1,627	8	5

HESTON AND ISLEWORTH.

For making-up Argyll Avenue, Hounslow, and Castle Place, Isleworth. Mr. J. G. CAREY, engineer, Hounslow.

Argyll Avenue

Fry Bros. . . . .	£1,080	9	3
Watson, jun. . . . .	1,035	0	0
Dykes . . . . .	980	19	9
Free & Sons . . . . .	976	5	6
Gibbons . . . . .	951	9	0
Wheeler . . . . .	948	0	8
Adams . . . . .	934	3	9
Brummell . . . . .	927	16	5
Colbourn . . . . .	914	10	0
Swaker . . . . .	902	1	4
Middlesex Contracting Co. . . . .	885	0	0
Mowlem & Co. . . . .	884	0	0
Thacker & Co. . . . .	880	7	9
Chapman (recommended) . . . . .	857	8	6

Castle Place.

Colbourn . . . . .	141	1	0
Swaker . . . . .	135	0	0
Thacker & Co. . . . .	127	11	9
Fry Bros. . . . .	126	19	9
Dykes . . . . .	123	12	0
Gibbons . . . . .	117	6	6
Free & Sons . . . . .	111	15	2
Watson, jun. . . . .	106	0	0
Adams . . . . .	101	2	0
Brummell . . . . .	99	0	4
Wheeler . . . . .	98	9	2
Chapman . . . . .	82	18	1
Middlesex Contracting Co. . . . .	79	0	0
Mowlem & Co. (recommended) . . . . .	75	0	0

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## ISLEWORTH.

For extension of the County school, Isleworth, for the Middlesex County Council. Mr. H. G. CROTHALL, architect to the Middlesex education committee.

Messom & Co.	£4,645	0	0
Spiers & Son	4,480	0	0
Wisdom Bros.	4,339	0	0
Treasure & Son	4,338	0	0
Francis, Ltd.	4,275	0	0
Lawrence & Son	4,144	0	0
Fairhead & Son	4,127	0	0
Minter	4,090	0	0
Renshaw	4,033	0	0
Bollom	4,026	0	0
Barker & Co., Ltd.	3,988	0	0
Knight & Son	3,976	0	0
Lacey	3,912	0	0
Dorey & Co.	3,890	0	0
Stewart	3,860	0	0
Hawkins & Co.	3,840	0	0
Dickens	3,791	0	0
A. & B. Hanson (recommended)	3,755	0	0

## KIRKCALDY.

For construction and erection of a pair of 50-feet steel dock gates and swing-bridge of 50-feet span.

Hanna, Donald & Wilson	£6,759	11	0
Motherwell Bridge Company	5,714	1	9
Thames Ironworks	5,564	19	11
P. & W. MacLellan	5,198	15	2
Orr, Watt & Co.	5,006	10	0
BRANDON BRIDGE BUILDING COMPANY, Motherwell (accepted)	4,827	8	4

## LOCHGELLY.

For building town house.

Accepted tenders.

Wilson, mason	£1,059	0	0
Henderson, joiner	616	3	5
W. & G. Easton, plaster	168	16	0
Binning, plumber	149	10	0
Robertson, slater	54	15	0

## LONDON.

For alterations and additions to 34 Milk Street. Mr. HENRY A. SAUL, architect, 10 Gray's Inn Square, W.C.

Grover & Sons	£746	0	0
Lawrance & Sons	636	0	0
Ashby & Horner	598	0	0
MATTOCK & PARSONS (accepted)	591	0	0

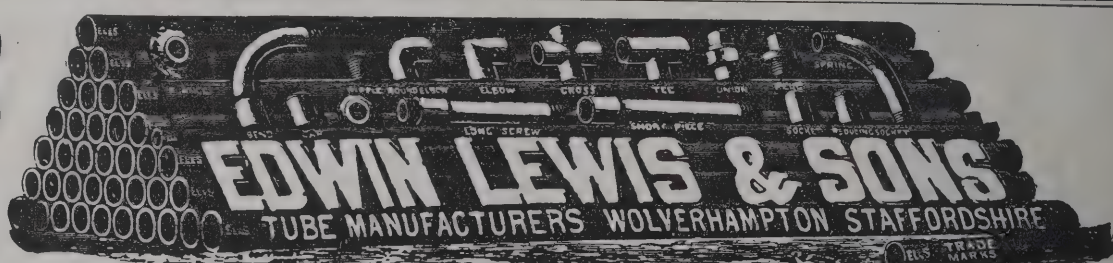
For erection of a pair of semi-detached houses. Mr. J. E. HENDERSON, architect, 30 Watling Street, E.C.

Hatchman	£1,729	0	0
W. & T. Cooper	1,296	0	0
Reynolds, Hampstead (recommended)	1,289	0	0

For erection of tramways car-shed, Mare Street, Hackney.

Martin Wells & Co.	£30,565	0	0
Coxhead	29,500	0	0
Parker	29,248	0	0
Allen & Sons	28,640	0	0
Shurmur & Sons	27,954	0	0
Coles	27,740	0	0
Barker & Co.	27,655	0	0
Grover & Sons	27,330	0	0
L. H. & R. Roberts	27,284	0	0
Wall	27,150	0	0
McCormick & Sons	26,896	0	0
Dearing & Son	26,797	0	0
Dick, Kerr & Co.	26,659	19	7
Chessum & Sons	26,480	0	0
Holliday & Greenwood	26,429	0	0
Nightingale	26,399	0	0
Behrend	26,285	0	0
Wallis & Sons	26,260	0	0
Perry & Co.	26,248	0	0
Patman & Fotheringham	25,693	0	0
Price	25,387	0	0
Munday & Sons	25,107	0	0
F. & H. F. Higgs	25,022	0	0
Rowley Bros., Tottenham (recommended)	24,078	0	0
Architect's estimate	27,000	0	0

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**LUDLOW.**

For alterations to Grammar school.	Mr. HAROLD BRAK-SPEAR, F.S.A., architect, Corsham.		
Willcock & Co.		£3,625	0 0
Robersons, Ltd.		3,614	0 0
Bowdler & Co.		3,475	0 0
Weale & Son		3,350	0 0
Whittingham		3,120	0 0
Speake		3,000	0 0
Pace		2,996	0 0
Smith		2,995	0 0
Hayward & Wooster		2,909	0 0
Stephens, Bastow & Co.		2,898	0 0
Collins & Godfrey		2,868	0 0
Chancellor & Sons		2,860	0 0
Preece		2,857	0 0
Treasure & Son		2,804	0 0
Broad		2,760	0 0
Bickerton		2,725	0 0
Bryan		2,498	0 0
Turford & Southward		2,345	0 0
DOWNING & RUDMAN, Chippenham, Wilts (accepted)		2,337	0 0

**MITCHAM.**

For private streets.			
Acre Road.			
E. & E. ILES, Wimbledon (accepted)		£324	0 0
Boyd Road.			
E. & E. ILES (accepted)		243	0 0
Briscoe Road.			
E. & E. ILES (accepted)		179	0 0
College Road.			
E. & E. ILES (accepted)		388	0 0
Courtenay Road.			
E. & E. ILES (accepted)		545	0 0
Denison Road.			
E. & E. ILES (accepted)		554	0 0
Fortescue Road.			
E. & E. ILES (accepted)		734	0 0
Miller Road.			
E. & E. ILES (accepted)		249	0 0
University Road.			
E. & E. ILES (accepted)		335	0 0

**MANSFIELD.**

For roads on the High Oakham Park estate.	Mr. J. E. GOODACRE, architect, Mansfield.		
Trentham		£1,598	10 0
Chapman & Ellis		1,135	16 9
Hawley & Son		894	3 0
Greenwood		835	0 0
Lane Bros.		824	0 0
Belshaw & Son		800	0 0
Keetch & Wainer		780	0 0
Ashley		747	0 0
Fulcher		727	11 2
Bennett		690	18 10
BRADLEY, Mansfield (accepted)		665	14 6

**MEXBOROUGH.**

For market extension.	Mr. G. F. CARTER, engineer and surveyor.		
Thornton & Son		£1,415	0 0
Boots & Son		1,410	0 0
Wellerman Bros.		1,400	0 0
Carr		1,395	0 0
Sprakes & Sons		1,341	1 6
Leadley & Co.		1,235	11 0
Huntingdon		1,190	0 0
SMITH, Mexborough (accepted)		1,175	0 0

**SHREWSBURY.**

For reconstruction of drains at infirmary and other work.			
Cave & Son		£865	1 0
Whitehead & Son		784	5 10
Mellowes & Co.		752	12 5
Beattie		734	2 11
Wood		728	0 0
Price		647	0 0
McDonald & Hunt		612	12 0
Woodcock & Riley		594	18 2
Knight		585	18 2
Scull Bros.		568	5 9
PACE, Shrewsbury (accepted)		540	1 9

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## ROCHFORD.

For the erection of a school at Sutton for the Rochford Hundred education committee.

Chadwell Heath Joinery Co.	£4,405	0	0
Whur	4,391	0	0
Bennett	3,880	0	0
Woodhams	3,877	0	0
Burgess & Bailey	3,764	6	0
Smith & Son	3,735	0	0
Flaxman	3,675	0	0
Elvey & Son	3,491	0	0
E. Davey	3,410	0	0
F. & E. Davey	3,375	0	0
Norden	3,369	10	0
Willmott	3,321	0	0
F. Davey	3,277	0	0
Moss & Co.	3,200	0	0
HAMMOND & SON, Romford (accepted)	3,170	0	0

## TUNBRIDGE WELLS.

For erection of village hall at Lye Green. Mr. W. KIRK, architect, Tunbridge Wells.

Waters	£525	0	0
CONNOR BROS., Crowborough (accepted)	437	0	0

EXTENSIVE additions are to be made to the Beckenham (Kent) electricity works.

A new swimming-bath is to be erected at Croydon. The building will measure 120 feet by 61 feet, and the bath itself 100 feet by 35 feet. The cost is estimated at 8,000*l*. A gallery for spectators on both sides will be included in the scheme.

In May 1906 a Royal Commission was appointed to inquire into the expediency of instituting in Scotland a system of registration of title. The Commission took evidence in Edinburgh in the early part of this month. They have arranged to hold a meeting in London on Monday next, December 2, to examine witnesses on the working of the compulsory system that has been on trial as an experiment in the County of London since January 1899. The witnesses summoned include Messrs. T. Cyprian Williams and B. L. Cherry, counsel; and Messrs. C. M. Barker, C. F. J. Jennings and J. S. Rubinstein, solicitors.

## TRADE NOTES.

MR. T. A. CROMBIE, colonial merchant, of 65 London Wall, E.C., the London agent of the Kimberley Borough Council, has shipped this week per s.s. *Bucrania* for the use of the Kimberley Fire Brigade a steam motor fire engine, built by Messrs. Merryweather & Sons, Ltd., of Greenwich. The engine on her trials gave unqualified satisfaction both as to speed and handiness on the roads, and power in pumping capacity, which amounts to 400 gallons per minute.

UNDER the direction of Mr. R. N. Butterworth, architect, Milford, the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to St. George's school, Harpenden.

THE Selly Oak workhouse infirmary is being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

THE stonework on the frontage to Daly's Theatre has been very deleteriously affected by the London atmosphere, and much decay has taken place. With the object of preserving the stone from further decay a contract has been placed with Messrs. Farnham, Ltd., to waterproof the whole frontage by their patent paraffin wax process, by which means the pores of the stone are permanently filled with paraffin wax, which renders the further penetration of moisture impossible and therefore effects a permanent cure for the decay. The work is being carried out by Messrs. Farnham, Ltd., under the supervision of Mr. F. T. Verity, F.R.I.B.A., and Messrs. Rüntz & Ford.

THE Bath Stone Firms, Ltd., supplied the St. Aldhelm Box ground stone which was used in Holy Trinity Church, Blackley, Manchester, for which the contractors were Messrs. Webster & Cannon, of Aylesbury. The building was designed by Mr. Basil Champneys. The same firm supplied Monk's Park stone and Cornham Down stone for Holy Trinity Church, Exmouth, nearly finished by Messrs. R. Wilkins & Son, contractors, Bristol, according to the design of Mr. G. H. Fellowes Prynne, Westminster.

A LARGE clock has just been completed for Menheniot Church, Cornwall, showing the time on three dials, striking

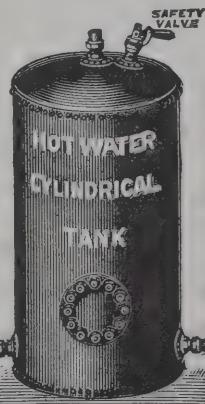
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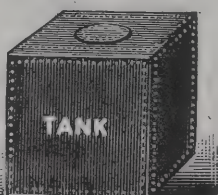


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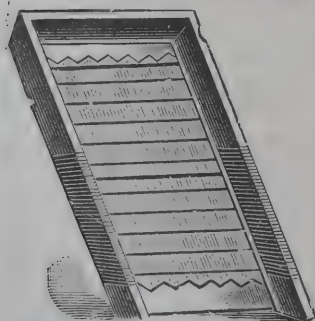
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The original introducers of the Hot Water Cylindrical Tanks.

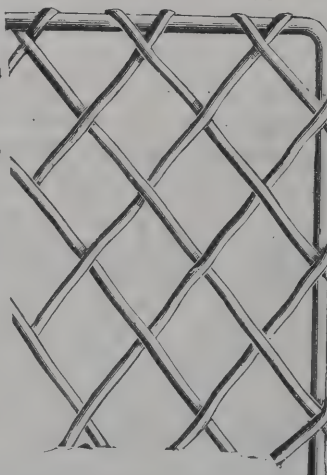
Illustrated Sheet, showing application of our Hot Water Cylindrical Tanks, sent on request.

CONTRACTORS TO HIS MAJESTY'S GOVERNMENT.

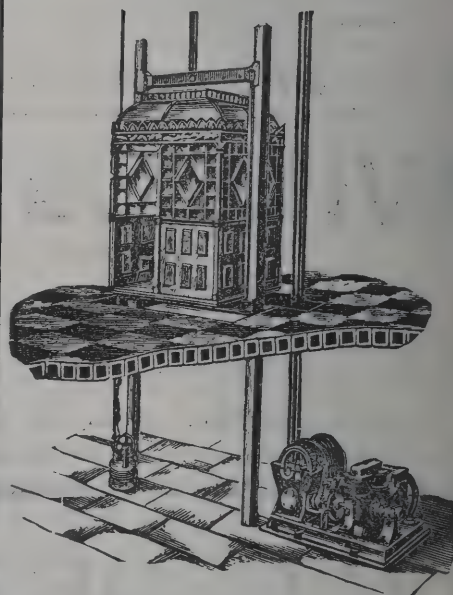
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hours and chiming the quarters with Westminster chimes. It is fitted with all the latest improvements, including Lord Grimthorpe's gravity escapement, and was made by Messrs. W. F. Evans & Sons, Soho Clock Factory, Birmingham. The same firm have also just completed another one for Newton Abbot, also one with four dials being erected in Birmingham.

MESSRS. D. G. SOMERVILLE & Co., reinforced concrete experts, of 72 Victoria Street, S.W., have, in addition to a large number of other orders, just signed a contract for the construction and supply of the whole of the reinforced concrete floors and roofs, on their hollow tile system, for the palatial new premises about to be erected for the Norwich Insurance Company at the corner of Piccadilly and St. James's Street, of which an illustration appears in the present number.

THE Commercial Intelligence Branch of the Board of Trade have received from the British Consul at Lyons a copy of a notice published in the *Municipal Gazette* of that city inviting tenders for the construction of a destructor for household refuse, the heat generated by which shall be utilised for motive purposes. The amount of refuse to be destroyed is calculated at 400 tons per day, and the electric energy to be obtained therefrom is to have a tension of about 3,500 volts. Tenders must be received by the Bureau de Travaux Publics, Hôtel de Ville, Lyons, by January 15, but tenderers must put in certificates of their competence for the work not later than the 15th prox.

THE works committee of Dundee Town Council on Monday had under consideration the desirableness of strengthening the hands of the engineer's department with regard to new buildings, and the engineer was instructed to report on the Building Regulations Act.

THE Bethnal Green Borough Council, with a view to erecting a new town hall and municipal buildings, have issued the statutory notice under the Lands Clauses Consolidation Acts for the purpose of acquiring a site at Patriot Square (near the Bethnal Green Museum), containing about 10,843 square feet. The estimated cost of the building is 20,000*l*.

## VARIETIES.

A NEW school is to be erected at Rayleigh, Essex, to accommodate 240 boys.

THE Local Government Board have sanctioned the Heywood education committee's borrowing of 8,595*l*. for the new day school in Hopwood. The sum includes 550*l*. for the site and 450*l*. for the furnishing of the school.

EXTENSIVE alterations, by which the seating accommodation will be practically doubled, are to be carried out to Guiseley parish church. Sir Charles A. Nicholson, of London, is the architect.

THE Local Government Board have issued a return on the operation of the Unemployed Workmen Act for the year ended March 31. In London 28,181 applications were received under the Act and 13,070 entertained, while in the provinces 47,346 applications were entertained out of 58,820 received.

THE public works committee of the Birmingham Corporation are asking the Council to authorise an expenditure of 3,600*l*. to construct an underground convenience in Station Street, at its junction with Hill Street. The conveniences already constructed are in the aggregate self-supporting, showing a profit of over 200*l*. per annum.

THE Bermondsey Borough Council, at their meeting last week, decided to give the finance committee power to engage counsel to defend any action brought against them by the guardians. The Council have refused to meet a precept of the guardians for 20,000*l*. for alterations and additions to the Rotherhithe infirmary, and the latter body have threatened to take legal proceedings!

A SPECIAL meeting of the York City Council on Monday passed a statutory resolution to apply for powers under the Light Railways Act for an order authorising the Council to construct and work, or lease, electric tramways along specified routes throughout the city. It was intimated that when the powers sought for were obtained it was the intention of the tramways committee to take a poll of the citizens as to whether they will have the tramways under municipal control or whether they will lease them to a private company.

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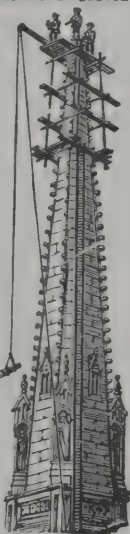
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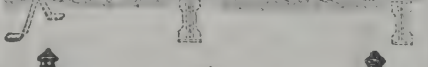
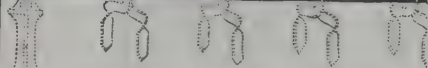
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THE Strathclyde Electricity Supply Co., Ltd., have intimated to the Johnstone Town Council their intention to apply to the Board of Trade for a provisional order to permit them to provide electrical supply to Johnstone for lighting and power. The Corporation will hold an early meeting to consider the situation. Gas at present in Johnstone is 2s. 6d. per 1,000 cubic feet.

ON Monday sixty-eight competitive designs for a municipal secondary school for girls in Rotherham were on exhibition in the town hall. A school had to be designed to accommodate 300 pupils at a cost of 35% per head. Provision was also to be made for an additional 200 pupils at a pro rata cost of 35%. The site of five acres in Middle Lane has already been purchased. Mr. E. R. Robson, of London, is the assessor, and the premiums offered by the governors are—first, 100l.; second, 50l.; and third, 25l. The awards have not been made public.

A SPECIAL committee of the Camberwell Borough Council was appointed in March last to inquire into the "grave charges made against past and present members of the Council" in reference to the purchase of land at Addington Square and Rye Lane at a cost of 38,645l. an acre. The committee, which included the Mayor, having investigated the whole proceedings in connection with the purchases, has unanimously decided that there is no proper justification for the charges.

THE water committee of Glasgow Corporation recommend acceptance of the tender by Messrs. D. Y. Stewart & Co., Ltd., amounting to 14,731l. 13s 9d., for the supply of 2,740 tons of 24-inch cast-iron pipes and special castings required for the second portion of the single and double lines of new mains to be laid from the valve chambers at Gorbals Waterworks to Kennishead Road, at Maxwell Terrace, Thornliebank.

A SCHEME of dock and harbour improvements involving an outlay of 125,000l. is shortly to be undertaken by the North-Eastern Railway Company at Hartlepool. The scheme provides for the conversion of the present Victoria Dock, Hartlepool, into an additional tidal harbour. The present dock gates will be removed and the entrance enlarged to a width of 200 feet. The dock will be deepened so that alongside the coal staithes, at present being built at

a big cost, there will be 24 feet at low-water spring tides. Steamers of great size will be able to run in to fill bunkers or take cargo, and leave at any state of the tide, and it is anticipated that the trade of Hartlepool will benefit greatly.

THE Sunderland distress committee held a special meeting last week, when plans were submitted by the parks committee recommending the construction of a park at the west end of the town at a cost of 15,000l. and a sea wall at Roker at a cost of 5,500l. The schemes have been drawn up to find work for the unemployed, and the committee decided to submit them to Mr. John Burns with a view to obtaining a grant towards the work. A deputation was appointed to see Mr. Burns on the subject. After his decision the plans will come before a special meeting of the Town Council, and it is hoped to have the work begun in a fortnight.

THE Board of Trade correspondent at Cape Town has forwarded a copy of the agenda of a meeting of the Cape Town Corporation on October 24, at which a proposal was adopted by the Council for the construction of a railway to the top of Table Mountain, the concession to be given to an outside body or public company to undertake the same, either with or without the right of providing an hotel. Alternative tenders will be invited for (a) the construction of the railway, (b) the provision of the hotel, or (c) the right both to construct the railway and to provide an hotel in connection therewith. The concession will be granted for a term of 25 years, with the option reserved to the Council of the right to purchase at the expiration of that period.

A LETTER was read at a meeting of the governors of the Glasgow and West of Scotland technical college from the Glasgow Master Painters' Association, recommending the day classes for apprentice painters be held on two days a week during November, December and January. The Association undertook to bear one-half of the salary to be paid to the teacher of the classes, on the understanding that the college would bear the other half. The committee unanimously agreed to recommend the acceptance of the offer of the Association, and appreciation of their action was generally expressed. The chairman remarked on the fact that the Painters' Association had offered to bear one-half of the salary of the teacher, and said this was a precedent in such classes.

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The Scotch Education Department has had prepared a manual of directions for the cleansing and disinfecting of schools, which represents the expert advice at the service of the Local Government Board. It is explained that the directions are based upon actual experience, take full account of actual difficulties and are the minimum that ought to be enforced by every School Board in the interests of the children. The concluding recommendation is that every school ought to have a cleansing register, in which should be entered the nature of the periodic cleanings, the date when each room is cleaned, and generally such information as may be necessary for the use of the Departmental Inspector or other official who may be charged with the duty of seeing that the cleansing is systematically and efficiently attended to.

The report of the Local Government Board for the year 1906-7 states that since the Board's constitution in 1871 they have sanctioned the borrowing by urban and rural authorities of 171,689,684*l.* An examination of the purposes for which the 6,214,709*l.* sanctioned during 1906 was to be expended shows that 1,698,620*l.* was required in connection with the sewerage of towns and villages, 431,598*l.* for the construction of works of water supply, 156,520*l.* for the rection of dwellings for persons of the labouring class and the demolition of slums, 122,742*l.* for the establishment or enlargement of hospitals, mortuaries and post-mortem rooms, and 141,687*l.* for the provision of baths and wash-houses; 1,488,138*l.* was the anticipated cost of street widenings, the making-up of private streets and the construction of new streets and bridges; 1,161,128*l.* was required for gas and electrical purposes, 18,515*l.* for municipal telephonic systems, 18,962*l.* for purposes of sea defence, and 96,940*l.* for the repayment of existing loans raised for various purposes.

The water committee of the Birmingham Corporation report that the Coventry Corporation Act, 1897, received the royal assent on August 2 last. Under it the Corporation of Birmingham are under legal liability, when the main is laid by Coventry, to deliver to Coventry a quantity of water up to 2,000,000 gallons a day from the Whitacre works. The water, which will be obtained from the river Bourne, will be filtered at Whitacre and delivered into the Coventry main under sufficient pumping head to reach the Coventry reservoir at Coundon. The water will be paid for by meter, with a minimum of 5,000*l.* a year. The Act includes provisions for the protection of Coventry in case at any time the water should fail to reach a reasonable standard of purity, and in that case Coventry has the option of terminating the agreement or taking Welsh water on arbitration terms. In order to comply with the provisions of the Act, it is necessary that the filter beds at Whitacre shall be thoroughly overhauled and remade, and the committee have given instructions for this work to be put in hand forthwith.

Mr. JOHN DOUGLAS, road surveyor to the Turriff district committee of the Aberdeenshire County Council, was charged at a Justice of the Peace Court at Aberdeen with contravening the Road Act, by permitting eighteen heaps of road metal to remain on the public road between Huntly and Turriff from August 21 to October 15—a longer period than was necessary for the spreading of the metal. It was also mentioned in the charge that Dr. Chapman, Turriff, had met with an accident while driving on the night of October 13, in consequence of his gig running into one of the heaps of stones at the roadside. The accused denied the charge, and from lengthy evidence led, it was brought out that the night on which the accident occurred was very dark and that Dr. Chapman's gig was upset. Mr. Douglas explained that the spreading of the metal was delayed more than usual this year as a result of the late harvest operations, which took up all the available labour. A penalty of 2*l.* with 3*l.* expenses was imposed. The Justices gave it as their opinion that there had been undue delay in spreading the metal on this occasion, and also that the authorities ought to provide recesses for road metal.

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At a meeting of Edinburgh, Leith and District Trades' Council held in Edinburgh, attention was drawn to a dispute in connection with the wages of joiners working at the exhibition. The chairman said the contractor had dismissed fifteen men who were underpaid, and he was not taking the objection lying down, since he had discharged two members of the Joiners' Society. A resolution was unanimously adopted that the executive should take drastic measures to compel the contractor to implement the conditions of his contract, and expressing the dissatisfaction of the Council with the action of the contractor in discharging officials and members of the Joiners' Society. A rider was adopted intimating that the Trades Council would advertise in the papers a warning to working men not to purchase season tickets for the exhibition until they were satisfied as to the fair conditions of labour at all works in connection with the construction of exhibition buildings.

MR. EDMOND L. O'BRIEN, Local Government inspector, opened an inquiry in the Kilrush Union workhouse relative to applications by the Rural District Council for the construction of labourers' cottages. It is sought to have 152 cottages erected, and to provide 39 plots of land without cottages at an entire cost of 28,000*l.* The Clerk: The estimated outlay in respect of each cottage was 182*l.* The Inspector said the Local Government Board thought that cottages should be built for 180*l.* each, and he would suggest that the cost of fencing, viz. 12*l.* 15*s.*, be reduced so as to bring the outlay down to the sum he had mentioned. In other parts of the country where labour was dearer it had been possible to do this. It was calculated that the carrying out of the present scheme as regarded the cottages would mean an annual loss on the rates of 118*l.* 19*s.*, to which must be added cost of repairs and insurance.

In his annual report Mr. A. James, borough surveyor a Kidderminster, states that satisfactory results have attended the experiments begun last year by placing tar on sections of the Birmingham Road to prevent dust. Considerably less dust arose from the portions of the road tarred than from the parts of the road regularly watered. In the winter months comparatively little scavenging on the tarred road was necessary, the roadway being nearly always free from mud, with the result that there was a considerable saving in the cost of scavenging

and the durability of the road was prolonged. In the past year he had made further tests in three different ways:—(1) Roads having good surfaces were tar-painted only; (2) where roads needed repairs the stone was tarred before it was put on, well rolled, and when consolidated hot tar was brushed over the surface; (3) where roads needed repairs stone was put down dry, thoroughly rolled till consolidated, after which a thick layer of well-tarred screenings was spread over the surface and rolled, being finished off with a coat of hot tar. The result in each case was perfectly satisfactory, reducing very considerably the dust and putting a splendid surface on the road, the top presenting the appearance of asphalt. In wet weather the roads were perfectly clean.

### MR. EDISON'S CONCRETE HOUSE.

IN the course of a letter, Mr. T. A. Edison gives the following further account of the proposed experiment in the manufacture of cheap house:—I now have a model, one-fourth the size of the house, designed by the New York architects. This winter I shall construct the iron moulds and devise machinery whereby a full-sized house can be cast in twelve hours after the moulds are in position. At the end of six days the iron moulds are removed, and the house will be complete, including stairs, partitions, mantels, bath, &c., and after drying six days will probably be ready for occupancy. To build this house for 1,000 dols. it is essential that it be erected on sandy soil, as the material excavated for the cellar is all that is required to build the house except, of course, the cement. The cost of the iron moulds will be about 25,000 dols., and the cost of the other machinery about 15,000 dols. From this outfit an unlimited number of houses can be erected. It is probable that companies will be formed who will have several moulds, each of a different design, and will go actively into business. I have not gone into this with the idea of making money from it, and will be glad to license reputable parties to make moulds and erect houses without any payment on account of patents, the only restriction being that the designs of the houses be satisfactory to me and that they shall use good material.

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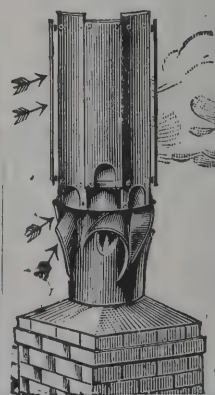
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**SANITARY APPLIANCES.**

A LECTURE on "The Comparative Advantages of Syphonic Discharge *versus* Flush-down or Wash-down Closets" was delivered by Mr. W. Jennings (Messrs. G. Jennings, Ltd.) in the South London Art Gallery before the students of the Camberwell School of Arts and Crafts and local builders. The chair was taken by Professor Henry Adams.

After some preliminary remarks, the lecturer said he might be accused (possibly rightly so) of giving undue preference to the inventions and productions of the firm with whom he had for so many years been connected, but even with this risk he preferred to speak upon the merits of those appliances with which he was conversant, rather than to embark on a criticism of the productions of other manufacturers, with which they were probably at least as well acquainted and informed.

*Joints between Metal, Soil and Waste Pipes and Stoneware Drains.*

The placement of all vertical soil and waste pipes on the outside surface of external walls of buildings has been universally conceded to be a wise and proper procedure, as all joints being exposed to view can be periodically examined and tested. Moreover, if by any mischance a joint should be defective or unsound, the foul air is far less likely to escape into the building and prove deleterious to health than where waste pipes are fixed inside buildings. Although much has been done, and many improvements have been introduced in the manner of jointing pipes, one of the most important connections of all in a system of drains appears to have been almost entirely overlooked. Sanitary engineers are contented to joint up vertical lead or iron waste pipes to stoneware horizontal drains with nothing better than a jointing material of Portland cement, which admittedly has no affinity for or natural adhesion to metal, with the obvious result that as soon as the joint sets—*i.e.* the cement becomes dry and hard—it contracts away from the metal pipe, leaving an aperture for the escape of foul air and sewage immediately below the ground-floor level, and so shallow a depth as to be invariably a source of great danger to health. It is no exaggeration to state that in nearly 50 per cent. of houses which are tested the joint

referred to is found defective. The trouble is, moreover, increased by the inevitable settlements (even though slight) which occur in connection with new work, as well as by the contraction and expansion of the metal soil or waste-pipes, due to climatic changes and other causes, resulting in the fracture of the cement and the pulling asunder of the metal and stoneware pipes. Messrs. George Jennings have given careful consideration to a means of effecting a permanent improvement in the method of connecting metal waste-pipes to stoneware drains, resulting in the designing and introduction of a novel and simple form of joint secured by two bolts and clips, by which the lead soil pipe is attached by an ordinary wiped plumbers' solder joint to a brass thimble, the latter being securely fixed in the socket of the stoneware socketed bend or drain pipe by means of two incorrodible metal bolts screwed into a metal ring on the back of the earthenware socket, thus affording an absolutely sound and permanently dependable connection.

A slightly modified pattern is also supplied for connecting iron soil and waste pipes to stoneware drains. The cost is small, and should form no obstacle to its general adoption by all who are desirous of obtaining a reliable joint and a security from leakages which it is seemingly impossible to obtain with any form of cement joint.

*Syphonic Water-closets.*

There are a great many varieties of wash-down water-closets, but the fundamental principle or design is more or less alike, being based on the cottage hopper basin and trap, the formation of which necessarily retains but a small quantity of water sufficient only to form a shallow seal or trap between the apartment and the drain. The clearance of the basin is mainly dependent upon the perfect making and burning of the flushing rim, and the force of the discharge from the flushing cistern, which should be of not less than three gallons capacity to insure removal of the contents of the basin. In action the trap of a wash-down closet is never emptied, the water merely overflowing into the drain in equal quantity to that admitted into the basin through the flushing rim; consequently the flushing of the drain is restricted to the capacity of the down service pipe from the cistern, usually  $1\frac{1}{2}$ -inch diameter and equivalent

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to about one-seventh of the area of a 4-inch drain; furthermore, the water, &c., discharged through the trap of the closet is obstructed in its escape by the atmospheric pressure in the drain. The shallow seal of water retained in the trap is so easily susceptible to variations of increased air pressure from the drain, as well as to syphonage, "waving out" and evaporation, as to form but an uncertain and unreliable barrier or safeguard against drain gases escaping into the apartment. The absence of a body of water in the basin leaves a large dry surface exposed for the adhesion of excrementitious matter which it is difficult to dislodge; whilst foul emanations freely escape and contaminate the air. The efficient working of wash-down closets, being entirely dependent upon the force and bulk of the discharge from the flushing cistern, inevitably creates noise during action, which is frequently a great source of objection. In many instances it is impracticable to place the flushing cistern immediately above the closet on account of a window being situated in the back wall, and in such cases the flushing cistern has necessarily to be fixed on the side wall, involving bends and twists in the down service pipe, which seriously impede the flush and reduces its efficient power to an extent which it is generally impossible to compensate for by fixing the cisterns at a high level, on account of the comparative lowness of ceilings in water-closet apartments. The keen competition amongst manufacturers to place on the market closets at the lowest possible price obviously tends to discourage proper care in selection of only perfectly formed and "fired" pieces of earthenware, and the rejection of imperfectly made flushing rims and fans. A further frequent source of trouble and difficulty is caused by want of information as to the water pressure under which the flushing cisterns will be fixed, resulting in ball valves made for low pressure being fixed on main high pressure, which they are not calculated to resist or close against, thus causing overflows to take place, involving waste of water, inconvenience and annoyance. In attempting to remedy the difficulty, the workman, from want of knowledge as to cause and effect, will usually bend the stem of the ball valve downwards so as to submerge the ball, and thereby increase the flotative power, and cause the ball valve to close against the water pressure;

this course is occasionally successful in preventing the overflow and waste of water, but results in the cistern being only partially filled, and in a totally insufficient flush to efficiently wash and cleanse the water-closet basin. The trouble is increased by water companies' regulations requiring that ball valves shall be supplied capable of withstanding a water pressure (in some cases) of 100 lbs. per square inch. Manufacturers have no option but to comply with these regulations, and the cisterns after having been successfully tested on high pressures at the waterworks testing offices, are in numerous instances fixed under pressures of only a few pounds per square inch, the result being that the ball valves, being made with a very small waterway to resist the waterworks severe test, admit the water at such a slow rate that a considerable time is occupied in refilling the cisterns after discharge. This in cases of crowded and much-frequented retiring-rooms is a source of great inconvenience and results in inadequate flushing. This trouble could be easily obviated by proper information being furnished to the manufacturers when orders are placed as to the pressure the cisterns will be fixed under, and water companies agreeing to test the ball-valves up to the pressure for which they are constructed and intended to work.

(To be continued.)

PLANS are to be deposited this month for a large steamer pier and harbour works in Gott Bay, Tiree, Argyre, also for another at Walls, Vaila Harbour, Shetland. Mr. Woulfe Brennan, Glasgow and Oban, is engineer for both schemes.

H. M. CONSUL-GENERAL at Shanghai (Sir Pelham Warren, K.C.M.G.) has forwarded particulars relative to an invitation issued by the Municipal Council of the French Concession at Shanghai, for designs and plans for the construction of various municipal buildings. The competition closes on February 15 next. Designs, in sealed envelopes, should be addressed to "Monsieur le Président du Conseil d'Administration Municipale de la Concession Française, Shanghai." The conditions of the competition, together with a plan of the site of the proposed buildings, may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

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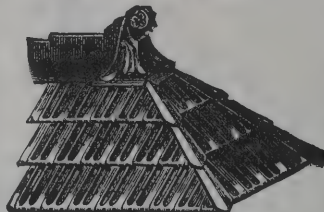


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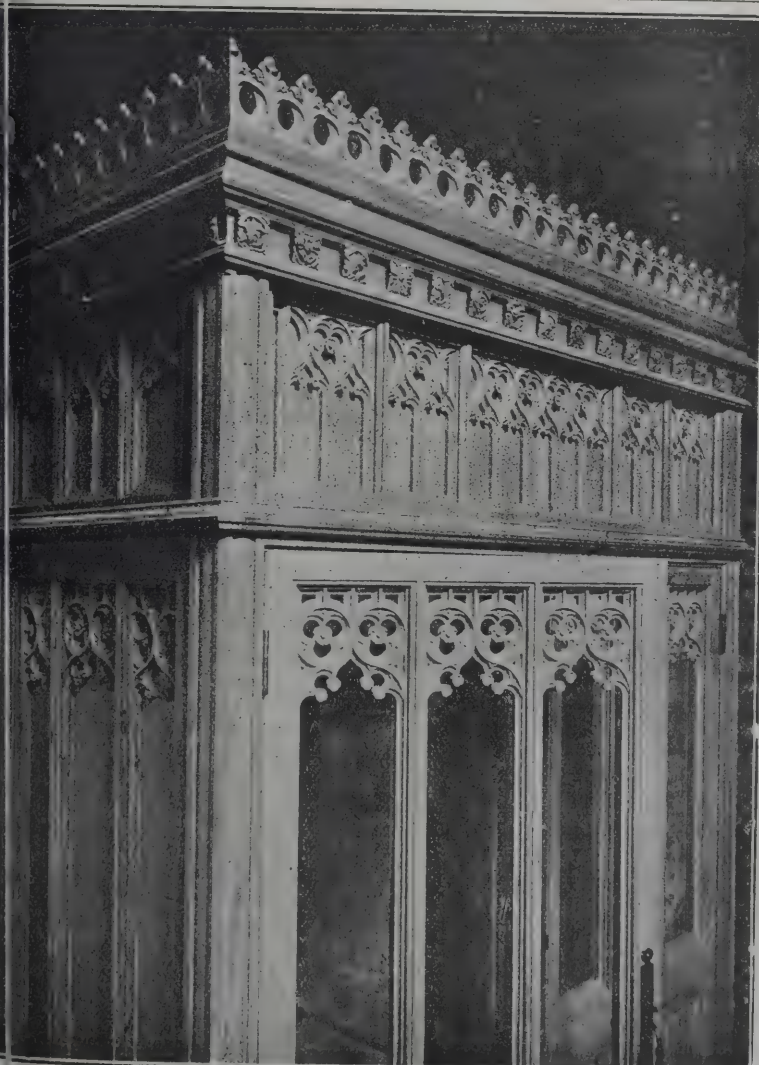
VISITORS to the last Building Exhibition will remember how at the stall of the company the patent indented steel bars were used in order to sustain loads. The wide spans and varying curves in which they were bent would by itself be sufficient to suggest the lightness combined with rigidity which are among their qualities. The photographs and models which were near indicated

theory on which the system is based, and tables which will enable an architect to work out for his own satisfaction the particular form which he wishes to adopt. In the Waldorf Hotel, in Rawson's immense factory in Leicester, in the *Morning Post* building, in the Albert Mills, South Reddish, the Royal Insurance Office, Piccadilly, the Downside reservoir, the Cleethorpes water tower, the stadium at Shepherd's Bush and a dock on the Clyde, we have works on a grand scale. But if of lesser extent the



one of the immense works in which the system was employed. The description which the company have given corresponds in a large measure with the stall. We see, besides, illustrations of great works in which the system has been utilised, not only in the United States but in this country, but also a full explanation of the

work of the Shildon schools for the Durham County Council is no less interesting, for by means of the system the foundations are guarded against any subsidences which may arise from the unworked coal seams beneath the site. That is a contingency to which new buildings in many parts of England are liable, and it is well to know how safety can



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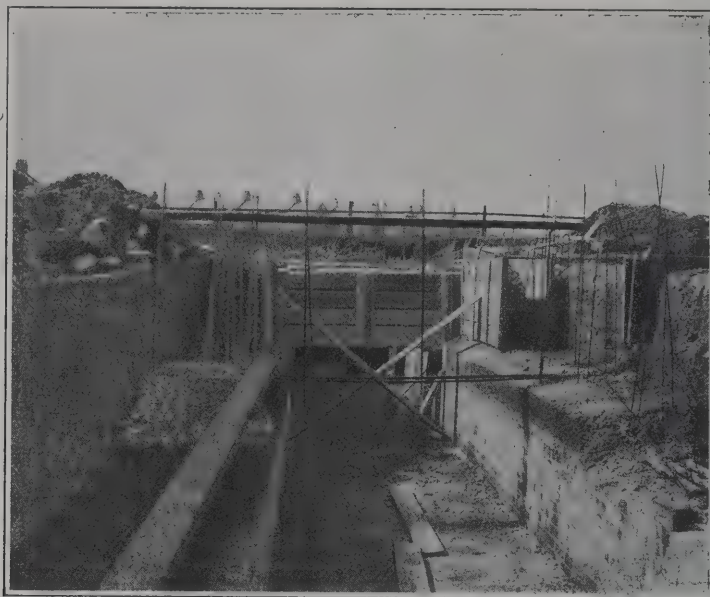
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be insured. There is a wide field for such an application of reinforced concrete. It may be noted that the indented bars are of British manufacture; that the company guarantee the designs to withstand the loads specified, and their formulæ and calculations are exhibited unreservedly. The illustrations we publish show the Shildon schools for the Durham County Council, and are photographs of the foundations in course of construction on the indented steel-bar system by

#### SOCIETY OF BRITISH GAS INDUSTRIES.

THE annual dinner of this Society was held on Thursday evening, the 21st inst., at the Holborn Restaurant, Kingsway, Mr. Dugald Clerk, M.Inst.C.E., president, in the chair. There was a large attendance of members and among the guests present were:—Commander Caborne, C.B., Messrs. G. Croydon Marks, M.P., W. Doig Gibb (president of the



SHILDON SCHOOLS.

he contractors, the British Concrete Steel Company, of Newcastle-on-Tyne. The catalogue which the Patent Indented Steel Bar Company, Ltd., has just issued, and which is replete with illustrations of the system, will be forwarded to any architect or contractor on receipt of a post-card at their London offices, Queen Anne's Chambers, Westminster, S.W.

Institution of Gas Engineers), H. W. Bradley, Thomas Glover (Norwich), Frank Vallance, F.R.I.B.A. (president of the Society of Architects), H. D. Searles-Wood, F.R.I.B.A. (president Royal Sanitary Institute), J. W. Helps, S. Y. Shoubridge, C. Meiklejohn, F. W. Goodenough, C. E. Brackenbury, J. A. Guyatt, R. Bruce Anderson, Joseph Davis and A. L. Griffith. After the loyal toasts Mr. G. Croydon

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Marks, M.P., proposed "The Society of British Gas Industries," and said he was very pleased to submit the toast, because the Society was associated with the well-being of the whole community. Then again, one of the objects of the Society was the making of clean trade. He had just returned from America and had visited among other cities Chicago, Milwaukee and Pittsburg. His impression was that if the methods of trading in America were more legitimate that country would not now be involved in a financial crisis. The Society represented the big gas industries and it was

of "The Institute of Gas Engineers and Kindred Associations" was proposed by Mr. F. J. West. The president of the Institute (Mr. W. Doig Gibb), in response, said he felt that both the Institute and the Society could mutually help each other, and he was hopeful that in the course of time general clauses would be drafted between the two bodies which should be equally fair to both. Mr. J. W. Helps and Mr. Joseph Davis also replied. Mr. J. W. Broadhead submitted "The Visitors," and said the Society would shortly hold a conference with architects, and he was



SHILDON SCHOOLS.

right therefore in upholding purity in trade and fair dealing. The President in responding said the co-operation between the two distinct bodies, the Society of British Gas Industries and the Gas Institution, had already been favourable to both, and one successful result of the combination was evidenced in the Gas Exhibition at Manchester. The society had at heart the welfare of the people, and his successor as president, Sir George Livesey, could be relied upon to advance the object they had in view. The toast

sanguine that the outcome of their deliberations would be that more attention would be paid by architects to gas lighting and heating than they had done in the past. Some few years back electric-light fittings lent themselves perhaps to more ornamental and decorative treatment than gas brackets, but nowadays the speaker believed more invention has placed gas on a par with electricity. Mr. Frank Vallance, in the first response to the toast, said the title of the Society appealed to him, for it represented a

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very great industry and a large amount of capital. Mr. Broadhead hoped that architects would take more into account the use of gas as against electricity in domestic buildings. The speaker ventured to predict that gas would hold its own, for it had been his experience to find electricity superseded by gas. He knew of instances where electric installations had been taken out of a building and gas reinstated; this occurred particularly in places of worship and small shops. Then again, for street lighting the incandescent gas burner was far preferable to the electric light. He thought therefore a bright prospect awaited the manufactures represented by the Society. One fact which appeared rather strange to him, and he could not account for it, was that with the advent of electric power and light stations in tow the output of gas still went on increasing. Mr. H. D. Searles-Wood, who also responded to the toast, said the Royal Sanitary Institute were not quite satisfied with gas fires as at present constructed. The manufacturers should look to this, for although progress had been made in the designing of gas pendants and brackets, such progress was far ahead of the improvements to fires. Speaking as an architect, no gas designed fire ever appealed to him. He was strongly in favour of heating by gas, but the fires must be improved in order to do away with the risk of contamination of the air.

Commander Caborne, C.B. (member of Council of the Smoke Nuisance Abatement Society), said they could not abolish fog in London, but it would be possible to have clean fog if the barbarous fashion of burning smoky coal in grates was substituted by gas fires. The toast of "The Press and the President" followed.

#### CONCRETE BUILDING.

At a meeting of the Liverpool Engineering Society, the value of reinforced concrete for building purposes was discussed, Mr. M. Kahn reading a paper on the subject. There was a large attendance, which included representatives of the Liverpool Architectural Society. Mr. Kahn said that in the matter of efficiency reinforced concrete is

permanent and proof against deteriorations to which other materials are subject, such as the rusting of steel, the rotting of wood and the decaying of stonework. It is unaffected by atmospheric action, it is absolutely fireproof, and its strength increases with age; while it makes possible a rapidity of erection not attainable with other methods of construction. On the point of economy, Mr. Kahn discussed the circumstances under which it is either cheaper or dearer than other materials, and suggested that if reinforced concrete is not in some instances the "cheapest" method of construction, it is the most economical when all things are taken into consideration. Mr. Kahn considered at length the strain-bearing qualities of the material, and argued that its successful use depended merely on the proper selection of materials, their handling and the supervision of the construction. Illustrative failures of concrete structures were analysed as to their causes, and Mr. Kahn insisted that the best design and the best method of construction when placed in the hands of careless or ignorant men will result in disaster. On the fire-resisting qualities of reinforced concrete, Mr. Kahn admitted that ballast concrete was often considered unsatisfactory, but suggested such cases were due to the ballast being uncrushed, and that large stones when heated will fly apart. If the ballast used in the test, he argued, had been crushed before being incorporated with the concrete, the fire-resisting result would have been satisfactory, as was a test made by Mr. Kahn for the New York City Fire Department in 1904, when crushed ballast concrete was used.

#### LESLIE WALKER ALARM AT THE GLASGOW UNIVERSITY.

A DEMONSTRATION of the efficacy of the Leslie Walker fire detectors was given last week at the University of Glasgow. The north front of the College buildings, which embraces the valuable library and museum, has just been equipped with these appliances, and a large company, which included Sir William and Lady Bilsland, assembled to witness the display. The advantage claimed for this system of fire alarm is that it acts on the slightest abnormal rise of temperature. The instrument consists of a sealed glass

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tube under vacuum partially filled with mercury; a main bulb filled with mercury, exposing a large surface to the atmosphere; a platinum wire which is fused into the tube containing the mercury and connected to a terminal; and platinum wires fused into the normally empty contact tube and also connected with terminals. The appliances in the library of the University, where the demonstration was given, are fixed to the ceiling, and are connected by wires to an indicator board, with bells and batteries, in the office of the master of works, and also in his house. The effect of abnormal temperature, such as would result from an outbreak of fire, is to expand the mercury and force it up the contact tube, thus setting the alarm bells in operation. If the fire is not instantly extinguished a second alarm known as the danger call is given by the mercury rising still higher. Professor Gray having explained the instrument, an interesting experiment was made. On the floor of the room, says the *Glasgow Herald*, was placed a wire crate containing a quantity of paper, to which a light was applied. The heat rising from the fire put the instrument in operation in twenty seconds, bells ringing simultaneously in the master of works' office and house and also in the library, a connection having been made there in order to demonstrate the working of the alarm, to those present. By means of the indicators placed in the office the seat of the "outbreak" was immediately located. A description of the instrument, with illustrative diagrams, was subsequently given in one of the classrooms of the College.

#### IRON AND STEEL MANUFACTURE.

On Saturday, at a meeting in connection with the Staffordshire Iron and Steel Institute, held at the Institute, Dudley, under the presidency of Mr. R. Buchanan, a paper was read by Mr. J. Ernst Fletcher, M.I.Mech.E., on "The Influence of Gases on the Structure of Cast-Iron and Steel." Mr. Fletcher remarked, says the *Birmingham Daily Post*, that steel, iron and all other metals converted from the solid to the liquid state by the application of heat contained, when liquid, gases in solution to a greater or lesser extent. These gases were driven out more or less

completely when the liquid metal passed to the solid condition. Three aids to such gas escape were used in practice, namely, rapid chilling, which, by causing molecular contraction, prevented the inclusion of gas bubbles between adjacent crystals; very slow cooling of the liquid mass, whereby the gases could rise to the surface and thus leave a gas free liquid; and rapid chilling, aided by compression, which again brought the adjacent crystals of the solidifying mass into such close contact that gas inclusion was impossible. Professor Turner had suggested that the possible explanation of the difference in hardness and tensile strength in basic and acid steels was connected with gaseous influence, and this would, on closer investigation, appear to be the true explanation. Basic steel as was well known, was softer than acid steel of similar carbon content. Silicide of iron had a hardening effect on the structure of steel, and this fact, combined with the freedom of gas porosity, explained why acid steel was harder than basic steel. As in the study of the influence of silicon on the structure of acid steel, so in the case of cast-iron, silicon and manganese played an important part in connection with the escape of gases during solidification. Experience in manganese-steel manufacture confirmed the statement that manganese hastened the solidification of cast-iron and steel containing higher manganese content. Thus manganese steel cast at a high temperature into chill moulds was found to solidify almost instantaneously when the solidifying point was reached; the gases escaped rapidly and left marked zones of weakness along which the ingot could readily be broken. The higher the temperature at which iron or steel was cast, the more gases were absorbed, hence the need for extra feeding and efficient venting of the moulds. In his opinion, it was clear that the gases set free during the solidification of the iron (ferrite) in the iron carbon alloys, cast-iron and steel, played a much more important part in the structure of such alloys than was generally allowed. It would not be surprising if in the hands of skilled metallurgists, possessed of the necessary apparatus, it was proved that the "contraction" or shrinkage of metal was almost entirely due to the driving off of gases set free during solidification. The higher the combined carbon content the greater was the shrinkage. If, as appeared likely, carbon content was coincident with

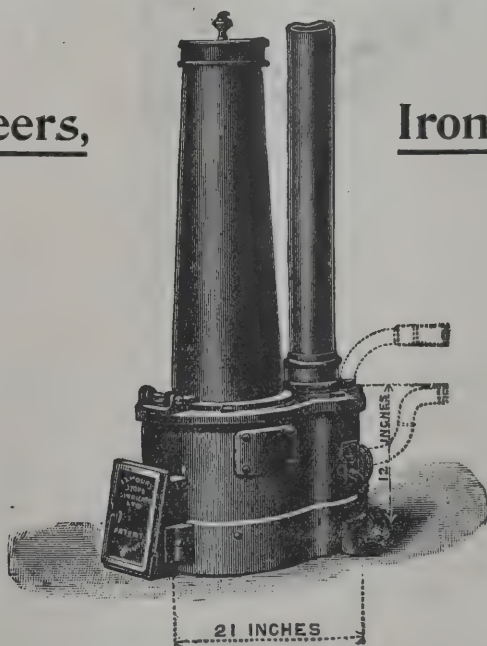
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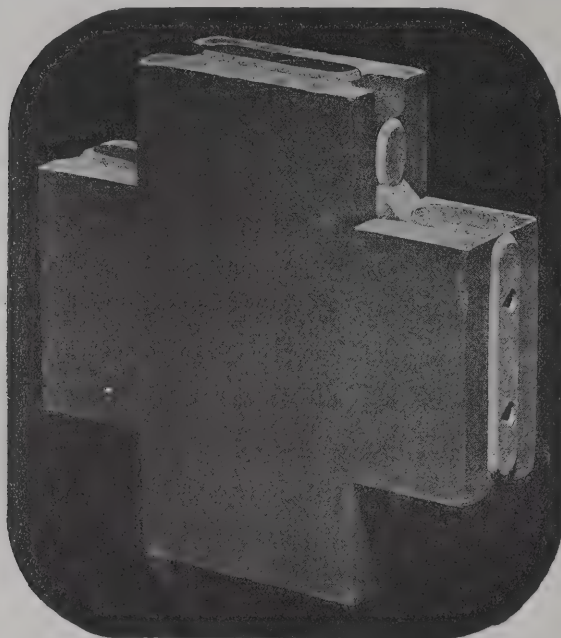
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freedom from gas inclusion, then it would seem that shrinkage and gas escape during solidification were intimately connected. The paper was illustrated by diagrams and micrographs. Some discussion followed, and a vote of thanks to Mr. Fletcher concluded the proceedings.

### PROPPER'S SLAB PARTITION.

A NEW partition known as Propper's, which has been patented in all countries, has been introduced for use in

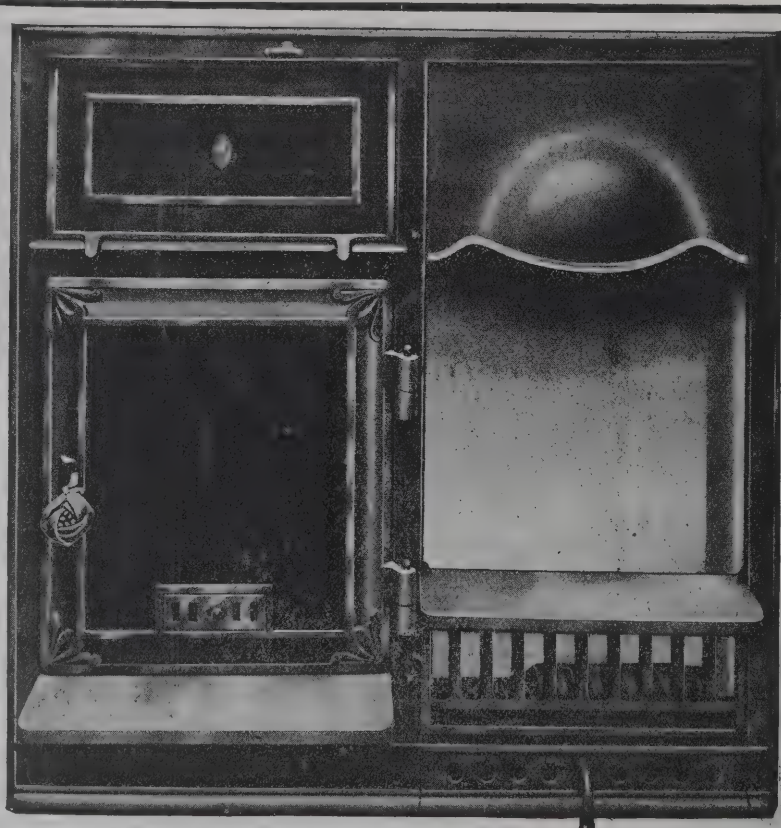


England by Messrs. Charles Ingram & Co., 26 Mark Lane, E.C. The slabs have the shape of a cross of equal arms. In consequence, the slabs not merely adjoin

along a straight line of contact, but they grip each other at right angles and interlock. Additional cohesion is given by corresponding strong notches and grooves provided in the angles and along the arms of the slabs, so that a partition or wall erected with them is perfectly strong and rigid in any direction. They have been made in gypsum moulded in metal forms protected by patent, but any material or composition capable of producing a perfectly accurate and smooth slab may be used. The partition will naturally possess all the qualities inherent to the material used, such as being fireproof, &c. A level basis is the only essential required for the erection of a Propper slab partition, and, if necessary, a ground joist of oak will serve the purpose. The putting together of the wall is of the simplest method. The door frames, which must have the same depth as the partition, are nailed against the latter. The fixing of the Propper-slab partition against walls or ceilings is effected in the usual manner. When two partitions meet the arms of the crosses dovetail. Should any of the joints of the partition show a slight unevenness it can easily be removed by scraping, and a perfectly even surface will be obtained that can be papered immediately.

### THE ZOOLOGICAL GARDENS.

WHAT will undoubtedly prove a great attraction to this popular place of amusement and education is now being carried out. His Majesty's Commissioners of Works have granted the use of an additional piece of land to the extent of nearly three acres, and the workmen are already at work laying it out, dividing it up into several yards, where various sheds are to be erected, so that the public using Regent's Park will be enabled to see the deer, which are to be transferred to this position. Within this strip of land there are several shrubberies, which will be made into picturesque pieces of forest, and it is contemplated removing the bears to this position. "The Zoo," as it is commonly called, has been to all a pleasurable and instructive place to visit, and any improvements thereto will be sure to be of interest to most of us.



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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

**TENDERS, ETC.**

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

DURHAM.—Dec. 21.—For the County Council of Durham. Names of architects willing to submit competitive plans for training college for teachers. A selection of ten names will be made. An assessor will be appointed to adjudicate and select three designs. Premiums 250l., 100l. and 50l. respectively. J. A. L. Robson, secretary for higher education, Shire Hall, Durham.

ELLESMERE PORT.—Dec. 10.—The Bebington and Neston District education authorities invite plans for a school for 500 children from architects practising or resident in Wirral, Birkenhead or Chester. Mr. J. Harding, clerk, Library Cottage, Bebington.

RADCLIFFE.—Feb. 3.—The Radcliffe Urban District Council invite architects practising in Lancashire to submit designs and estimates for Council offices. Premiums of 75l., 50l. and 25l. offered for designs placed second, third and fourth. Mr. G. H. Willoughby will act as assessor. Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

WALES.—Dec. 19.—The Llandrindod Wells Urban District Council invite competitive schemes for (a) laying-out recreation ground; and (b) erecting a pavilion and other buildings. Full particulars are obtainable from Mr. D. C. Davies, clerk, Llandrindod Wells.

**CONTRACTS OPEN.**

ALNMOUTH.—Dec. 9.—For erection of golf house. Mr. W. Robson, architect and surveyor, Alnwick and Wooler.

BELFAST.—Dec. 9.—For erection of one single-storey cottage in brickwork at Belfast, for the Great Northern Railway Company (Ireland). Deposit 2s. Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

BIRMINGHAM.—Dec. 9.—For excavations, foundations and erection of lower ground floor of buildings in extension of Council House. Deposit 5l. 5s. Messrs. H. V. Ashley & Winton Newman, architects, 14 Gray's Inn Square, London, W.C.

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BRADFORD.—Dec. 7.—For alterations to drying closets at the Union hospital laundry. Deposit 1*l.* 1*s.* Mr. Fred Holland, engineer and architect, 11 Parkinson's Chambers, Hustlergate, Bradford, Yorks.

BRISLEY.—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

BRIDGNORTH.—Dec. 31.—For erection of a secondary school at Bridgnorth, Salop, to accommodate 200 pupils. Deposit 1*l.* 1*s.* after December 12. Messrs. Pritchard & Pritchard, architects, Kidderminster.

BRIXTON.—Dec. 7.—For alterations and additions to Brixton schools, near Plymouth. Messrs. King & Lister's Offices, 8 Princess Square, Plymouth.

BROADSTAIRS.—Dec. 9.—For erection of a public convenience at Clarendon Road. Mr. Hurd, C.E., Council Offices, Broadstairs.

BURY.—Dec. 11.—For heating proposed Council schools, Pine Street, with or without ventilation. Deposit 2*l.* Mr. Arthur W. Bradley, borough engineer and surveyor, Bury, Lancs.

BUXTON.—For work and materials required in the conversion into shops, &c., of the old post-office buildings. Messrs. Bryden & Walton, architects and surveyors, Buxton.

CADISHEAD.—Dec. 16.—For erection of a public elementary school at Cadishead, near Manchester, to accommodate 450 children. Deposit 2*l.* Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

CARDIFF.—Dec. 10.—For construction of a goods shed and offices at Newtown Yard, for the Great Western Railway Co. The New Works Engineer, Paddington Station, London.

CATTAL.—Dec. 7.—For erection of an additional block for males at the inebriates' reformatory, Cattal, between York and Harrogate. Deposit 1*l.* Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

COCKFIELD.—Dec. 31.—For erection of a temperance institute. Mr. James Howe, Cockfield, S.O., co. Durham.

CONSTANTINE.—Dec. 7.—For alterations to the Constantine Ponjeravah Council school, Cornwall, and new sanitary

offices, laying-out playground, &c. Mr. Sampson Hill, architect to the committee, Green Lane, Redruth.

COVENTRY.—For erection of central stores, Holmsdale Road. Deposit 1*l.* 1*s.* Messrs. George & Isaac Steane, architects, 22 Little Park Street, Coventry.

DARTMOUTH.—Dec. 12.—For erection of post office, South Parade. Mr. E. H. Back, architect and surveyor, Dartmouth.

DARTMOUTH.—Dec. 12.—For erection of two houses at Townstal. Mr. E. H. Back, architect and surveyor, Dartmouth.

EDINBURGH.—Dec. 9.—For taking-down present walls and parapet railing, and erecting new copes and railings, and laying cement pavements at Saunders Street. The Burgh Engineer, City Chambers, Edinburgh.

FAKENHAM.—Dec. 18.—For erection of Buckenham memorial church, Fakenham, Norfolk. Mr. A. F. Scott, architect and surveyor, 24 Castle Meadow, Norwich.

FALMOUTH.—Dec. 15.—For building of baptistery and porch at St. Mary's Catholic Church. The Rev. Father Burns, St. Mary's Presbytery, Falmouth.

FELIXSTOWE.—Dec. 9.—For erection of a public convenience in Undercliff Road East. Mr. H. Clegg, A.M.I.C.E., Town Hall, Felixstowe.

GOOLE.—For erection of a school. Deposit 1*l.* 1*s.* Mr. W. T. Silvester, clerk to the governors, 10 Victoria Street, Goole.

GRANGE MOOR.—Dec. 9.—For all trades (with the exception of joiner's) in four houses at Grange Moor, Wakefield. Mr. James H. Hall, architect and surveyor, 132 Bradford Road, Hillhouse, and 10 Market Buildings, Market Street, Huddersfield.

HALIFAX.—Dec. 12.—For works comprised in erection of stabling and loose-boxes for 18 horses, cart shed, fire-brigade station, three dwelling-houses, extensive yard formation and setting, also approaches and other works, Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HANDSWORTH.—Dec. 9.—For heating, cookery and laundry extensions, Wattville Street Council school, and laboratory and woodwork shops, &c., in Rookery Road Council school. Deposit 1*l.* 1*s.* Messrs. Wood & Kendrick, architects, West Bromwich.

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**HULL.**—Dec. 10.—For erection of a pavilion in the school playing field, Hedon Road. Mr. J. T. Riley, secretary of education, Education Offices, Albion Street, Hull.

**HULL.**—Dec. 11.—For widening William Wright Dock entrance, comprising removal of about 2,700 cubic yards of old masonry, the construction of about 1,850 cubic yards of new wall in concrete brickwork and masonry, and about 11,000 cubic feet of timberwork in jetty, &c., for the North-Eastern Railway Co. Mr. T. M. Newell, Dock Engineer's Office, Hull.

**INGATESTONE.**—Dec. 16.—For rebuilding the Anchor inn, Ingatestone, Essex. Deposit 2*l.* 2*s.* Messrs. Charles & W. H. Pertwee, architects, Chelmsford.

**IPSWICH.**—Dec. 9.—For alteration of and additions to the Municipal secondary school for girls, Bolton Lane. Deposit 1*l.* 1*s.* Mr. E. T. Johns, architect, Tower Chambers, Tower Street, Ipswich.

**IRELAND.**—Dec. 30.—For erection of a public library at Kilkenny. Deposit 2*l.* 2*s.* Messrs. E. S. Lowrey & Son, 62 Dame Street, Dublin.

**KEMPTON PARK.**—Dec. 11.—For construction of coal bays, fitting and other workshops, stores, tool houses, conveniences and other works to be erected at Kempton Park, for the Metropolitan Water Board. Deposit 5*l.* The Engineer of the Staines Reservoirs Communication Works, The Firs, Southern Road, Fortis Green, Finchley, N.

**LAMBERHEAD GREEN.**—Dec. 18.—For erection of a public elementary school at Lamberhead Green, near Wigan, to accommodate 500 children. Deposit 2*l.* Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

**LANGLEY PARK.**—Dec. 14.—For erection and completion of four-stalled stable, loose-box, harness-room, pot-house, trap-shed, &c., at the Annfield Plain Co-operative Society. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill, Durham.

**LEEDS.**—Dec. 10.—For alterations to Park Temperance Hotel. Messrs. J. M. Fawcett & Son, architects, 26 Albion Street, Leeds.

**LEEDS.**—Dec. 20.—For construction of a watertight reservoir, to be known as Leighton reservoir, comprising

an earthwork embankment about 630 yards long, deep puddle and concrete trench, discharge tunnel, valve shaft, gauge basin, waste weir and by-wash, catchwater aqueduct about a mile in length, construction of a road, bridges, boundary walls, caretaker's house and other incidental works in connection therewith, situate on the Pott Beck in the urban district of Masham. Deposit 10*l.* Mr. C. G. Henzell, waterworks engineer, Leeds.

**LICHFIELD.**—Dec. 14.—For erection at Wissage of children's homes. Deposit 3*l.* 3*s.* Mr. R. J. Barnes, architect, City Chambers, Lichfield.

**LIVERPOOL.**—Dec. 10.—For alterations and additions to company's offices and warehouse at James Street, Liverpool, for the Great Western Railway Company. The District Goods Manager, James Street, Liverpool.

**LONDON.**—For demolition of an old house in Greenwich containing a quantity of valuable old building material and some genuine well-preserved unique fittings. Mr. H. Etherington, architect, 8 Gilmore Road, Lewisham, S.E.

**LONDON.**—Dec. 16.—For enlargement of Western District Parcel Office and Mayfair Telephone Exchange. Deposit 1*l.* 1*s.* Mr. J. Wager, H.M. Office of Works, &c., Westminster.

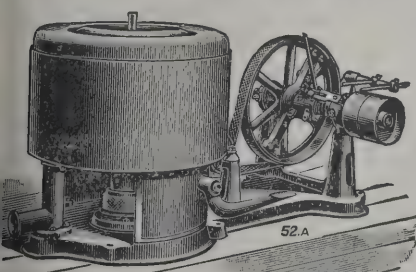
**LONDON.**—Dec. 28.—For erection on school premises of a small house, North Surrey district school, Anerley, S.E. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

**MILFORD HAVEN.**—Dec. 10.—For building a home of rest and Bethel. Deposit 1*l.* 1*s.* Messrs. Walter J. Wood & I. B. Gaskell, architects, Milford Haven.

**NEWARK.**—Dec. 18.—For erection of a secondary school for 150 boys (including boarding accommodation) off London Road. Deposit 2*l.* 2*s.* Messrs. Sheppard & Lockton, architects, Bargate, Newark.

**NEWCASTLE-UPON-TYNE.**—Dec. 9.—For supply and erection of a small two-storey steel-framed structure, with panels filled in with brick and covered with corrugated sheeting, for bath and mess-room in connection with the Benwell refuse destructor. Deposit 1*l.* 1*s.* The City Engineer, Town Hall, Newcastle-upon-Tyne.

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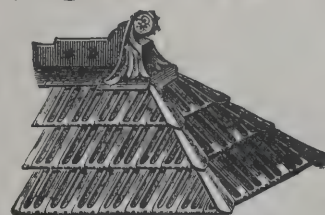
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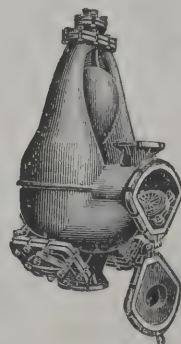
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**RIPON.**—Dec. 10.—For various trades in connection with Ripon Girls Secondary school. Deposit 1*l*. Messrs. Cannon & Chorley, architects, 16 Park place, Leeds.

**ROCHESTER.**—Dec. 24.—For construction of a covered service reservoir (in concrete) at Broom Hill, Stroud. Deposit 2*l*. 2*s*. Mr. William Banks, A.M.I.C.E., city surveyor, Rochester.

**SALFORD.**—Dec. 10.—For supplying and erecting boys and girls' gymnasia at Chapter Square and Arlington Street recreation grounds. Mr. A. Wilsher, Parks superintendent, Peel Park, Salford.

**SCARBOROUGH.**—Dec. 11.—For erection of a post office. Deposit 1*l*. 1*s*. H.M. Office of Works, &c., Storey's Gate, S.W.

**SCHOLES.**—Dec. 16.—For whole or separate tenders in connection with the erection of a school at Scholes, near Holmfirth. Deposit of 1*l* to Treasurer, County Hall, Wakefield. Messrs. Joshua Barrowclough & Son, architects, Holmfirth.

**SCOTLAND.**—Dec. 9.—For mason, carpenter, plumber, slater, plasterers and painter's work of alteration and repairs to manse of Cromdale. Mr. John Wittet, architect, Elgin.

**SCOTLAND.**—Dec. 14.—For construction of bridge for public road over the river Spey at Blacksboat and of approaches thereto, viz.:—(1) For construction and erection of the steel and ironwork, &c.; (2) for execution of the masonry in abutments, wing walls, river piers, parapets, &c., and also the formation of road approaches, &c. Mr. Pat. M. Barnett, engineer, 2 Westfield Terrace, Aberdeen.

**SCOTLAND.**—Dec. 19.—For the mason, carpenter, plasterer, slater, plumber, painter and glazier and heating works of church and hall to be built at Kingussie. Mr. Alexander Cattanach, architect, The Laurels, Kingussie.

**SHILDON.**—Dec. 11.—For erection of hydraulic-power house at Shildon Waggon Works, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

**SWINDON.**—Jan. 1.—For erection of proposed balcony and verandah to Victoria Hospital. Messrs. Ainsworth & Pilcher, Central Chambers, Swindon.

**SUTTON COLDFIELD.**—Dec. 9.—For erection of a school for 120 children in Hollyfield Road. Deposit 3*l*. 3*s*. Messrs. Crouch, Butler & Savage, architects, 39 Newhall Street, Birmingham.

**SUTTON COLDFIELD.**—Dec. 12.—For enlargement of Boldmere and Hill girls' school. Deposit 1*l*. 1*s*. Mr. W. A. H. Clarry, borough surveyor, Council House, Sutton Coldfield.

**WALES.**—Dec. 7.—For erection of forty houses at Dyfryn, Goodwick, Pembroke. Mr. Hugh Thomas, architect and surveyor, 9 Victoria Place, Haverfordwest.

**WALES.**—Dec. 10.—For erection of a school in Flint to accommodate 350 children. Deposit 2*l*. 2*s*. Mr. S. Evans, county surveyor, Mold.

**WALES.**—Dec. 28.—For the following works at Pen-y-darren Council schools, for the Merthyr Tydfil education committee:—(1) Carrying-out alterations and additional classrooms, cloak-room, lavatories, &c., to three departments of present school, and erecting new latrines, boundary walls, asphaltting playgrounds and laying new drains, &c.; (2) erecting new infants' school, with covered playgrounds, &c. Deposit 2*l*. 2*s*. Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

**WALES.**—Dec. 28.—For carrying-out alterations and erecting additional classrooms, cloak-rooms, &c., boundary walls, and forming new playgrounds, &c., at the Pant Council school, Merthyr Tydfil. Deposit 2*l*. 2*s*. Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

Mr. SYDNEY ARNOLD, who is building a new theatre at Methil, N.B., has secured a site in a central position in High Street, Cowdenbeath, on which he is going to erect a handsome theatre. Building operations will be started immediately, and carried through so as to have the theatre ready for opening early in the spring. Plans, which have been prepared by Messrs. J. D. Swanston & Syme, Kirkcaldy, will be presented to the Dean of Guild Court on an early date.

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For painting exterior of the union workhouse and hospital buildings. Mr. FRED HOLLAND, architect, Hustlergate, Bradford.

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Walton	625	0	0
Townson	600	0	0
Farrar	597	15	0
PRIESTLEY, 39 Ivegate, Bradford ( <i>accepted</i> )	460	0	0
Holdsworth	320	0	0

### BRIGHTLINGSEA.

For erection of police station. Mr. FRANK WHITMORE, architect, Chelmsford.

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Smith & Son	3,145	0	0
B. B. & M. Barrei	3,099	0	0
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Potter & Son	3,055	0	0
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For erection of Council schools. Messrs. COOPER & WILLIAMS, architects, Kettering.

Smith & Cotton	£1,003	10	0
Bott, Son & Palmer	999	0	0
Hocksley Bros.	905	0	0
Brown	955	0	0
Martin	924	0	0
Jarman & Son	921	0	0
Higgins	899	0	0
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Hynes & Sons	4,640	0	0
McCaffrey	4,607	10	10
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Nolan	4,242	0	0
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Callan	3,895	0	0
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Electrical Engineering Co. . . . .	630	0	0
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Tindall & Son . . . . .	549	15	0
Brightside Engineering Co. . . . .	530	0	0
Wood & Co. . . . .	431	10	5
BLAIE & SONS, Littlejohn Street, Aberdeen (accepted) . . . . .	428	18	10

## GORTON.

For erecting Thornwood Avenue Council school. Messrs. LODGE & DIXON, architects, Manchester. Quantities by Messrs. CHAS. JACKSON & SON, Manchester. BROWN & SONS, Salford (accepted) . . . . . £10,695 0 0

## HARLOW.

For erection of county police station, Essex. Mr. FRANK WHITMORE, architect, Chelmsford.

Whiffen & Son . . . . .	£4,555	12	8
Holliday & Greenwood. . . . .	4,500	0	0
Pavitt & Sons . . . . .	4,385	0	0
Winch . . . . .	4,350	0	0
Glasscock & Son . . . . .	4,349	0	0
F. & E. Davey . . . . .	4,337	0	0
Paul . . . . .	4,290	0	0
Bennett . . . . .	4,275	0	0
Foster & Son . . . . .	4,250	0	0
Mason & Son . . . . .	4,200	0	0
Mattock Bros. . . . .	4,157	0	0
Lawrence & Son . . . . .	4,124	0	0
Coulson & Lofts . . . . .	4,040	0	0
Hammond & Son . . . . .	3,923	0	0
Hacksley Bros. . . . .	3,889	0	0
F. & A. Wilmott . . . . .	3,878	0	0
Thomas & Edge . . . . .	3,872	0	0
Spencer, Santo & Co. . . . .	3,850	0	0
PARREN & SONS, Erith (accepted) . . . . .	3,650	0	0

## LATCHLEY.

For farmhouse at Solomon's Farm. Mr. T. D. RATCLIFFE, surveyor, Tavistock.

Hosken & Adams . . . . .	£830	0	0
Ball . . . . .	784	14	6
Rendell . . . . .	780	0	0
Medland, Clifton & Biddlecombe . . . . .	692	13	0
Kelly . . . . .	685	0	0
Kerswill & Collacott . . . . .	672	4	6
Richards . . . . .	667	16	3
Yole & Collacott . . . . .	642	0	0
Roxkilly . . . . .	598	9	6
HOSKEN, Compton (accepted) . . . . .	550	0	0
Martin . . . . .	457	0	0

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Johnson & Son . . . . .	£2,200	0	0
Chambers . . . . .	2,097	10	0
Haskard, Rudkin & Beck . . . . .	2,050	0	0
HANSON, Leicester (accepted) . . . . .	2,050	0	0
Hardington & Elliott . . . . .	2,030	0	0
Bowles & Sons . . . . .	2,029	0	0
Hutchinson & Son . . . . .	2,011	0	0
Herbert & Son . . . . .	2,009	0	0
Elliott . . . . .	1,967	0	0
Sharp . . . . .	1,967	0	0
Stanger . . . . .	1,943	0	0
Fox . . . . .	1,940	0	0
Chapman . . . . .	1,930	0	0
Bradford . . . . .	1,916	0	0

## LLANDUDNO.

For supply and delivery of cast-iron spigot and socket pipes and special pipes. Mr. E. P. STEPHENSON, engineer Llandudno.

Measures Bros. . . . .	£2,893	12	1
Macfarlane, Strang & Co. . . . .	2,500	5	10
Cochrane & Co. . . . .	2,440	16	3
Maclaren & Co. . . . .	2,421	11	11
Stewart & Co. . . . .	2,409	13	4
Clay Cross Co. . . . .	2,308	16	8
Staveley Coal and Iron Co. . . . .	2,262	14	7
Cochrane & Co. . . . .	2,249	17	11
Holwell Iron Co. . . . .	2,219	9	7
Sheepbridge Coal and Iron Co. . . . .	2,211	10	10
STANTON IRONWORKS Co., near Nottingham (accepted) . . . . .	2,216	10	5

## LONDON.

For supply and erection of centrifugal pumps at Shad Thames pumping station.

Gwynnes, Ltd. . . . .	£4,427	0	0
Worthington Pump Co. . . . .	3,534	0	0
Cochrane . . . . .	3,285	0	0

## LONDON—continued.

For providing hot-water boiler, with flues and connections, at infirmary, Homerton.

Cannon & Son . . . . .	£263	10	0
Fraser & Co. . . . .	255	0	0
Waldron . . . . .	245	0	0
Ashwell & Nesbit . . . . .	231	0	0
Tilley Bros. . . . .	225	0	0
J. & F. May . . . . .	205	0	0
Griffin Ironworks Co. . . . .	199	10	0
Cannon & Hefford . . . . .	198	10	0
Russell & Sons . . . . .	190	0	0
Brightside Foundry and Engineering Co. . . . .	183	0	0
Watkin . . . . .	167	0	0
Bradley . . . . .	166	0	0
POTTER & SONS, Putney Bridge Ironworks, Fulham, S.W. (accepted) . . . . .	144	0	0

For enlargement and adaptation of the Berner Street school for elder mentally defective boys (St. George-in-the-East).

F. & E. Davey . . . . .	£2,433	5	3
Clarke & Bracey . . . . .	2,364	0	0
Willmott & Sons . . . . .	2,230	0	0
Kirk & Randall . . . . .	2,177	0	0
Perry & Co. . . . .	2,143	0	0
Staines & Son . . . . .	2,113	0	0
Wall . . . . .	2,109	6	10
Lawrence & Son . . . . .	1,994	0	0
Symes . . . . .	1,981	0	0
Chessum & Sons . . . . .	1,943	0	0
Leng, Deptford (recommended) . . . . .	1,892	0	0
Architect's estimate . . . . .	2,025	0	0

For work to roofs of premises at Limehouse, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.

Robey . . . . .	£137	0	0
Derby . . . . .	113	0	0
F. & T. THORNE (accepted) . . . . .	93	0	0

For repairs to premises, Bridge Road, Stratford, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

ELKINGTON & SONS (accepted) . . . . .	£113	11	0
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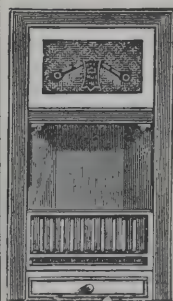
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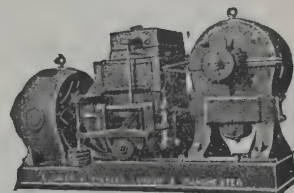
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## LONDON—continued.

For work at Gun tavern, Poplar, E.	Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.		
F. & T. Thorne	£227	0	0
WEBB & Co. (accepted)	209	15	0
For repairs to premises, Kingsland Road, London, N.E.	Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.		
Barker	£110	5	0
Osborn & Sons	102	0	0
Hawtrey & Son	98	0	0
NEWTON (accepted)	80	0	0
For painting works to two warehouses, Shoreditch, N.E.	Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.		
Price	£107	0	0
Newton	92	10	0
OSBORN & SONS (accepted)	85	0	0

## RICHMOND.

For making-up of Beechwood Avenue and Burlington Avenue.	Mr. J. H. BRIERLEY, borough surveyor.		
Fry Bros.	£2,941	0	0
Campbell & Handman	2,939	0	0
Wimpey & Co.	2,808	0	0
Griffiths & Co.	2,807	0	0
Parry & Co.	2,789	0	0
Watson, jun.	2,750	0	0
Dykes	2,576	0	0
Kavanagh & Co.	2,555	0	0
Mowlem & Co., Westminster (accepted)	2,467	0	0
Chapman	2,466	0	0
For construction, completion and maintenance of sewage works in the parishes of Mortlake and North Sheen.	Mr. WILLIAM FAIRLEY, engineer, 69 Victoria Street, Westminster.		
Muirhead & Co.	£26,957	10	0
Pethick Bros.	26,666	0	0
Osenton	26,000	0	0
Woodham & Sons	24,339	0	0
Mowlem & Co.	23,951	0	0

## RICHMOND—continued.

Kelletts	£23,916	15	2
Pedrette	22,850	0	0
McAlpine & Co.	22,512	17	8
Pearson & Co.	22,122	5	8
Neal	20,843	7	0
Lock, Andrews & Price	20,742	11	5
Manders	20,540	0	2
Pedrette & Co.	19,980	4	10
Johnson & Langley	19,653	4	1
Hay & Co.	19,644	5	6
Moran & Son	19,274	7	7
Harrison & Co.	18,200	0	0
Macdonald	18,078	0	0
Rutter	17,687	5	4
Coles	17,346	5	4

## RUGBY.

For construction of sewage purification works. Mr. G. D. MACDONALD, engineer.

Mackay	£19,800	3	1
Foster & Dicksee	16,946	0	0
Macdonald	16,511	8	6
Harrison & Co.	16,505	0	0
Bell & Sons	16,496	0	0
Ford	15,990	0	0
Firth & Co.	15,378	11	1
Johnson Bros.	15,172	0	0
Johnson & Son	14,789	15	6
Chamberlain	14,288	8	2
Firth	14,277	2	7
Lock, Andrews & Price	14,269	7	5
Edwards & Co.	14,105	8	11
Jewell	13,348	8	0
YOUNG (accepted)	12,750	4	11
Moss & Sons	12,588	5	0

## RUSHDEN.

For erection of mixed school. Messrs. SHARMAN & ARCHER, architects, Wellingborough.

Sparrow	£4,420	0	0
Archer	4,297	0	0
Berrill & Green	4,250	0	0
Willmott	4,235	0	0

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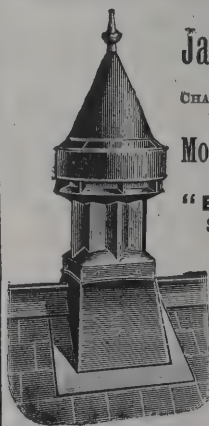
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Goodman & Murkett	£4,200	0	0
Baynes.	4,175	0	0
Hacksley Bros.	4,079	0	0
Brown & Son, Ltd.	3,997	0	0
Marriott	3,970	0	0
Kettering Co-operative Builders, Ltd.	3,947	10	10
Swindall	3,898	0	0
PARKWOOD, Rushden (accepted)	3,890	0	0

SOUTHAMPTON.

For erection of post office, for H.M. Office of Works, &c.			
Waring-White Building Co.	£7,386	0	0
Wisé	7,300	0	0
Osman	7,298	0	0
Cawte	7,159	0	0
Stevens & Co.	6,980	0	0
Norman	6,946	7	6
Preece.	6,890	0	0
Dyer & Sons	6,869	0	0
Salter	6,778	0	0
Potter Bros..	6,770	0	0
Jenkins & Sons	6,695	0	0
Long	6,413	0	0
Blake	6,385	0	0
Colborne	5,999	10	0

WESTCLIFF-ON-SEA.

For erection of police quarters. Mr. FRANK WHITMORE, architect, Chelmsford.			
Grainger	£2,684	0	0
Stephens, Bastow & Co.	2,497	0	0
Woodhams	2,377	0	0
Smith & Sons	2,295	0	0
Padley	2,255	0	0
Pavitt & Sons	2,252	0	0
Westgate	2,250	0	0
F. & E. Davey	2,225	0	0
Jarvis	2,191	0	0
Leaney & Co.	2,170	0	0
Flaxman	2,135	0	0
F. & A. Wilmott	2,094	0	0
Davey	2,085	0	0
Hammond & Son	2,070	0	0
PARREN & SONS, Erith (accepted)	1,998	0	0

WEST HAM.

For erection of house at pumping-station. Mr. J. G. MORLEY, borough engineer.			
Sherwood	£830	0	0
Wood Bros.	755	0	0
Crisp & Jones	745	0	0
Clemens.	715	0	0
Webb	699	0	0
Quarterman	699	0	0
Wood	695	10	0
Sands & Burley	680	0	0
Symes	670	0	0
Abbot & Charlton	669	0	0
Horlock & Son	665	0	0
Luton	648	0	0
Dennison	647	0	0
Barrett, Smith & Co.	629	0	0
Westgate	628	0	0
Moss & Co.	623	10	0
JERRAM, East Ham (accepted)	613	0	0

For construction of sewer between Upper Road and Green-gate Street. Mr. J. G. MORLEY, borough engineer.			
Anderson	£5,243	10	4
Manders	5,120	12	9
J. Jackson	5,016	12	10
T. W. Pedrette	4,903	16	5
Adams.	4,864	11	2
Smith & Co.	4,731	17	6
Jerram.	4,418	10	2
Miskén	4,298	13	9
Ford	4,226	17	8
Pedrette & Co.	4,113	11	9
Edwards & Co.	3,946	15	10
D. T. JACKSON, Barking (accepted)	3,885	3	0
For making-up streets. Mr. J. G. MORLEY, borough engineer.			
Group 1.			
JERRAM, East Ham (accepted)	£1,668	7	3
Group 2.			
JERRAM (accepted)	1,166	13	9
Group 3.			
JERRAM (accepted)	507	17	11

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## WEST HAM—continued.

For boundary wall, &c., at the pumping-station. Mr. J. G. MORLEY, borough engineer.

Webb . . . . .	£1,459	0	0
Ford . . . . .	1,375	13	7
Sherwood . . . . .	1,354	0	0
T. Jackson . . . . .	1,303	3	8
J. Jackson . . . . .	1,303	1	7
Crisp & Jones . . . . .	1,295	0	0
Clemens . . . . .	1,274	0	0
Wood Bros. . . . .	1,239	8	8
Horlock & Son . . . . .	1,210	0	0
Horswill . . . . .	1,199	0	0
Moss & Co. . . . .	1,177	12	0
Westgate . . . . .	1,160	0	0
Manders . . . . .	1,158	5	0
Symes . . . . .	1,095	0	0
Abbot & Charlton . . . . .	1,061	9	10
JERRAM, East Ham (accepted) . . . . .	1,011	12	0

## TRADE NOTES.

MESSRS. PEMBERTON, ARBER & Co., of Gray's Inn Passage, Holborn, the proprietors of the "Sesame" doors, have appointed Messrs. W. & F. Brown & Co., cabinet-makers and high-class decorators, of Eastgate Row, Chester, as agents for the sale of their "Sesame" doors in the town of Chester and surrounding district. Messrs. John Taylor & Sons, Edinburgh, Ltd., high-class furnishers and decorators, of 110 Princes Street, Edinburgh, have also been appointed agents for Edinburgh and district.

THE United Kingdom Fireproofing Company, Ltd., 47 Victoria Street, S.W., have secured the contracts for the whole of the steelwork, fireproof floors, &c., for the new telephone exchanges at Glasgow and Dalston; these are in addition to the large telephone exchange at Manchester which they are at present carrying out.

## VARIETIES.

THE erection of a theatre is about to be commenced on a site near Wimbledon station. The new building, which will accommodate over 3,000 people, will be opened in August 1908.

It has been reported to the local authority at Chapel-en-le-Frith that out of thirty-four road bridges in the district no more than three can be said to be in good condition, while twenty require rebuilding or extensive repair and eleven ordinary repairs. Some of the bridges are admitted to be in a dangerous condition.

OWING to the extraordinary development of the parish of Cathcart, the School Board have had in recent years to erect not fewer than three new schools. It was recently agreed to build another one to meet the requirements of the Cathcart district. Accommodation is to be provided for 1,200 scholars.

THE proposal to increase the Australian duty on roofing slates exported to that country from 15 to 25 per cent. is exciting much anxiety among the quarry owners of North Wales, who export enormous quantities of slate to Australia. They have decided to petition the President of the Board of Trade to endeavour to secure a reduction in the tariff.

THE electricity supply committee of the Stepney Borough Council recommend "That the main tender, amounting to the sum of 28,140*l.*, of Messrs. Willans & Robinson, for the complete equipment of the electrical generating portion of the station plant be accepted, conditionally upon the consent of the London County Council being obtained to the necessary loans."

At an inquiry held on Tuesday at the Guildhall, York, into an application by the City Council to borrow 5,400*l.* for city improvements, it was stated that the city was already three-quarters of a million in debt and had an overdraft at the bank of 50,000*l.* The Local Government Board inspector complained that York had a very bad reputation for spending money first and asking afterwards for leave to borrow it. The Lord Mayor claimed that York was no worse than any other city in that respect. The Board's regulations could not be carried out in their entirety. The inspector retorted that other cities managed to comply with them.

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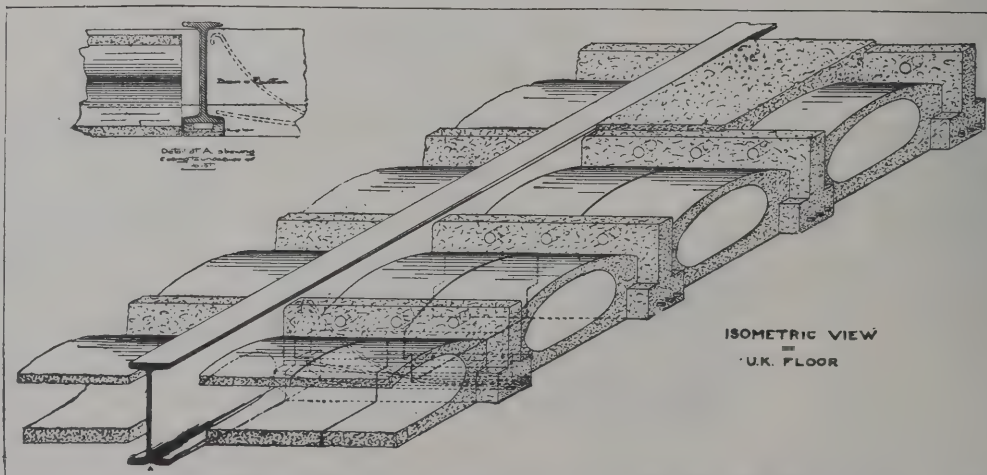
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Facilities for Ventilation.

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## ILLUSTRATIONS.

NATIONAL BANK OF SCOTLAND, NICHOLAS LANE, E.C.

CATHEDRAL SERIES.—SOUTHWARK: NAVE, LOOKING WEST.

DESIGN FOR NEW COUNTY HALL, LONDON.

THE Wednesbury Town Council on Monday considered a statement from the mining engineer with regard to the existence of a thick coal seam underneath the new public library, and that it was proposed to take steps to insure the safety of the building. Some of the coal is not solid as a result of its having been previously worked. It is, however, proposed to provide concrete and sand dams.

The housing committee of the Liverpool Corporation has had before it a statement by the city treasurer and controller as to the financial results of demolition and housing in Liverpool. The approximate cost of these operations, after allowing for sums realised by the sales of surplus land, to December 31, 1906, was 838,550*l.* 9*s.* 6*d.*, being 486,397*l.* 17*s.* 2*d.* for housing and 352,152*l.* 12*s.* 4*d.* for demolition.

THE Derwent Valley Water Board have accepted the tender of Mr. John Mackay, of Carlisle, for the construction, completion and maintenance of section "E" of the Derwent aqueduct, extending from the end of one branch of section "D," at a point near Belper, to Sawley on the Leicester and Derby pipe line, and from the end of another branch of section "D," at a point near Ridgway House, at Heage, to Langle Mill on the Nottingham pipe line.

DURING this week there has been on view at the premises of Messrs. Geo. Trollope & Sons and Colls & Sons, Ltd., in West Halkin Street, Belgrave Square, some very fine carving in limetree wood (Grinling Gibbons style) for a ceiling in Mr. Henry Phipps's mansion in New York, from the designs of Mr. Geo. A. Crawley, of that city. The central band of ornament is carved from solid wood 6 inches thick, while the four large cartouches are carved from solid wood 12 inches thick, and the composition is a mixture of fruit and flowers, &c. The work, which we had the pleasure of inspecting by invitation, was executed at the workshops of the firm in question in Grosvenor Road, the modelling and carving having been done by Mr. F. Rogers.

MR. W. A. DUCAT held an inquiry at the Manchester town hall on the 3rd inst., on behalf of the Local Government Board, into the City Council's application for sanction to borrow various sums of money. The Council want to borrow 10,921*l.* for works of private street improvement, 4,000*l.* for the purpose of the paving and highways yard in Factory Lane, Blackley, and 8,700*l.* for works of street improvement in Cemetery Road and Clayton Vale Lane, Newton Heath, and Corporation Street, Manchester.

THE Salford Board of Guardians have agreed to let the contract for the redrainage of the Hope Hospital to Messrs. J. Gerrard & Sons, of Swinton, whose estimate was 5,990*l.* The drainage system has been examined by the medical officer of health for the borough and condemned, and members of the Board stated that the health of the nurses had been affected by the unsatisfactory sanitation. Fourteen tenders were considered, the highest being 8,598*l.* The lowest tender was accepted.

IN Belfast it was reported on Saturday that the Great Northern Railway Company intend at an early date to transfer their large locomotive works from the seaport town of Dundalk, county Louth, to Belfast. The directors of the company have had the scheme under consideration for some time. The site which has been acquired in Belfast is in the vicinity of the Bog Meadows, and the contemplated works will cover a much larger area than the present engine shops in Dundalk. The transfer will involve a heavy loss to Dundalk, as about 600 men are employed in the works, while a sum of 30,000*l.* is paid in wages annually.

THE finance committee of the Birmingham Corporation have negotiated with the Prudential Assurance Company for the advance of loans of 39,568*l.* and 64,271*l.* on electric supply account, and a loan of 100,000*l.* on tramways account, and the Company have agreed to lend the money on the following terms:—The amount to be paid over in December, 1907. The loan of 39,568*l.* to be repayable in twenty-five years by fifty half-yearly instalments, and the loan of 64,271*l.* to be repayable in twenty-one years by half-yearly instalments. The loan of 100,000*l.* to be repayable in twenty-five years by half-yearly instalments. Interest to be at the rate of 3*l.* 18*s.* 9*d.* per cent. per annum.

ESTABD

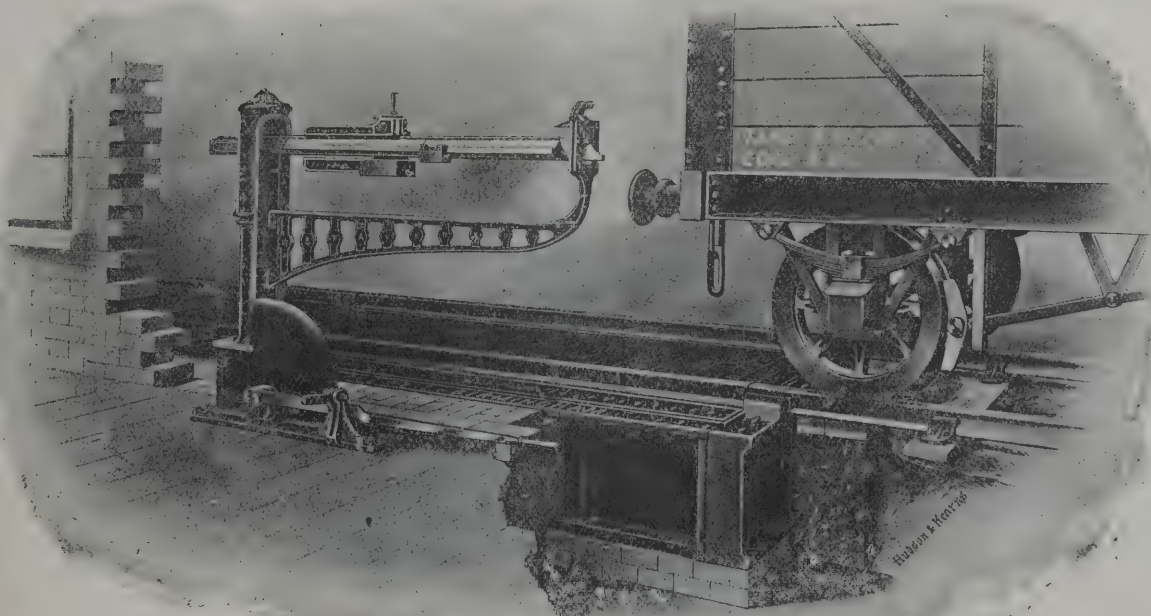
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At Dundee a start is to be made immediately with the initial work connected with the erection of the new electric generating station at the east end of the harbour. The electricity committee of the Town Council have agreed to accept the offer of Messrs. Robert M'Alpine & Sons, Glasgow, for the construction of the foundations for the station, the pump-room and river works in reinforced concrete on the Coignet system. The cost will be about 6,000*l*. A large proportion of the expense, owing to the nature of the site, will be incurred owing to the necessity of reinforced concrete piles. The work will be proceeded with forthwith, and the city engineer is busily engaged preparing specifications and drawings for the superstructure.

THE Market Harborough Urban District Council have adopted an original method of disposing of their ashbin refuse, according to the *Manchester Guardian*. The new plan is to pulverise the refuse, saturate it with tar and pitch, and then press it into briquettes. The new fuel, to which the name of "coalesine" has been given, burns freely in the boiler furnace or open grate without an excess of smoke, and leaves a soft, reddish, friable ash. Its calorific value is stated to be 3.33 lbs. of water evaporated per pound of fuel burnt, and it is estimated that the total cost of producing the briquettes, including power, labour, loan instalments and interest, does not largely exceed 4*s*. per ton, which would appear to leave a fairly good margin of profit.

At the last meeting of the Bolton waterworks committee correspondence was read between Messrs. Best & Sons, Ltd., and the town clerk as to the standard rate of wages clause proposed to be inserted in the contract No. 1 for the construction of the Delph reservoir, and it was resolved that the following proviso be added:—"That inasmuch as there is no navvies' union in existence in the district of Turton at the date of this contract, the contractors shall not, in the event of a navvies' union coming into existence during the continuance of this contract, be necessarily bound to recognise such union." It was further resolved that the following be inserted in the contract with Messrs. Best & Co., Ltd.:—"If any workman considers himself incapable, through age or infirmity, only of earning the wages specified by the standard rate of wages clause of this agreement to be paid, he may be paid such wage as may from time to time be agreed upon in writing between

the contractors and the President for the time being of the Bolton Trades Council, and, failing such agreement, as may be fixed by the Mayor for the time being of the borough of Bolton aforesaid."

### VOLCANIC ASH CEMENT.

ACCORDING to a report from Consul G. H. Scidmore, at Nagasaki, the Kyushu Kazanbai (volcanic ashes) Company, which is composed of prominent business men of Nagasaki is conducting a very successful business. It has been decided to construct a factory near Yobiko, and about 10,000 *tsubo* (about eight acres) of land was recently acquired by the company for the purpose. The Saga-ken authorities have been applied to for permission to construct a light railway between Uchiage, where the first factory is situated, and Yobiko, a small port from whence the product of both factories could be shipped. When these undertakings are completed, the annual output is estimated at 700,000 bales.

At present the ashes, which are used as a substitute for cement, are supplied to the Mitsu Bishi and Kawasaki Dockyards, the Sasebo Naval Yard and the Wakamatsu Iron Foundry. Quantities have also been exported to Korea, North China, Shanghai and Formosa, and the demand is rapidly increasing. Forty thousand bales were recently supplied to the Sasebo naval authorities, and a contract has been made for the supply of 60,000 bales to be used in the harbour works at Keelung. The ashes are much cheaper than cement and almost as effective; sometimes the ashes and cement are used together most advantageously. The company paid a dividend of 9 per cent. for the first half-year on a capital of 200,000 yen (99,600 *dols*.).

Mr. Scidmore adds that he is informed by a gentleman connected with building work at Nagasaki that this cement is composed of volcanic ashes, to which are added sand and Portland cement. The proportions of this mixture he has not been able to ascertain.

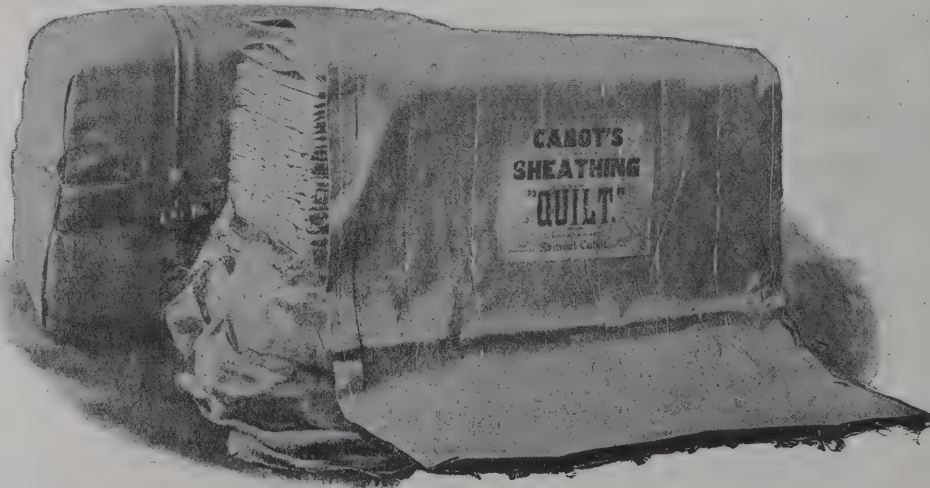
THE Doncaster Corporation have decided to promote a Bill in the next session of Parliament to enable them to construct a bridge over the Marshgate crossing, and also to construct new roads and tramways. The estimated cost of the scheme is 100,000*l*.

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## A CONCRETE MAP.

EARLY in January, 1907, the authorities at Washington decided to construct at the Jamestown Exposition a large relief map which should show the Panama Canal as finally planned, together with the topography of the surrounding country. After some correspondence Mr. Charles H. Johnson was selected to undertake the actual construction, finally receiving orders early in March to proceed to the Exposition via Washington. The office end of the work was in charge of Mr. Ralph Whitman, then on the staff of the Isthmian Canal Commission, who had collated all available information in regard to the topography and placed it on a large map of the route of the canal, scale 1=50,000, taken from the report of the Commission of 1905, and mounted on cloth.

On arriving at the site of the work on March 11, says the *Engineering Record*, the space allotted to the model was found to be covered with contractors' shanties, one being in the process of demolition. The labour situation was bad, wages for common labour being 1 dol. 75 cents for eight hours, and the labour very scarce and inefficient. Cement finishers were almost impossible to obtain and wanted 50 cents an hour. Stone and cement for the concrete were brought from one of the large contracting firms doing work at the grounds and were taken from cars on a track alongside the work, and was obtained from the beach about 200 feet away.

After looking the situation over the map was laid out, the dimensions being 122 feet east and west and 50 feet north and south, its axis corresponding with the centre lines of two of the Government exhibit buildings, its horizontal scale being 1=2,000. The ground at the site was level; excavation showed, first, 1 foot of top soil mixed with roots, then about 3 feet of sandy clay, then 18 inches of sand, then clay at ground-water level. It was decided to make sea-level on the map about 2 feet below the natural surface of the ground, so that by grading up the spoil to form a raised walk around the map visitors would be sufficiently above it to see over the tops of the hills.

Some Greeks were put to work stripping off top soil and excavating for the Atlantic Ocean. A search for cement finishers produced a couple of negro helpers or second

hands, who were willing to work for 2 dols. 50 cents a day and stayed with the work to the end. The Greeks proved unsatisfactory and were discharged after about a week, their places being filled by negroes, who were on the whole very satisfactory labour. One white man at 60 dollars per month was hired to run rod, hold tape, assist on carpenter work, &c., and with the writer and the negroes, varying from six to twelve in number, constituted the entire working force.

As soon as a sufficient area had been stripped work was started on laying out the Atlantic Coast line. The first method used was by setting up a plane table at one of the corners of the relief map, setting the edge of the alidade rule through the corresponding corner of the paper map and the point to be staked out, then scaling the distance and setting the corresponding point on the ground. This method proved to be too slow, and was discarded in favour of one developed by the writer, which was as follows:—The paper map was ruled off in rectangles corresponding to 20 by 30 feet on the ground, then a piece of tracing cloth the size of one of these rectangles was ruled off in squares corresponding to 1 foot square on the ground. The tracing cloth was laid on one of the rectangles on the paper map, the corners of the corresponding rectangle on the ground were staked out, and poles, marked off in feet, were laid 1 foot apart, parallel to one side of the rectangle. Then noting where the coast line crossed the lines of the tracing, a line was drawn on the ground through the corresponding points of the poles. When the coast line had been thus marked out the clay was carefully cut away with a mattock and the bottom of the ocean levelled off 6 inches below sea level, thus allowing 3 inches for concrete and 3 inches for water.

As soon as two or three hundred square feet of subgrade was ready the concrete was laid, the base being 2½ inches thick, one part cement, three parts sand and six parts gravel or broken stone, mixed fairly wet. The top was ½-inch thick, mixed one part cement and two parts sand, and was trowelled to a smooth finish when it was to be covered with water. After the bottom of the Atlantic had all been laid work was started on the land, the hilltops and rivers being located by the same method as the coast line. Stakes were set to the proper grade for the hill tops, the river



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valleys were chopped out of the clay, being tested frequently for grade with the transit as the work proceeded, then the country between the hill tops and the rivers was modelled in to correspond with the contours on the paper map, and concreting begun.

The vertical scale was set at  $1=333$ , a vertical exaggeration of six, after several scales had been tried and this had seemed to be the most effective and natural. In finishing the land surface, practically all of which on the Isthmus is covered with a very dense forest of low growth, the attempt was made to get a finish which would have the same appearance as the real country were the latter viewed from a balloon at a sufficient height to make it appear the same size as the map. This effect was obtained by beating the surface of the concrete after it had been floated and partly set, first with a board set with wooden knobs and then with a block of wood and an irregular surface covered with battered tin.

When the map was about half completed work was started on the concrete wall surrounding it. This wall showed  $5\frac{1}{2}$  feet above the sea-level of the map on the inside and  $2\frac{1}{2}$  feet above the surface of the walk on the outside; it was 12 inches thick and panelled on the outside. The panels were 16 inches high, about 5 inches long and 2 inches deep, the moulding above the panels being 6 inches wide. By making the panels this length it was possible to divide the wall into twelve sections exactly alike, and one set of forms was used for the entire work. The inside forms were in two pieces, one 12 feet and the other 18 feet long, the full height of the wall, and were built of inch boards nailed to 2+4 inch verticals spaced about 2 feet on centres. The outside forms were built in panels, one form for each panel, and were 2 feet 9 inches high, the concrete being brought to the level of the bottom of the forms with slip boards. The forms were held in place by stakes at the bottom of the inside forms, through ties of telegraph wire at the bottom of the outside forms, and board ties about 6 inches above the top of the forms. The wall concrete was one part cement, three parts sand, six parts gravel, mixed wet. The forms were pulled the morning after a section of wall was finished, and the exposed surface plastered with a thin coat of one to two

cement mortar brought to a floated finish. The top of the wall was given a granolithic finish.

When about half of the map and surrounding wall had been completed a start was made on the painting. The land surfaces were sized and painted one coat of flat green, shaded off dark and light to give the proper hill and valley effects, the rivers being lined out in light blue. The bottoms of the oceans and lakes were stained blue, with light blue shading close to the shore. The paint stood all right, except when put on cement not thoroughly dry, when the first rainstorm turned it light yellow.

Three concrete boxes were built outside the wall, 2 feet 6 inches square in plan, with the top flush with the top of the walk around the map. A 1-inch iron pipe was connected with the water main and run into one of these which was located at the head of the Chagres river. This furnished the water-supply to keep the lakes and oceans at the proper level, the water flowing down the Chagres, filling Lake Gatun, and then overflowing into the Atlantic and through the canal into Sosa Lake and the Pacific. A 1-inch pipe under the locks permitted the draining of Lake Gatun, which, together with that of the other bodies of water, had to be done every fortnight. The outlet boxes for the Atlantic and Pacific were supplied with 6-inch earthenware drains connected with the sewer. The outlet was in the bottom of the concrete box and was stopped with a wooden plug sawed off at the desired water-level and having a central hole, which took care of the overflow during rains. When it was necessary to drain the oceans the plugs were pulled, and when replaced were made tight by shaking sand around them. The cost of construction was about 4,000 dollars.

GRAFTON Bridge, near Auckland, New Zealand, which is to be built of ferro-concrete, will have what is claimed to be the greatest single span for a bridge of this kind in the world. It will cost 40,000*l.* and will take 1,400 tons of cement. The span of the main arch will be 320 feet. The total length of the bridge will be 910 feet, and the height from the top of the roadway to the deepest part of the gully 147 feet. There will be room for three lines of traffic and two side walks for pedestrians.

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## ENGLISH AND GERMAN POTTERY.

THE annual prize distribution connected with the pottery classes carried on in North Staffordshire under the Staffordshire education committee took place on the evening of November 22 at the Hanley municipal secondary school. Mr. F. H. Wedgwood presided. Mr. H. H. Cunynghame, C.B., legal under-secretary at the Home Office, delivered an address, says the *Staffordshire Advertiser*, referring at the outset to Josiah Wedgwood, who combined in a remarkable degree just the qualities the speaker desired to inculcate—enterprise and caution, together with an artistic feeling, which he sedulously cultivated. He wished to speak of the artistic side of pottery-making as well as the technical side. No doubt the students desired to become skilful potters. The one thing essential to success in a profession was to stick steadily to the work with an absolute determination to get to the bottom of it. That invariably and infallibly commanded success. It was a difficult thing to judge pottery. He would like them to be able to say, on picking up a piece of pottery, "Ah, yes, Wedgwood, 1797." "How do you know?" they might be asked. "Oh, I know the glaze," they should be able to say. They could only do this by an immense amount of study. They must learn their art and not be too proud to learn it anyhow or anywhere. There were a lot of interesting things to be found in cottages, such as old English lustre. They must also keep a notebook and note down everything they could. A perfect knowledge of the different qualities of English and Continental pottery as exhibited in museums, and as made at the different potteries, was exceedingly valuable, but exceedingly difficult to obtain. Speaking of art, he advocated the application to the subject of common sense and suggested as a definition "Art is a language." The artist ought to have something that he wanted to convey to people; then he ought to speak in a language which they understood, and he ought to make it beautiful, charming and agreeable. In household pottery the thing they had to see to was that the jug, the set of tea-cups, or whatever it might be, had an appropriate decoration. In good china, for instance, where there was a considerable quantity left white, that looked nice. In the selection of ornament, let them always

speak in the language people understood. Foreign art should be introduced very carefully. And let them make it as beautiful as they could. He deprecated the desire, as in France, for realism, and equally that for impressionist art. They must not be desperate if they could not all be wonderful artists. Something new in art only came to an artist once or twice a year. Many people would be content if they got a new idea once in a lifetime. Very good things could be done in a very ordinary way, and they must not expect too much of themselves or of other people. If they did all they could their powers would develop in spite of themselves. Speaking of styles, he recommended students to master the arts of the different countries for which there were facilities in the museums. As to the styles, Greek was the most important. The characteristics of the Greek school were severe balance and proportion always. The next in importance would probably be the Persian style, for the Persians were most wonderful masters of colour. The Italian majolica style would be important, as it showed how they could produce a wonderful and tremendous variety of colours, yet all harmonious. The next school in which he would advise anyone to study was the Chinese. He thought there was nothing better than the Chinese in the arrangement of the colours. These four classes—the Greek, Persian, majolica and China—seemed to him to be the most interesting phases for the pottery student to study. If the student wanted to decorate a jug with a spray of ivy let him go into the wood and get a piece of ivy, write a description of it and its manner of growth, make sketches of it in charcoal, pencil, ink and colours, with the object of acquiring a complete knowledge of the plant. Then let the student put the ivy away, and draw the plant "clean out of his head." He might at first find that he could not recollect how the veins were; and in that case he must go back and study the veins until he could draw the thing perfectly and entirely from memory. He would be making it true, and at the same time he would not be so lavishly copying nature, which would make the thing a mere transcript instead of a true design. A true design ought not to be this or that particular piece of ivy, but an ideal ivy. Dealing with the technical side, the speaker advised students to begin on chemistry, lay the foundation of a solid knowledge of the



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elements of pottery, the mystery of silica, copper, cobalt, magnesia and the various oxides, and above all things do quantitative analysis well. Let that school lay a thoroughly good ground in chemistry and they would certainly improve the whole of the pottery art and trade. The speaker referred to the jealousy with which some old potters guarded their secrets, and said they still had their secrets, though many of the old secrets were secrets no longer through the advance of science. They were welcome to their secrets while they lived, but they should leave them for others when they died, and not let anything die that would be of value. They should be neither too jealous of their secrets nor squander them all over the world. He had been lately in Germany, and he found that the German workman was more methodical and plodding than the Englishman. In Westphalia the potter was a much cleaner man than the majority of workmen in pottery places. But he had no hesitation in saying that the English were the more able race of the two, and we need not be too afraid of German competition. The Germans had had singular facilities up to the present; they were a hard-working race, and it was natural that they should rise commercially. But the Germans themselves now admitted that the shoe was beginning to pinch them. They said that coal was getting dearer, everything was getting dearer, and his conviction was that in a few years we would not see nearly so much danger in German rivalry. The English race was a mixture. We were not purely Teutonic. There was more Celtic blood in us than in the Germans, and the consequence was that we had got greater gifts of imagination and invention. The English race were the cleverer of the two. In this district they had coalfields remarkably near them—but they were engaged in wasting a great amount of heat in the most terrible way he ever saw—and with their own brains, and with the great pottery traditions of the district, he was quite sure that if they would only set to work and prevent waste, there was no need to fear the future of the pottery industry of Great Britain.

Mr. W. Burton proposed a vote of thanks to Mr. Cunynghame. He hoped that from these pottery classes they were going to get the future managers and foremen of the potteries of the district. He did not look upon them as classes for training workmen at all. They were to train

the future masters of the trade—the men who would have the future guidance and control of the industry. He had been spending five or six weeks in Germany, and he had seen the museums, schools of art and shops. The German potters were wonderful workmen—and wonderful copiers of other people's ideas. Their great object was to take what the English potters could do, what the Copenhagen people could do, what the Swedes could do, and "do something that looks like it when you can't see it and sell it at half the price." But that was a fact to be reckoned with. As Mr. Cunynghame had rightly said, the Germans as a whole were more industrious, they knew their business better, stuck to it better than we did. If Englishmen in every great industry were to retain the supremacy they acquired by being first in the field—the first who ever organised industry on modern lines at all—it could only be because, along with the better brains of the breed, they had the same determination, energy and enterprise that their rivals in other countries were showing.

### THE OVERHEAD TRAMWAY SYSTEM.

At the invitation of the Birmingham and Midland Institute Scientific Society, Mr. Alfred Baker, the general manager of the Corporation tramways, attended at a meeting and delivered an address descriptive of the mechanical and electrical contrivances in connection with the city tramways system. Mr. Baker said the majority of the citizens of Birmingham had, he thought, now come to look upon the overhead system of tramways from a utilitarian point of view, and they would agree that, as a rule, after the first few days, they forgot all about the "abominations." The much abused overhead system was still the cheapest and most efficient system of locomotion yet devised. Many of them knew that the London County Council had been engaged during the past five years in putting down the conduit system in the streets of London. A few weeks ago their tramway accounts were published, and they showed that the traffic receipts were enormous. In round figures they amounted to 1,414,000*l.* The expense of earning that sum was only 1,075,000*l.*, leaving a balance of 340,000*l.* But here came the rub. Out of that balance of

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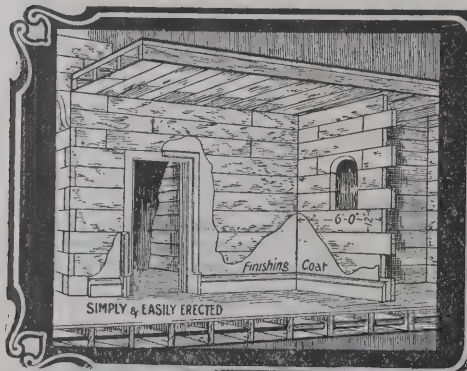
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340,000*l.*, interest and sinking fund on the capital expenditure absorbed no less a sum than 330,000*l.*, leaving a net balance of something less than 10,000*l.* on a turnover of a million and a half sterling. Why, in Birmingham, where of course the traffic could not compare at all with London, it was expected that the profits would far exceed that amount on about one-sixth of the London capital expenditure. Therefore he said the overhead system was by far the best in every respect, except perhaps at all with the aesthetic point of view. Of the three methods of overhead construction, the span wire system adopted by Birmingham was, in his opinion, far superior to the other methods. It was certainly neater, and it gave steadier running. Mr. Baker described the permanent way, the rolling-stock, the motors, the brakes and electrical equipment. He said new brakes were under test, and one had been recently inspected which promised to be "fool-proof." If the brake continued to be satisfactory after an extended trial he would certainly recommend the tramways committee to use it on the steep gradients of the city, for they recognised that nothing must be left undone and no expense spared in order to secure the safety of the travelling public.

### BOLTON BUILDERS' EXCHANGE.

An important local innovation, and one that will be watched with considerable interest, has been introduced in furtherance of the building and kindred trades, the scheme taking the form of an organisation to be known as the Bolton Building Trades Exchange and Club. The Bow Street assembly rooms, says the *Bolton Chronicle*, have been rented, and these are to be adapted as a centre for the meeting of those engaged in building and the many kindred trades. The idea is not a new one; it has materialised with a large measure of success in such important centres as Bradford, Halifax and Huddersfield, but this is its first introduction into Lancashire. Mr. W. Grime is the chief spirit in the movement locally, and he is associated in the project with a number of prominent members of the Bolton building trade.

The assembly rooms are admirably adapted for the purpose. Up to recently they have been utilised as a dancing

academy, but stern business and serious enterprise are to take the place of toe tripping and frivolous fancies. To quote from a circular sent out, the objects of the Exchange are to provide a meeting-place for fraternal and business intercourse between its members; to become a centre for the buying and selling of all kinds of commodities used in different trades and the arrangement of contracts and sub-contracts; and for the recreation of its members. The social and recreational part of the movement, be it noted, is given the last place in the objects; the place will be an "exchange," a business centre, before anything else, and it is hoped to widen and extend the facilities now afforded builders for meeting on matters affecting more closely their common welfare. But the social side will not be overlooked, and two billiard tables are being installed, and there will be every facility for friendly intercourse. The rooms are spacious, and, newly decorated, should provide an acceptable retreat for business men when the ordinary day's work is done. The prospects for the scheme are very encouraging; indeed 400 men have already signified their intention of becoming members, and when the place gets in thorough working order the membership will probably be very largely increased, for there are many hundreds in the various branches of the trade—bricklayers, joiners, plasterers, slaters, merchants, concreters, plumbers, &c. Of course the institution is confined to the masters, and the Exchange is not intended for any one class of members, but for the whole trade and allied sections. At present the club is privately owned, but eventually it will probably be run by a committee of members. The secretary offers to arrange all kinds of financial matters (temporary or permanent) on behalf of members at a minimum charge, and any legal work required by members at special rates. With a nominal subscription and the maximum of facilities, the institution should have an extended period of great usefulness before it.

At the sale of articles from the "Old Japan" exhibition at Earl's Court a model of a pagoda, consisting of 20,000 pieces of wood, was sold for four guineas and a fine Shibyama screen for five guineas.

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**SANITARY APPLIANCES.**

By Mr. W. JENNINGS.

*(Concluded from last week.)*

It has become the practice on the part of many architects and others when selecting sanitary fittings for buildings to dispense with urinals, and direct that pedestal closets with hinged seats shall be made to serve the requirements of both closets and urinals. This procedure in the case of private closets or where the use is restricted to a few persons may be advantageously followed; but in public offices and similar situations where large numbers of persons congregate, no benefit is gained by the omission of urinals, as if the closets have to answer the double duty of water-closet and urinal more closets must obviously be provided than would be the case where the closets serve only the one purpose. Furthermore, a closet basin is usually 18 inches or less in height, convenient for sitting upon, whilst the customary height of a urinal basin from floor to lip is about 2 feet. Careless or indifferent persons will not take the trouble to lift the hinged seats, which consequently become sprinkled and wetted to the inconvenience of the next user. In point of relative cost there is little or no difference between the price of a complete closet apparatus and that of a urinal; but it must be remembered that whilst a urinal occupies approximately 2 feet of wall space, and about the same or less projection, a closet requires a separate apartment about 2 feet 6 inches wide and 4 feet 6 inches to 5 feet in depth, with walls or partitions, doors, &c., enhancing the cost as well as occupying a large amount of space. For positions where the closet apparatus is required to answer the dual purpose of w.c. and urinal, a special pattern of closet has been invented by Messrs. George Jennings, Ltd., in which the basin is formed with an inclined or sloping raised back with a self-rising counterbalanced seat. It most satisfactorily fulfils the two purposes, and is consequently largely adopted in positions where separate w.c.'s and urinals are not deemed necessary.

Syphonic discharge closets, which may be considered a comparatively recent introduction, may be divided into two classes, one type being actuated by the withdrawal of the air between the two traps by aspiration or a sucking upwards due to the down rush of water in the flushing-

pipe and the consequent discharge of this foul contaminated air into the closet apartment. This type of closet consequently is condemned by sanitarians as dangerous to health; and furthermore the aspiration of the air in the outgo of the closet seriously retards the escape of the contents. The second type is a closet known as the "Closet of the Century," in which the syphonic action is generated by the introduction of a jet of water into the outlet leg of the closet, driving the air between the two traps, through an escape pipe into the external air, thereby creating a vacuum in the outlet, and securing the discharge of the basin by atmospheric pressure. This apparatus has successfully withstood public criticism for upwards of ten years, has gained the highest awards of the Sanitary Institute and gold and silver medals, and is extensively adopted. The main features and advantages of this type of apparatus are the security of two water seals—one contained in the lower trap of a depth of  $1\frac{1}{2}$  inches, the other in the basin itself, and 3 inches in depth, provision being made for a constant circulation of fresh air being maintained between the two traps, and thereby the fresh air disconnection of the water-closet apparatus from the soil pipe or drain, which is advocated and sought for in arranging the discharges from baths, lavatories, sinks, urinals and other sanitary appliances, but which had never hitherto been satisfactorily accomplished in connection with water-closet apparatus.

The large bulk of water retained in the basin (some 6 inches in depth with a surface area of 12 inches by 9 inches and a water seal or trappage of 3 inches) is equal in quantity to that retained in a "valve" closet, but is secured without mechanism. A further unique and valuable feature peculiar alone to this form of closet is the entire forcible discharge of the contents of the basin by employing atmospheric pressure equivalent to about 15 lbs. per square inch, the consequent concentrated flush being sufficient to charge the drain with a solid bore of water during the time the closet is in action, thereby insuring the complete removal of the faecal deposit, and securing the drains in an efficient manner not possible with closets of any other system. An important and much appreciated improvement in the mode of flushing these closets consists of a simple form of pull-up regulating supply valve to which the water surface can be connected from a large main storage cistern,

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thereby dispensing with the noisy, unsightly and objectionable flushing cisterns which are the bugbear of nearly every householder; whilst the requirements and regulations of the various water companies and boards are met and complied with by a simple contrivance in the interior of the valve, limiting the quantity of water supplied at each lifting of the handle to the maximum quantity prescribed and allowed by the water authority.

Whilst sanitarians generally have for years been in unanimous agreement as to the vital importance and necessity of all waste pipes from lavatories, baths, sinks, urinals, overflows from cisterns and rain-water pipes being thoroughly disconnected from the main or underground system of drains by discharging the waste pipes at the ground level over a gully trap, and the by-laws of many sanitary authorities even stipulate and require that these waste pipes shall discharge on to an open horizontal channel at a distance of several feet from the gully, it appears a curious anomaly that no consideration has apparently been given to the advisability and need of disconnecting the water-closet apparatus from the soil pipe or drain. Yet it will be admitted by all sanitary engineers and authorities that if it be essential to sever the direct connection of waste pipes conveying what may comparatively be termed innocuous liquids and matters, it should be of paramount importance to disconnect the water-closet from the soil pipe and drain through which are discharged the foulest and most deleterious liquids and matters—the exhalations and gases from which are known to be of the deadliest character—so as to render impossible under any circumstances the admission of air of any kind from soil pipes into the dwelling or building with which they are connected. Notwithstanding the importance of this subject, the only attempt towards adopting some precautionary measure was made some thirty years since by a few engineers to fix a syphon or hydraulically sealed trap at the foot of the soil pipe. This imaginary safeguard was at once found to be delusive and objectionable, as, while under certain conditions it formed no reliable barrier to the passage of air from the sewer or drain, it effectively retarded the flow and free escape of the sewage into the sewer, and destroyed the valuable scouring power of the liquids due to the momentum generated by falling

from the upper floors of the building. Furthermore, as was clearly demonstrated by the late Mr. George Jennings, the eminent sanitary engineer, in his valuable and able letter to the *Times* under date September 14, 1865, the hydraulic seal of all traps in direct connection with main sewers is so very susceptible to, and so easily affected by, increased pressure of air on the sewer side of the trap, as to be practically fallacious and dangerous to depend upon as a security for the purpose for which they are employed. This insecurity may arise from several causes, which are clearly explained in the late Mr. George Jennings's letter.

At the annual meeting of the Municipal and County Engineers held this last summer in Liverpool, a paper was read on these defects, and the solution of the soil pipe, drain and sewer ventilation problems of the nineteenth century, which excited considerable interest amongst those present. Time will not permit of my referring at length to the subject-matter of the paper, or to the discussion which took place upon it, but by many engineers it is considered that a hydraulically sealed disconnecting trap on main drains is worse than useless and should be dispensed with. One of its defects is indisputable, viz. that it offers no resistance whatever to the pressure of air due to back flooding of tidal or storm waters in the sewers with which it is connected; and, although it is not a new experience, I may quote as valuable and interesting testimony on this subject an extract from a letter dated July 16 this year, written to the *Surveyor* by Mr. P. Dodd, C.E., borough engineer of Wandsworth, in which the writer states that he knows of instances of sealed manhole covers (weighing about  $1\frac{1}{2}$  cwt. each) on the main sewers in the district of Wandsworth having been seen to rise and fall rapidly for several minutes as a result of the compression of sewer air in the manholes, caused by a sudden effluxion of storm waters into the sewers. If the pressure is sufficient to lift a weight of  $1\frac{1}{2}$  cwt., it necessarily follows that it is sufficient to force intercepting traps which contain at most from 20 lbs. to 30 lbs. in weight of water, and it consequently follows that the shallower seals of water-closet traps, gullies and the like are still more easily forced by such back pressure.

And when it be remembered that the air in the branch drain on the sewer side of the disconnecting trap is everlastingly foul and everlastingly imprisoned—except when it

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is driven into the house drains by the back tidal pressure, as may occur occasionally during twelve months—it can be imagined how deleterious to health this concentrated essence of sewer gas must be. The manufacture of coal gas for illuminating purposes by distillation can only be effected in a closed retort; and sewer gas is produced by imprisoning air in sewers and drains, in which sewage not only passes, but is frequently retained until decomposition and fermentation takes place. Ventilation on a large scale, such as the entire abolition of intercepting traps, and the continuation of all soil and other waste pipes above roof level, would, by establishing a constant circulation of fresh air within the sewers, and the consequent neutralisation and removal of poisonous vapours, check, if not entirely prevent, the generation of sewer gas. But one great difficulty exists in adopting such a system of universal ventilation. Owing to the great variation in the heights of buildings in cities, as for instance, a two-storey building adjoining one of four or more storeys, the termination of the ventilating pipe at the roof level of the lower building would possibly discharge in close proximity to the windows of the higher building. Nevertheless, much could be done to improve the state of the air in the public sewers by carrying ventilating pipes from the sewers above the roofs of the many high buildings which are to be found in nearly all large towns.

The great importance of securing the fresh air disconnection of water-closets from soil pipes and drains being universally conceded, it is now only necessary to explain the unique method by which this most important problem has been solved by Messrs. George Jennings. In the patent "Century" closet with syphonic discharge, an entire innovation in the practice of sanitary engineering has been introduced, inasmuch as in connection with this apparatus there are two traps or hydraulic seals, one being 3 inches in depth and formed in the closet basin; the other 1½ inch in depth, formed of lead or other suitable material placed at the end of the syphonic outlet leg of the closet. It might at first sight appear in absolute defiance to all preconceived ideas and rules of sanitary engineering to place two hydraulically sealed traps in such close and intimate juxtaposition on the same line of drain or soil pipe, as the result has always hitherto been to confine or bottle

up fixed or stagnant air between the two water seals. This in course of time became converted into dangerous gas (commonly termed sewer gas) due to the passage of faecal and other impure matters; but, as will be noted, two air-pipes are provided between the traps of this closet, the upper ends of the two pipes being continued through the external wall of the building, and terminating in the open air. Whilst the closet is not in action there is thus a free and uninterrupted circulation of fresh air between the traps at all times. In the event of the seal of the lower trap becoming inoperative through evaporation, syphonage or excessive air pressure on the sewer side, due to compression caused by gales or tidal influences, the vitiated drain air would naturally escape through either or both of the air pipes, as the 3-inch seal in the closet basin would in this case form a reliable and effective barrier to any passage into the water-closet apartment or house. Furthermore, the air, whether stagnant, tainted or otherwise, must be driven outside the building, and when the working of the closet has ceased, the requisite quantity of pure fresh air to recharge the temporary vacuum is supplied and drawn through the upper ventilating pipe. This same procedure occurs whilst slops or waste waters are being discharged down the closet. The orifice of the outlet of the closet is 3 inches in diameter, equal to 7 square inches, consequently the atmospheric pressure effecting the discharge of the basin is equivalent to 100 lbs. ejecting force, insuring the complete and forcible conveyance of the contents of the basin throughout the entire system of drains and disconnecting chamber into the sewer, a result never before attained with any other form of closet.

At the monthly meeting of the Heywood and Middleton Joint Water Board it was reported that the expenditure on the new reservoir on Ashworth Moss to October 31, excluding 33,791*l.* for land purchased and interest during construction, amounted to 212,227*l.*, exclusive of plant amounting to 6,580*l.* The chairman stated that the new reservoir contained water to within a yard of the top water level, and so far the work had proved eminently satisfactory, no signs of leakage appearing in any direction.

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THE

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Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

**TENDERS, ETC.**

\* \* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

DURHAM.—Dec. 21.—For the County Council of Durham. Names of architects willing to submit competitive plans for training college for teachers. A selection of ten names will be made. An assessor will be appointed to adjudicate and select three designs. Premiums 250l., 100l. and 50l. respectively. J. A. L. Robson, secretary for higher education, Shire Hall, Durham.

RADCLIFFE.—Feb. 3.—The Radcliffe Urban District Council invite architects practising in Lancashire to submit designs and estimates for Council offices. Premiums of 75l., 50l. and 25l. offered for designs placed second, third and fourth. Mr. G. H. Willoughby will act as assessor. Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

WALES.—Dec. 19.—The Llandrindod Wells Urban District Council invite competitive schemes for (a) laying-out recreation ground; and (b) erecting a pavilion and other buildings. Full particulars are obtainable from Mr. D. C. Davies, clerk, Llandrindod Wells.

**CONTRACTS OPEN.**

ANDOVER.—Dec. 19.—Separate tenders, endorsed "No. 1" and "No. 2" respectively, for execution of the following works:—(1) Rebuilding Charlton Bridge parapets; (2) repairing the Andover Town Bridge. Mr. R. Walter Knapp, borough surveyor, Town Hall, Andover.

BAKEWELL.—Dec. 21.—For erection and completion of new closets, coal places and urinal at the union workhouse. Workhouse Master's Office, Bakewell.

BARROW-IN-FURNESS.—For erection of a flight of stone steps and work in connection therewith, at the secondary school, Duke Street. The Borough Engineer's Office.

BARROW-IN-FURNESS.—For construction of laboratory benches and plumbers' work in connection therewith, breaking out window and door, &c., at the secondary school, Duke Street. The Borough Engineer's Office.

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**BRIDGNORTH.**—Dec. 31.—For erection of a secondary school at Bridgnorth, Salop, to accommodate 200 pupils. Deposit 1*l*. 1*s*. after December 12. Messrs. Pritchard & Pritchard, architects, Kidderminster.

**BRISLEY.**—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

**BRISTOL.**—Dec. 17.—For erection of a boundary wall and wrought-iron gates, St. Andrew's Church, Avonmouth. Mr. T. H. Yabbicom, M.I.C.E., city engineer, 63 Queen Square, Bristol.

**BROOMHILL.**—Dec. 23.—For erection of a Presbyterian church at Broomhill, Northumberland. Mr. George Reavell, jun., architect, Alnwick.

**BURY.**—Dec. 18.—For rebuilding fronts of shops. 60, 62 and 64 Bolton Street, and 38 Rock Street. Mr. Arthur W. Bradley, A.M.I.C.E., borough engineer, Bury, Lancs.

**CADISHEAD.**—Dec. 16.—For erection of a public elementary school at Cadishead, near Manchester, to accommodate 450 children. Deposit 2*l*. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

**CAISTOR.**—Dec. 20.—For construction of waterworks at Caistor, Lincolnshire, consisting of pumping station, with machinery complete, covered service reservoir and distribution mains, for the Rural District Council. Deposit 5*l*. Mr. E. J. Silcock, M.I.C.E., Sanctuary House, 11 Tothill Street, Westminster, and 10 Park Row, Leeds.

**CARLISLE.**—Dec. 23.—For carpenters and joiners, plumbers, plasterers, slaters, and painters and glaziers' work in erection of four houses, Dalston Road, Carlisle. Mr. Matthew Johnstone, architect and engineer, 22 Lowther Street, Carlisle.

**COCKFIELD.**—Dec. 31.—For erection of a temperance institute. Mr. James Howe, Cockfield, S.O., co. Durham.

**COLCHESTER.**—Dec. 17.—For erection of mortuary at east end of St. Peter's Street, immediately opposite the lower entrance of the Castle Park. Deposit 1*l*. 1*s*. Mr. Herbert Goodyear, A.M.I.C.E., borough engineer and surveyor, Town Hall, Colchester.

**COLCHESTER.**—Dec. 19.—For erection of pavilion in the new portion of the Castle Park. Deposit 1*l*. 1*s*. Mr. Herbert Goodyear, A.M.I.C.E., borough engineer and surveyor, Town Hall, Colchester.

**COVENTRY.**—Dec. 16.—For supply and erection at Foleshill works of a boiler-house roof, 54 feet long by 48 feet 6 inches wide, comprising about 3 tons of cast-iron and 18 tons of steelwork; also for delivery to the Corporation gasworks sidings of sundry cast and steelwork, comprising about 18½ tons of casting and 5 tons of steelwork. Payment 10*s*. 6*d*. Mr. Fletcher W. Stevenson, engineer and general manager, Gasworks, Coventry.

**EAST ROUNTON.**—Dec. 21.—For widening, &c., East Rounton Bridge (stone), near Northallerton. The County Surveyor's Office, County Hall, Northallerton.

**FAKENHAM.**—Dec. 18.—For erection of Buckenham memorial church, Fakenham, Norfolk. Mr. A. F. Scott, architect and surveyor, 24 Castle Meadow, Norwich.

**FALMOUTH.**—Dec. 15.—For building of baptistry and porch at St. Mary's Catholic Church. The Rev. Father Burns, St. Mary's Presbytery, Falmouth.

**GLOSSOP.**—Dec. 23.—For erection of a public elementary school at Hadfield, in the borough of Glossop, on the site of the old Wesleyan school, Hadfield Road. Deposit 2*l*. Messrs. Ogden & Hoy, architects, Examiner Buildings, Strutt Street, Manchester.

**INGATESTONE.**—Dec. 16.—For rebuilding the Anchor inn, Ingatestone, Essex. Deposit 2*l*. 2*s*. Messrs. Charles & W. H. Pertwee, architects, Chelmsford.

**IRELAND.**—Dec. 30.—For erection of a public library at Kilkenny. Deposit 2*l*. 2*s*. Messrs. E. S. Lowrey & Son, 62 Dame Street, Dublin.

**IRELAND.**—Dec. 30.—For construction and erection of a galvanised corrugated iron shed, 50 feet by 18 feet, two storeys high, with steel framing and steel roof principals, at their Cookstown station, for the Great Northern Railway Company (Ireland). Payment 10*s*. Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin, or at the office of the district engineer, Belfast.

**LAMBERHEAD GREEN.**—Dec. 18.—For erection of a public elementary school at Lamberhead Green, near Wigan, to

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accommodate 500 children. Deposit 2*l*. Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

LANCASTER.—Dec. 30.—For various works (whole or separate) required in erection of Y.M.C.A. building, China Street. Mr. Spencer E. Barrow, A.R.I.B.A., architect, Liverpool Bank Chambers, Lancaster.

LANCHESTER.—Dec. 16.—For erection and completion of two houses. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

LEEDS.—Dec. 16.—For several trades—namely, bricklayer and mason's, carpenter and joiner's, plumber and lazier's, painter and couceter's work—required in the erection of covered ways (173 feet long) to connect block A, block E, block B, block E 1 (infirmary sections of the Leeds workhouse). Messrs. Thomas Winn & Sons, architects, 4 Albion Street, Leeds.

LEEDS.—Dec. 20.—For construction of a watertight reservoir, to be known as Leighton reservoir, comprising an earthwork embankment about 630 yards long, deep puddle and concrete trench, discharge tunnel, valve shaft, large basin, waste weir and by-wash, catchwater aqueduct about a mile in length, construction of a road, bridges, boundary walls, caretaker's house and other incidental works in connection therewith, situate on the Pott Beck in the urban district of Masham. Deposit 10*l*. Mr. C. G. Menzell, waterworks engineer, Leeds.

LONDON.—Dec. 16.—For enlargement of Western District Parcel Office and Mayfair Telephone Exchange. Deposit 1*l*. 1*s*. Mr. J. Wager, H.M. Office of Works, &c., Westminster.

LONDON.—Dec. 19.—For erection of additions to accommodate 176 scholars at the Central Council school, Shakespeare Road, Acton, W. Deposit 2*l*. 2*s*. Messrs. E. C. P. H. Monson, architects, 182 High Street, Acton, W.

LONGMOOR.—Dec. 18.—For erection of ten "b" married soldiers' quarters at Longmoor, in the Aldershot command. Deposit 10*s*. Mr. Harry B. Measures, director of barrack construction, War Office, 80 Pall Mall, London, S.W.

LYMINGE.—Dec. 21.—For repairs to house adjoining workhouse premises at Lyminge, Kent. Mr. R. Lonergan, clerk, 11 Cheriton Place, Folkestone.

LONDON.—Dec. 28.—For erection on school premises of a small house, North Surrey district school, Anerley, S.E. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

MANCHESTER.—Dec. 23.—For setting-back buildings in Regent Road and other works at Water Street cleansing depôt. Deposit 2*l*. 2*s*. The City Architect, Town Hall.

NEWARK.—Dec. 18.—For erection of a secondary school for 150 boys (including boarding accommodation) off London Road. Deposit 2*l*. 2*s*. Messrs. Sheppard & Lockton, architects, Bargate, Newark.

NEWCASTLE.—Dec. 16.—For extensive additions and alterations to the Middle Boys' school, Newcastle, Staffs. Messrs. A. R. Wood & Sons, architects, Tunstall and Burslem.

NORTH SHIELDS.—Dec. 17.—For erection and completion of stores and offices on the Union Quay. Deposit 2*l*. 2*s*. Mr. John F. Smillie, borough surveyor.

RAMSBOTTOM.—Dec. 16.—For new shop fronts to central premises, the Ramsbottom Industrial and Provident Society. Society's offices, 51 Bolton Street, Ramsbottom.

READING.—Dec. 31.—For erection of a dwelling-house for the farm steward at Manor farm, Whitley. Deposit 2*l*. 2*s*. Mr. John Bowen, A.M.I.C.E., borough engineer and surveyor, Town Hall, Reading.

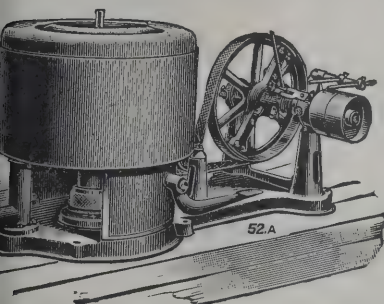
ROCHESTER.—Dec. 24.—For construction of a covered service reservoir (in concrete) at Broom Hill, Stroud. Deposit 2*l*. 2*s*. Mr. William Banks, A.M.I.C.E., city surveyor, Rochester.

SAFFRON WALDEN.—Dec. 16.—For enlarging present lavatory and providing new bath and eight lavatory basins, laying on hot and cold water to same, &c., at the workhouse. Mr. A. G. Edward, 51 High Street, Saffron Walden, Essex.

SCOTLAND.—Dec. 18.—For building a session house and for reseating and painting the United Free Church at Foveran. Contractors will be met there on December 14 at 11 A.M. Mr. Leslie Tait, Mill, Foveran.

SCOTLAND.—Dec. 19.—For the mason, carpenter plasterer, slater, plumber, painter and glazier and heating works of church and hall to be built at Kingussie. Mr. Alexander Cattanach, architect, The Laurels, Kingussie.

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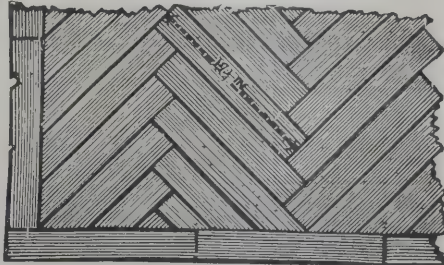


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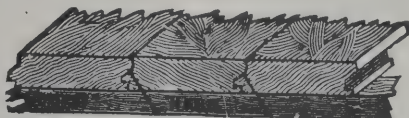
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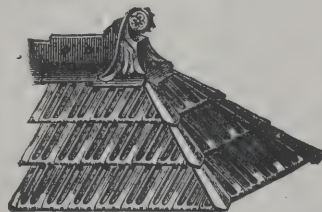


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**SCHOLES.**—Dec. 16.—For whole or separate tenders in connection with the erection of a school at Scholes, near Holmfirth. Deposit of 1*l.* to Treasurer, County Hall, Wakefield. Messrs. Joshua Barrowclough & Son, architects, Holmfirth.

**SWINDON.**—Jan. 1.—For erection of proposed balcony and verandah to Victoria Hospital. Messrs. Ainsworth & Pilcher, Central Chambers, Swindon.

**TATHAM.**—Dec. 18.—For rebuilding Clear Beck bridge, in the parish of Tatham, Lancs. Mr. John Beatson, surveyor to the Lunesdale Rural District Council, Hornby.

**THURNSCOE.**—Dec. 18.—For additional ventilation, heating, removal of gallery, &c., at Thurnscoe Provided school, Yorks. Mr. W. R. Hudson, divisional clerk, Educational Offices, Mexborough.

**WALES.**—Dec. 17.—For erection of a schoolroom at Brynna, Llanharan. Rev. D. Davies, 21 Chapel Road, Llanharan.

**WALES.**—Dec. 19.—For erection of two shops and dwellings and stables and premises at Porthcawl. Messrs. George F. Lambert & Son, Prudential Buildings.

**WALES.**—Dec. 20.—For alterations to old post office, Talysarn. Mr. Ellis F. White, architect, 17 Bridge Street, Carnarvon.

**WALES.**—Dec. 28.—For the following works at Pen-y-darren Council schools, for the Merthyr Tydfil education committee:—(1) Carrying-out alterations and additional classrooms, cloak-room, lavatories, &c., to three departments of present school, and erecting new latrines, boundary walls, asphalted playgrounds and laying new drains, &c.; (2) erecting new infants' school, with covered playgrounds, &c. Deposit 2*l.* 2*s.* Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

**WALES.**—Dec. 28.—For carrying-out alterations and erecting additional classrooms, cloak-rooms, &c., boundary walls, and forming new playgrounds, &c., at the Pant Council school, Merthyr Tydfil. Deposit 2*l.* 2*s.* Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

**WEYMOUTH.**—Dec. 24.—For erecting a bakery at Brownlow Street. Mr. S. Jackson, architect and surveyor, Bridge Chambers, Weymouth.

**WHITBY.**—For additions and alterations to the Conservative Club, Marine Parade. Mr. Geo. S. French, architect, Bank Chambers.

**WREXHAM.**—Dec. 18.—For construction of a girder bridge near Puleston Mills. Mr. T. Rees Evans, district surveyor, Johnstown.

Mr. H. G. Wells has just completed a long and important novel describing a fierce inter-continental campaign, in which dirigible war balloons play an important part. This story, "The War in the Air," is to be a leading feature in the *Pall Mall Magazine* during 1908, and the first instalment appears in the January part, published December 18.

**GREAT CENTRAL RAILWAY.**—The complete provision made by the great railway companies nowadays for the rapid conveyance of Christmas parcels and hampers is in striking contrast to the old-time methods, and the Great Central Railway Company are to the front in catering for the needs of the public at Christmas time, having made complete arrangements for the collection, quick transit and prompt delivery of Christmas packages in all the chief towns on their system. Frequent collections of parcels will be made at the receiving offices in London and the large centres, and the traffic will be despatched by the first available train after receipt. Special trains will be run, and through vans attached to the principal express and mail trains to accommodate the traffic. Reduced through rates are now in operation, and the minimum weights formerly charged on packages of perishables at owner's risk have been abolished and the charges are now computed at actual weight. The rates for parcels carried short distances are lower than those by parcels post, and in the case of longer distances the rates for parcels beyond 1 lb. by parcel post are not exceeded. A duplicate label should be enclosed in each package, so that the name of the consignee may be ascertained in the event of the outside address becoming detached or defaced. A van will be sent to collect anything you wish to despatch on ringing up Parcels Superintendent, Marylebone Station—No. 584 Paddington.

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Wheeler	3,344	9	3
Lavington Bros.	2,992	0	0
Neave & Son	2,956	0	0
Smith & Jefferies	2,936	16	5
Mann	2,830	3	0
Adams	2,535	6	0
Gibbons	2,345	0	0

For foundations, drains, roads, fences, water supply, &c., of isolation hospital, Mayslane. Mr. F. H. TRAYLEN, architect, 34 Great James Street, W.C.

Pendreth	£2,380	0	0
Boulton & Paul	2,337	0	0
Adams	2,282	0	0
Willmott & Sons	2,075	0	0
Wade	1,997	0	0
BENTHAM, Ritherdon Road, Balham, S.W. (accepted)	1,850	0	0

BRISTOL.

For rebuilding the Merchant Venturers' Secondary and Technical College. Mr. A. W. S. CROSS, M.A., architect, 46 New Bond Street, W. Quantities by Mr. A. G. CROSS, Caxton House, Westminster, S.W.

Forse & Son	£38,360	0	0
Perkins & Sons	37,500	0	0
Dearing & Sons	35,557	0	0
Humphreys & Sons	35,500	0	0
Wilkins & Sons	35,330	0	0
Cowlin & Son	35,237	0	0
Parnell & Son	33,571	0	0
Chessum & Son	32,987	0	0
WILLOCK & Co., Wolverhampton (accepted)	32,965	0	0

BARNSTAPLE.

For construction of sewer in the parish of Westdown. Mr. ERIC G. KINGWELL, surveyor, 85 Boutport Street.

Ellis	£428	0	0
Woolway	422	0	0
Somerville	386	0	0
Pigot	349	0	0
Slee	338	0	0
CARTER, Barnstaple (accepted)	294	0	0

BRIGHTON.

For providing sanitary fittings and external drainage at The Rookery, Preston Park, Brighton, for the East Sussex County Council. Mr. F. J. WOOD, county surveyor, Lewes.

BOSTEL BROS., Brighton (accepted).

BURHAM.

For new Council school, for Surrey education committee. Messrs. JARVIS & RICHARDS, architects, 36 Victoria Street, S.W.

Wakeham Bros.	£1,526	0	0
Tice	1,339	10	0
Higlett & Hammond	1,336	0	0
Burges & Sons	1,325	0	0
A. & F. Gammon	1,279	0	0
Ellis	1,259	0	0
Hawkins & Co.	1,247	6	0
Tribe & Robinson	1,230	0	0
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Thomas . . . . .	2,600	15	0
Johns Bros. . . . .	2,486	0	0
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Lewis & Thomas . . . . .	2,400	0	0
L. Davies . . . . .	2,399	0	0
Griffiths . . . . .	2,395	0	0
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Messom & Sons . . . . .	12,980	0	0
Lawrence & Son . . . . .	12,284	0	0
Rice & Sons . . . . .	12,107	0	0
Wall . . . . .	12,020	0	0
Beauchamp . . . . .	11,989	18	4
F. & E. Davey . . . . .	11,967	0	0
B. & E. Nightingale . . . . .	11,809	0	0
Renshaw . . . . .	11,793	0	0

## HOUNSLOW—continued.

Bendon . . . . .	£11,793	0	0
Martin, Wells & Co. . . . .	11,784	0	0
Drowley & Co. . . . .	11,679	0	0
Selway . . . . .	11,560	0	0
Patman & Fotheringham . . . . .	11,521	0	0
Winter . . . . .	11,500	0	0
Lamplough . . . . .	11,490	0	0
Hawkins & Co. . . . .	11,366	0	0
Spencer, Santo & Co. . . . .	11,350	0	0
Gray . . . . .	11,306	0	0
Thomas & Edge . . . . .	11,174	0	0
Gibson . . . . .	11,045	0	0
Dorey & Co. . . . .	10,865	0	0
Pye, Parkinson & Co. . . . .	10,828	0	0
LACEY, Hounslow (accepted) . . . . .	10,548	0	0
Hanson . . . . .	10,485	0	0
Architect's estimate . . . . .	10,483	0	0
Dickens . . . . .	10,421	0	0

## LITHERLAND.

For paving a portion of Hornby Boulevard, and other works in passages. Mr. A. H. CARTER, surveyor.

## Hornby Boulevard.

Hutton & Co. . . . .	£2,007	10	6
Ratcliffe . . . . .	1,917	7	6
Ireland . . . . .	1,798	9	6
Partington & Ascroft . . . . .	1,639	8	3
Meikle . . . . .	1,592	12	4
Yates . . . . .	1,564	12	8
Jackson . . . . .	1,516	12	3
Chadwick . . . . .	1,402	13	5
BALMER, Walton, Liverpool (accepted) . . . . .	1,289	1	2

## Passages.

Hutton & Co. . . . .	1,512	16	5
Meikle . . . . .	1,379	2	3
Ratcliffe . . . . .	1,321	17	6
Partington & Ascroft . . . . .	1,289	11	10
Yates . . . . .	1,243	1	5
Ireland . . . . .	1,141	6	7
Jackson . . . . .	1,100	9	3
Chadwick . . . . .	1,099	1	0
BALMER (accepted) . . . . .	1,015	9	0

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LITTLE KNELL.		LONDON—continued.	
For erecting two labourers' cottages. Mr. STANLEY H. PAGE, architect, 6 Queen Street, Ramsgate.		For erection of a manual training centre at Kennington Road school.	
Simmons . . . . .	£595 0 0	Jewell . . . . .	£1,523 5 0
Browning . . . . .	581 0 0	Downs . . . . .	1,456 0 0
Turner & Watt . . . . .	563 0 0	Wiles & Sons . . . . .	1,441 10 3
Grumant Bros. . . . .	410 0 0	Everitt . . . . .	1,390 0 0
MARTIN (accepted) . . . . .	375 0 0	Garrett & Son . . . . .	1,376 0 0
LLANDAFF.		Appleby & Sons . . . . .	1,363 0 0
For street works in Whitchurch Road. Mr. JAMES HOLDEN, engineer, Cardiff.		Akers & Co. . . . .	1,328 0 0
Evans . . . . .	£401 0 0	Holliday & Greenwood . . . . .	1,284 0 0
Brock . . . . .	363 0 0	Galbraith Bros. . . . .	1,273 13 3
Davies . . . . .	358 0 0	Whitehead & Co. . . . .	1,268 0 0
Osmond & Sons . . . . .	347 0 0	Rice & Son . . . . .	1,265 0 0
F. C. Williams . . . . .	342 0 0	Bulled & Co. . . . .	1,259 2 5
T. R. WILLIAMS, Cardiff (accepted) . . . . .	324 0 0	Triggs (recommended) . . . . .	1,230 0 0
LONDON.		For constructing road out of Squires Lane. Messrs. CHARLES SPARROW & SON, surveyors, Finchley, N.	
For sinking well and providing and fixing pumping plant at public baths, Manor Place, S.E. Mr. A. HARRISON, borough engineer.		Rawkins & Jackson . . . . .	£2,208 0 0
Mather & Son . . . . .	£3,989 0 0	Iles & Son . . . . .	2,030 0 0
Potter & Co. . . . .	3,420 0 0	Mann . . . . .	1,957 0 0
Williams & Co. . . . .	2,099 0 0	Smith & Jefferies . . . . .	1,925 9 1
Tilling & Sons . . . . .	2,095 1 0	Adams . . . . .	1,824 15 11
Nunn . . . . .	1,880 5 0	Rogers & Co. . . . .	1,728 0 0
Matthews . . . . .	1,846 0 0	Wheeler . . . . .	1,719 10 11
HAYWARD-TYLER & Co., Queen Victoria Street (accepted) . . . . .	1,422 15 0	Ballard . . . . .	1,719 3 4
Potter & Co. . . . .	1,081 10 0	Neave & Son . . . . .	1,669 0 0
For the erection of business premises at 214 and 216 Borough High Street, S.E., for Messrs. Mathews & Co., bakers' fitters, of 152 Borough High Street. Mr. V. VAGNOLINI, architect and surveyor, 33 Stirling Road, Clapham Rise, S.W.		Killingback & Co. . . . .	1,581 0 0
Shepherd & Co. . . . .	£3,500 0 0	GIBBONS (accepted) . . . . .	1,544 0 0
Downs . . . . .	3,125 0 0	For extension of London County Council School of Building, Brixton.	
Parsons . . . . .	2,187 0 0	Foster & Dicksee . . . . .	£27,318 0 0
RICE & SON, Stockwell Road, Clapham Road, S.W. (accepted) . . . . .	2,121 0 0	Spencer, Santo & Co. . . . .	26,859 0 0
		Kirk & Randall . . . . .	26,397 0 0
		Smith & Son . . . . .	26,395 0 0
		Barker & Co. . . . .	26,229 0 0
		Holloway Bros. . . . .	26,000 0 0
		Wall . . . . .	25,900 0 0
		Leslie & Co. . . . .	25,414 0 0
		Patman & Fotheringham . . . . .	25,243 0 0
		Lawrance & Sons, Wharf Road, City Road (recommended) . . . . .	24,996 0 0

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## LONDON—continued.

For construction of women's underground convenience at Elephant Headway, Southwark. Mr. A. HARRISON, borough engineer.

Wisdom Bros..	£1,490	0	0
Doulton & Co.	1,310	0	0
Mather.	1,200	0	0
Nightingale.	1,085	0	0
Patman & Fotheringham	1,043	0	0
Jennings, Ltd.	1,015	0	0
Marshall & Sons.	985	0	0
Francis	960	0	0
ROBERTS & Co., Highbury, N. (accepted)	796	0	0

For making-up and paving of Montolieu Street, Putney. Mr. P. Dodd, borough surveyor (western district), Wandsworth.

Chittenden & Simmons.	£470	0	0
Young & Ashford.	425	0	0
Wood & Sons	421	14	9
Potter & Co.	380	0	0
Mears	376	0	0
Iles.	359	12	6
Etheridge	357	0	0
Adams	356	0	0
Mowlem & Co.	349	0	0
Parry & Co.	349	0	0
Dykes	340	0	0
Wheeler	337	0	0
Hoffman (recommended)	351	8	4

For making-up and paving Pirbright Road, Southfields. Mr. P. Dodd, borough surveyor (western district), Wandsworth.

Hoffman	£2,045	14	0
Fry Bros.	2,030	6	9
Mowlem & Co.	1,999	0	0
Potter & Co.	1,986	10	0
Wheeler	1,973	0	0
Kavanagh & Co.	1,937	0	0
Etheridge	1,901	0	0
Dykes	1,890	0	0
Lane (recommended)	1,697	0	0

## LONDON—continued.

For erection of manual training centre on the Roman Road site (Bow and Bromley).

Wall	£1,128	8	4
Wood	1,085	0	0
Perry & Co.	1,019	0	0
Snewin Bros. & Co.	998	0	0
Ford & Walton	977	10	7
Thomson & Beveridge	948	0	0
Killby & Gayford	930	0	0
Lawrance & Sons	908	0	0
McCormick & Sons	905	0	0
Lawrence & Son	903	0	0
Symes.	890	0	0
F. & T. Thorne	881	0	6
J. Chessum & Sons, Bow (recommended)	850	10	7

For erection of six shops in Uxbridge Road, Shepherd's Bush, W. Mr. J. H. RICHARDSON, architect, Hammer-smith.

KINGERLEE & SONS, Oxford (accepted). £7,308 0 0

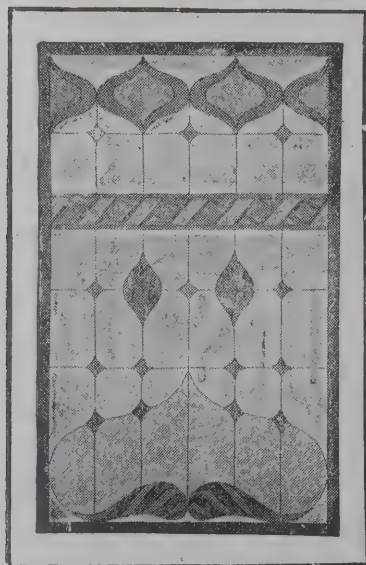
For alterations and additions to 62 Great Cumberland Place, W. Mr. F. W. FOSTER, architect, Bedford Row. KIKKBY (accepted). £2,381 0 0

## MORTLAKE.

For the construction of additional bacterial filters for Messrs. Watney, Combe, Reid & Co.'s Brewery. Mr. WILLIAM FAIRLEY, engineer, 69 Victoria Street, Westminster.

Jennings, Ltd.	£2,487	0	0
Pedrette	2,283	2	11
Woodham & Sons	2,200	9	0
Pethick Bros.	1,994	0	0
Jackson	1,929	4	7
Hyde & Co.	1,844	0	0
Kavanagh & Co.	1,825	11	0
Catley	1,684	0	0
Harrison & Co.	1,594	0	0
Griffiths & Co.	1,578	16	0
Jackaman & Son	1,535	0	0
Jarman, Daws, & Co.	1,531	0	0

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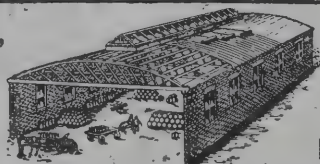
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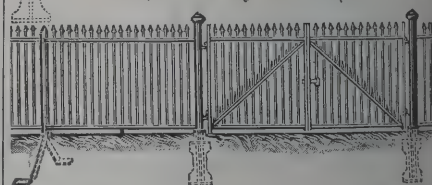
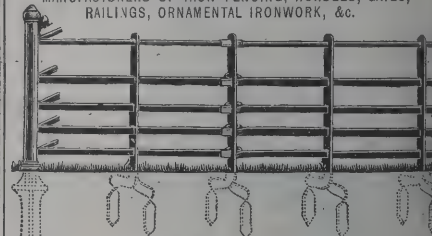
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**NOTTINGHAM.**

For erection of hall.

EVANS (*accepted*) . . . . . £17,272 0 0**NUTLEY.**

For erecting motor-house for Countess De la Warr. Mr. F. W. FOSTER, architect, Bedford Row.

GODLEY, Crowborough (*accepted*) . . . . . £731 0 0**SEISDON.**

For construction of a pumping station and turbine-house and other works. Mr. SIDNEY R. LOWCOCK, engineer, Westminster, S.W.

Mason . . . . .	£18,784	2	4
Lovatt . . . . .	12,609	17	0
Tilt Bros. . . . .	10,359	15	2
Horton . . . . .	9,612	0	0
Meredith . . . . .	8,537	7	0
Neal . . . . .	8,530	0	0
Law . . . . .	7,615	0	0
Harper . . . . .	7,610	0	0
Dean . . . . .	7,561	6	11
Edwards & Co. . . . .	7,532	15	8
Hadley & Sons . . . . .	7,483	9	6
Vale & Sons . . . . .	7,471	15	10
H. Holloway . . . . .	7,386	6	6
Guest & Son . . . . .	7,174	0	0
G. HOLLOWAY, Wolverhampton ( <i>accepted</i> ) . . . . .	6,700	0	0

**SPENNYMOOR.**

For flagging of the footpath from the Tunnel to Merrington Lane.

Thompson & Barnes . . . . .	£303	15	0
Pickering . . . . .	270	8	0
CROMBIE & SON, Middlesbrough ( <i>accepted</i> ) . . . . .	236	16	0

**WALES.**

For alterations to the Bull hotel, Ebenezer, near Carnarvon. Mr. RICHARD HALL, architect, Masonic Chambers, Bangor.

R. & H. Hughes, general work . . . . .	£182	10	0
Jones, plumbers' work . . . . .	41	0	0

(Received too late for classification.)

**BIRMINGHAM.**

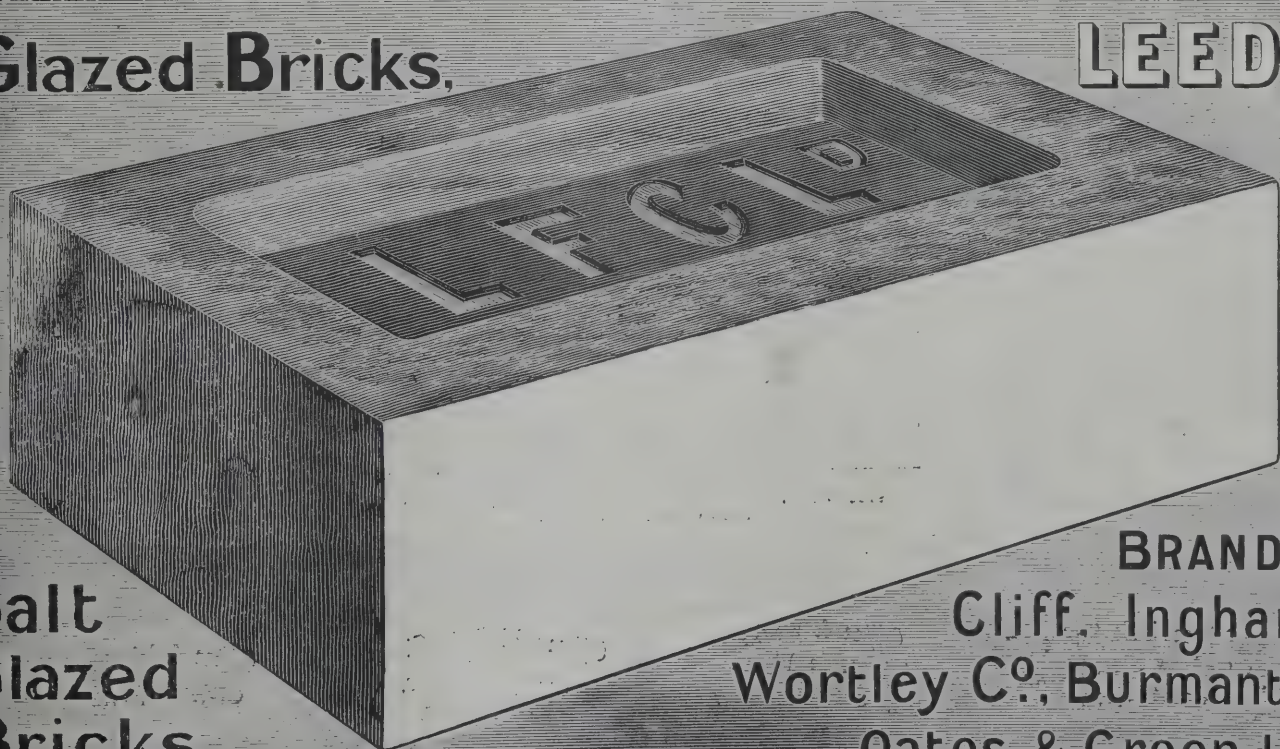
For the extension of the Council House buildings, first contract, comprising work up to level of upper ground floor. Messrs. H. V. ASHLEY &amp; WINTON NEWMAN, architects, 14 Gray's Inn Square, W.C. Quantities by Mr. ANTHONY ROWSE, King's Court, 117 Colmore Row, Birmingham; and Mr. HUGH WATKINS, 12 Gray's Inn Square, W.C.

Extra for Granite  
in lieu of Darley  
Dale Stone.

Trentham . . . . .	£33,935	0	0	£2,053	0	0
Frith . . . . .	33,378	0	0	200	0	0
Cunliffe . . . . .	32,600	0	0	2,000	0	0
Clifton . . . . .	32,470	0	0	1,470	0	0
Fish & Sons . . . . .	32,350	0	0	1,900	0	0
Hughes . . . . .	32,292	0	0	2,064	0	0
Davies . . . . .	32,190	0	0	2,077	0	0
Dallow & Sons . . . . .	31,500	0	0	1,500	0	0
Blake . . . . .	31,000	0	0	1,693	0	0
Mussellwhite & Sapp . . . . .	30,328	0	0	2,430	0	0
Pattinson & Sons, Ltd. . . . .	29,850	0	0	2,000	0	0
Sapcote & Sons . . . . .	29,755	0	0	1,500	0	0
Johnson . . . . .	29,703	0	0	1,939	0	0
Willcock & Co. . . . .	29,612	0	0	2,555	0	0
Lovatt, Ltd. . . . .	29,285	0	0	1,310	0	0
Fenwick, Ltd. . . . .	28,970	0	0	3,799	0	0
Bishop . . . . .	28,849	0	0	3,499	0	0
Parnell & Son . . . . .	28,500	0	0	2,875	0	0
Harper . . . . .	27,990	0	0	3,000	0	0
Bowen & Sons . . . . .	27,646	0	0	3,276	0	0
W. & J. Webb . . . . .	27,475	0	0	2,890	0	0
Whitehouse & Sons . . . . .	27,441	0	0	1,650	0	0
WaringWhite BuildingCo. . . . .	27,190	0	0	2,900	0	0
Lowe & Sons . . . . .	26,990	0	0	2,990	0	0
Barnsley & Sons . . . . .	26,666	0	0	3,000	0	0
Moss & Sons, Ltd. . . . .	26,250	0	0	2,260	0	0
Rowbotham, Coventry Road, Small Heath, Bir- mingham ( <i>recommended</i> ) . . . . .	25,877	0	0	2,906	0	0
Hopkins . . . . .	25,000	0	0	2,220	0	0
Architect's estimate, £28,700; extra for granite, £1,900.						

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## WATFORD.

For erection of new house and stabling, &c., in Park Avenue, for Mr. L. T. Simmons. Mr. G. RICKETT, architect, 195 Harwood Road, Watford.

Bracey & Clarke . . . . .	£1,115	0	0
Darvill . . . . .	998	0	0
CLIFFORD & GOUGH ( <i>accepted</i> ) . . . . .	979	0	0

## TRADE NOTES.

IN view of the serious fire which has recently occurred at Messrs. Gamage's premises in Holborn, it behoves everybody to consider taking precautions to prevent the spread of fire by using a good fireproof material, such as Uralite, which has come under our notice in many instances. Where woodwork is exposed to fire, a great danger is averted by covering the same with Uralite. It is easily fixed, being cut with a saw in the same manner as wood, and lends itself to rapid erection.

UNDER the direction of Mr. E. T. Johns, architect, Ipswich, the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the manual instruction centre, Ipswich.

THE British Flooring Company, of 152 Gray's Inn Road, London, W.C., have appointed Mr. Jos. Grey, of 33 High Bridge, Newcastle-on-Tyne, their representative for the North of England. The company have recently secured contracts in Grosvenor Square, Wimpole Street, Bruton Street, Old Bond Street, Edmonton, Luton, Oxford, Birmingham (several), Wishaw, and South Wales, for parquet, wood blocks, mosaic, marble tiles and cementolith floors.

MESSRS. J. B. JOYCE & Co. have just completed the erection of a large Cambridge quarter clock at Broughton-in-Furness Church, and also a striking clock with two dials at Kenfield Hall, near Canterbury. The same firm are making a large striking clock with three dials 6 feet in diameter for the new offices at Hawarden Bridge Steel Works, Shotton, Flints, and a similar one for Trafford Park, Manchester, for the new offices of Messrs. Norbury, Natzion & Co.

THE Stepney Borough Council have accepted the tender of Messrs. Babcock & Wilcox, at 8,523*l.*, for the boiler-house equipment at the Blyth's Wharf generating station, and the tender of Messrs. Willans & Robinson, at 28,140*l.*, for the complete equipment of the generation portion of the station plant.

THE Council schools, West Cowes, are being ventilated by means of Shorland's patent exhaust roof ventilators and hygienic inlet ventilating panels, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

MESSRS. LIBERTY & Co., LTD., are carrying out the contract for decorating and furnishing three floors, containing 150 rooms, of the new Piccadilly Hotel in the Early English, Georgian, French and what has become known as the Liberty styles.

MESSRS. FARNHAM, LTD., are now carrying out, by their sand blast process, the restoration to its original colour of the stonework of the older portion of the premises of Messrs. Thos. Cook & Sons, Ludgate Circus, under the supervision of Messrs. Smee & Houchin, Byron House, 82-5 Fleet Street. On completion of the work, the old portion of the premises—although built over thirty years ago—will harmonise with the new extension just being completed. The same firm have just completed the waterproofing by paraffin wax and the cleaning by sand blast of the frontage of the old portion of Messrs. Hall Higham's warehouse in Dale Street, Manchester, so that the old work shall tone with the new extension of the warehouse, which is now being completed. The work has been carried out under the supervision of Messrs. Charles Heathcote & Sons, architects, 64 Cross Street, Manchester.

MESSRS. HERRING, SON & DAW desire to announce that, in consequence of impending rebuilding, they have removed their City offices to No. 12 Old Jewry Chambers, E.C., and they desire that all future communications should be forwarded to them at that address.

WE have received the Christmas number of the *Quarry*, which contains a reproduction of "Iona" marble in natural colours, together with an interesting article on the subject, with block analyses of the chemical composition.

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## ILLUSTRATIONS.

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DENHOLME, WALTON-ON-THAMES.

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FROM SOUTH.

## VARIETIES.

THE Hornsey Borough Council has received the sanction of the Local Government Board to borrow 40,000*l.* for the erection of workmen's dwellings.

MR. FRANCIS RECKETTS, of Queen's Gate, London, has given 10,000*l.* to the Great Northern Hospital, Holloway Road, N., for the building of a convalescent home in connection with the hospital.

IN pursuance of the agreement under which the London and Lancashire Fire Insurance Company acquired control of the Standard Marine Insurance Company, Ltd., Mr. Wellington Archbold Williams has now been appointed managing director of the latter company, and Mr. James Primrose Rudolf, underwriter.

"LONDON by Night" forms the subject of one of the most noteworthy articles in the Christmas number of *Harper's Magazine*, which, in addition to much entertaining and instructive literature, contains an interesting account of the "Civilisation of Ancient Babylon," while the numerous illustrations throughout are of the usual high class.

THE Gorton Council has decided to make application to the Local Government Board for sanction to borrow 11,349*l.*, the expenditure in respect of the new tramways which have been laid in Gorton Lane, Wellington Street and Reddish Lane, which connect Stockport with Reddish, Gorton, Openshaw and Cheetham Hill.

MESSRS. CHUBB & SON, lock and safe manufacturers, have acquired land on the Wednesfield Road, Wolverhampton, for the purpose of erecting thereon large works.

Nearly ten years ago the firm erected new works in Railway Street, but these are too small for the great growth of business. Messrs. Chubb propose, it is believed, to transfer their London workmen to Wolverhampton.

THE Westminster City Council have decided to purchase the freehold interests of certain property in Wardour Street, necessary for the improvement of that thoroughfare. It was stated that the initial expenditure on the scheme would be 10,000*l.* In the last six years Westminster has spent no less than 500,000*l.* on improvements. The London County Council decline to contribute to the scheme.

FROM Columbia Mr. Consul Gillies writes that the city of Barranquilla has greatly improved during recent years. The streets, which were in very bad order, are now being attended to, and are being provided with good pavements. An impetus has been given to house construction by the cheapness of the sandstone bricks, which are made in very large quantities in the immediate vicinity of the city. Large lots of this brick have been exported to Cuba and also to Panama for construction purposes.

AT a meeting of Birmingham University a letter was read from Lord Calthorpe offering to give about 20 acres of land, formerly used as a Volunteer rifle range, as a recreation ground in connection with the university. The land, which adjoins the new university buildings at Bournbrook, is valued at 15,000*l.*, and follows a gift by his lordship and his brother in 1900 of the 27 acres which form the site of the new buildings, and which was estimated to be worth 20,000*l.* The offer was gratefully accepted.

THE minutes of the sewage committee of the Glasgow Corporation report that prolonged negotiations took place with Messrs. Kinnear, Moodie & Co. regarding the extraordinary work and expense incurred in the construction of sewer No. 1 of the southern district sewage works through old coal workings in Darnley Street. The contractors have now agreed to accept 60,000*l.* in full settlement of their contract. Mr. A. B. Macdonald, the city engineer, reports the whole of the excess of 14,618*l.* 11*s.* which will result in the cost of the contract is due to the extraordinarily heavy protective works rendered necessary to secure the sewer in the old coal workings.

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At the old town hall, Cardiff, last week, the property, which comprised the old town hall, the old post office, the old police station, police court, parade ground and other buildings, making altogether a self-contained site nearly an acre in extent, freehold, with splendid frontages to St. Mary Street, Westgate Street, and a new 40-foot street connecting the two streets mentioned, was put up for auction. Bidding commenced at 25,000*l.*, then there came offers of 27,000*l.* and 30,000*l.*, and this was increased by 1,000*l.* bids until 36,000*l.* was reached, when bidding stopped. On behalf of the Corporation, Mr. Douglas Young then bid 65,000*l.* for the property, which was bought in.

WHILE the total units sold by the Marylebone municipal electric undertaking in the quarter ended June 30 last were 1,600,776, against 1,487,114 in the corresponding six months, 1906, the average price realised per unit in the former quarter was 4.031*d.*—"a serious fall," the electrical accountant (Mr. E. J. Jennings) reports, "from the estimated yield average for the year of 4.95*d.*" He considers that the average price for the year, inclusive of meter rentals, will not exceed 4.4*d.* He attributes the lower yield (1) to the fact that the new business is of necessity larger for the cheaper classes of supply—motor and heating purposes, basement and sign-lighting; (2) to the fact of an increased number of "old" subscribers availing themselves of the new tariff with the result that in seventy investigated cases the fall in the average price exceeded 50 per cent.

CHRISTMAS ON THE CONTINENT.—Exceptional facilities are offered by the Great Eastern Railway Company's British Royal Mail Hook of Holland route for visiting Holland and Germany during the Christmas holidays. Passengers leaving London in the evening, and the Northern and Midland counties in the afternoon, arrive at the principal towns in Holland the following morning, Cologne at noon, Berlin, Dresden and Bale in the evening. A corridor train, with vestibuled carriages, dining and breakfast cars heated by steam, is being run on the Hook of Holland service between London and Harwich. Through carriages and restaurant cars are run to Berlin, Cologne and Bale. Tickets at reduced fares will be issued to Brussels *via* Harwich and Antwerp December 21, 23, 24 and 26, available for eight days. Tickets dated to suit the convenience

of passengers can be obtained at the continental inquiry or booking offices, Liverpool Street station.

At a meeting of Inverkeithing Town Council last week a report was submitted by a committee appointed to inquire into a complaint by a ratepayer that Mr. J. Lambert, who is Dean of Guild, had been entrusted with Town Council contracts. The report stated that it was not the case that the Dean had been employed by the Council, but his son, Mr. Wm. Lambert, had on several occasions tendered for work and his offers had been accepted. The Council accepted the offers in the belief that Mr. William Lambert was acting as an independent contractor, and the committee were not in a position to say that that belief was not justified. While they recommended that no action be taken with regard to the complaint, they suggested that it might be a matter for after consideration whether the Council should employ Mr. Wm. Lambert for slater or plasterwork while his father remained a member of the Council. By the casting vote of the chairman the report was accepted.

In a worthy spirit of enterprise the Great Central Company are catering handsomely for the Yuletide traffic. Most extensive arrangements have been made for the running of express trains, with buffet-car accommodation, at excursion fares from Marylebone on Sunday, December 22, Tuesday, December 24; Wednesday (Christmas day) and Thursday (Bank Holiday). The cheap bookings apply to over 300 of the principal towns and holiday resorts in the Midlands, Yorkshire, Lancashire, Lincolnshire and the general districts of the North. The facilities on the Sunday and Tuesday are offered in order that the convenience of different sections of the travelling public may be suited. The compartments of the trains represent the acme of comfort. They are luxuriously upholstered, well lighted, perfectly ventilated and maintained at a genial temperature, without being stuffy. It is good to see a railway company so closely studying the needs of its patrons. Shopkeepers and others whose business will keep them in town until late on Christmas Eve will have the advantage of suitable trains to take them for the "home holiday" of the year. On applying at Marylebone station or any of the company's town offices, or sending a postcard to Publicity Department, 216 Maryle-

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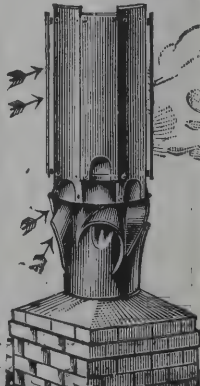
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For Index of Advertisers see page x.



bone Road, N.W., intending passengers will be supplied free of cost, with A.B.C. excursion programme, from which they can readily ascertain just how, and at what cost, a long or short journey may be taken over this comfortable and expeditious system.

IN a contribution to the Royal Society of New South Wales, Mr. H. D. Walsh, M.Inst.C.E., the engineer to the Sydney Harbour Board, deals with the serious trouble caused by the ravages of various marine worms in timber piles used for the construction of harbour works. As the same organisms now infest all tidal waters in Great Britain, the subject is one that appeals to harbour authorities, wharf-owners and others concerned in the provision of accommodation for shipping of various classes. In addition to the limnoria which honeycombs soft timber, and the sphæroma whose action is to erode the surface layers, we have the formidable teredo, a worm sometimes attaining the length of 6 feet and the diameter of more than half an inch, and capable of boring into the hardest woods. Mr. Walsh says the teredo easily and rapidly 'riddles' iron-bark piles, and that the only timber which it dislikes is the Australian turpentine. Various expedients have been tried for the protection of harbour works from these pests, a fairly successful but costly remedy having been a sheathing of Muntz metal. Unfortunately it has been proved by recent investigation that the metal is apt to corrode, leaving a brittle shell which is very easily damaged. A far better practice than any attempt to protect so perishable a material as timber is to abandon its use altogether in favour of ferro-concrete, a combination of steel and concrete which is immune from the attack of sea worms and unaffected by the slower but equally certain process of natural decay. These facts are abundantly proved by sea walls, quays, wharves and jetties in various British sea-ports.

At a meeting of the Rhyl Urban District Council, held on Monday, the 9th inst., the designs of Messrs. Maxwell & Tuke and F. Bennett Smith, F.R.I.B.A., of Manchester, were selected, after a competition limited to six architects, for the erection of a pavilion to accommodate 2,000 people, proposed to be erected by the Council on the foreshore at Rhyl, and which it is hoped will be ready for use early

next season. It is intended to construct the building of brickwork, faced with red and buff stock bricks with terracotta dressings, with verandahs and balconies on all sides. Owing to its unique position, the treatment of the exterior has been very carefully considered, so as to give a picturesque appearance when viewed from any point of the compass. There will be a turret at each end of the four angles with a large octagonal dome in the centre. The platform will be sufficiently spacious to accommodate the largest Welsh choir, and particular attention has been paid to the acoustic properties. Numerous entrances and exits have been provided, and as the Council intend to lay out the surrounding grounds as ornamental gardens and terraces, the combination should form a great attraction to Rhyl, and supply a long felt want. The successful architects have had a large and varied experience in the erection of entertainment buildings at sea-side and other resorts, since their firms were responsible for the construction of the Manchester Jubilee Exhibition in 1887.

#### SHEFFIELD CONTRACTORS.

THE following letter of protest has been sent by the Sheffield Master Builders' Association to the town clerk respecting the statements concerning construction of sewers:—

Cross Burgess Street, Sheffield:  
December 9, 1907.

Dear Sir,—We beg respectfully to call your attention to the report appearing in the daily papers of the Local Government inquiry held on Tuesday last, and to say that the evidence given by the city surveyor and the chairman of the highways committee reflects so seriously on the members of this Association that they considered it necessary to convene a special meeting yesterday for its consideration.

After considering the whole of the evidence given, the meeting unanimously passed a resolution protesting in the strongest possible terms against the persistent statements to the effect that nearly all the sewers laid by contractors were, when taken out, found to be defective.

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While the Association do not wish to positively state that every sewerage job done by a contractor has been finished in the very best possible manner, yet they are forced to the conclusion that any defects which may have existed should have been effectually remedied by the Corporation's supervision of the job, and on the other hand they could point to several instances of work done by the Corporation which have not turned out satisfactorily. They consider that the instance given of an award against the Corporation of 16,000% or 17,000%, when the Corporation thought the contract was completed, proves most conclusively that the plans and specifications must have been defective, and they cannot admit the implied inference that the Corporation could have completed this particular job in the same manner for 16,000% or 17,000% less than the contractor. Moreover, the balance of evidence, and disclosures from time to time, do not warrant the assumption that in all cases work can be done more cheaply by Corporation Works Departments.

The Association maintain that the work can be done as cheaply and as efficiently by contractors, and they cannot see why what is done every day in other large cities should be impossible at Sheffield. The inference to be drawn from the evidence as reported is therefore tantamount to branding the members of this Association and Sheffield contractors as a whole as utterly incapable, with the only alternative that it otherwise imputes to them a standard of business morality to which they even more strongly object. If the only evidence of an adverse character which can be brought forward is in relation to work done some fifteen years ago, surely that can be no reasonable argument against the contractors of to-day.

In conclusion, the Association, on behalf of the building trade of Sheffield, wish to protest most emphatically against such an unwarrantable attack on their business capability and honesty, and think that at least some explanation is due to them.—Yours very faithfully

(On behalf of the Association),

THOS. SMITH, Secretary.

Mr. H. Sayer, Town Clerk, Town Hall, Sheffield.

P.S.—A copy of this letter is being sent to the two local papers and to the President of the Local Government Board.

## ELECTRICITY AND FIRE RISKS.

At the monthly meeting of the Insurance and Actuarial Society of Glasgow Mr. T. Crichton Fulton read a paper on "Electricity: Where the Risk comes in." He said that he proposed to treat the risks associated with electricity into two classes—preventable and unpreventable. Amongst the former were the fusing of gas pipes through arcing from steel or other metal tubes which had become "alive" or charged with electricity from a leaky conductor, and which were either in direct contact with the gaspipes or in contact through some earthed metalwork in the building. This constituted a grave risk, and was responsible for about 40 per cent. of the electrically caused fires in Glasgow. Amongst other risks treated of by the lecturer were those due to bad workmanship, faulty material, materials and apparatus wrongly or carelessly erected, apparatus and fittings erected in wrong places. Most, if not all, of these risks could be obviated or greatly minimised by careful supervision, inspection and testing by competent engineers at the time the work is done, and especially by inspection at intervals to detect in time dangers due to the deterioration of materials. Amongst the so-called unpreventable risks, the lecturer classed all those that arose after the contractor was away from the job and the proprietor or consumer left to the freedom of his own will. Included amongst those were interference by other tradesmen who might be called in, and the numerous cases in which people in a house or building jeopardised property by ignorant usage or treatment of electric light or power apparatus, casings, tubings, wiring, or fittings.

## THE INSTITUTE OF SANITARY ENGINEERS.

The annual dinner of this society was held on Wednesday evening last at the Holborn Restaurant, Mr. W. J. Dibdin in the chair. Among those present were:—Dr. J. C. Thresh, M.D., D.Sc., Mr. W. R. Riley, F.R.I.B.A., Dr. W. R. Smith, M.D., D.Sc., Mr. W. Marriott, Dr. W. H. G. Macleod, Mr. W. Whitaker, B.A., F.R.S. and Mr. W. H. Maxwell

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The toast of "The King" was followed by that of "The Institute of Sanitary Engineers," proposed by Mr. W. Whitaker. In the course of a short speech Mr. Whitaker said the present was an age of specialisation, when it was no good to have merely gained the proficiency of an engineer—it was necessary to have something in front of the title. It was because of this that a great profession like the engineers would have departments which must be recognised by divisional marks and signs. He had been reading the presidential address to the Institution of Civil Engineers, and he found therein a note of congratulation because other societies were specialising in branches of engineers' work, and that those other societies had done the Institution no harm but much good. The Institute of Sanitary Engineers was doing well he felt sure, because it had been brought to his notice that the members were discontented, and they wanted something more than they possessed at present. Like some other societies, the Institute was in need of better quarters, and recently the members had agitated for new premises. Those were healthy signs, and he had come to the conclusion that their society was therefore in a flourishing condition. He hoped the members would never think their organisation was perfect, but always believe that there was still something further for them to do.

Mr. W. J. Dibdin, who replied to the toast, explained how he came to occupy the chair. Mr. Baldwin Latham, he said, was prevented from attending because of ill-health, and their President-elect was unavoidably absent owing to municipal duties. Mr. Dibdin believed discontent was not altogether bad for a society, and there was no doubt that the want of room in the present quarters of the Institute was a pressing need. He hoped it would not be long before they had a more congenial home. The number of members was increasing both in London and the provinces; and although there was some remedy in the establishment of branch centres, yet it was necessary to improve on the accommodation at headquarters.

Mr. T. B. Simmons (chairman of Council), who also replied, said he was glad Mr. Whitaker had mentioned the fact of the specialisation of the different societies. As was well known, the Institute was directly allied to the engineering profession, but they were, besides, an educational

body. With a view to making their educational work as interesting as possible a friend of the society had offered a gold and a bronze medal to the members. During the past year they had had an increase of sixty-three new members. The examinations held by the Institute showed an average of 60 per cent. in successful results. With regard to new offices he was pleased to be able to state that the Institute had acquired better premises in Victoria Street, and that the new President intended to deliver his opening address there on January 20 next.

Dr. Thresh proposed the toast of "Kindred Institutions," and said he could not make up his mind to which the Institute was most closely allied. He had no doubt, however, that one of the best societies an engineer could join was their Institute, for sanitary work meant the greatest good to the greatest number. He used at one time to think the increase of young societies was an evil, but he now believed they were justified in their formation. He felt, too, the younger bodies had galvanised many of the older societies into life, and that the latter were now becoming as energetic as some of the younger institutions. He suggested that it might be well if the sanitary bodies became affiliated in the same way as the medical societies had been brought together to form one Royal Society of Medicine, although each body remained distinct. If the sanitary societies could unite like that they would be more powerful than they were at present.

Mr. W. Whitaker in responding said there ought to be some federation between the sanitary societies with one common object. There might be some gain by federation, though care should be taken to avoid loss to any society. He thought there were too many men working independently, and so duplicating the results of others. As a young society the Institute should guard its independence, but they should be ready to hold out the hand of fellowship to others who were their colleagues. He believed the societies of the United Kingdom to be on the whole in a very healthy state, and that there was very little jealousy among them. There might be little differences now and then, but generally their efforts were wholly for the good of humanity. Mr. W. J. Dibdin proposed "The Visitors." Mr. W. E. Riley, F.R.I.B.A., and Mr. W. Marriott responded. The toast of "The Press" concluded the list.

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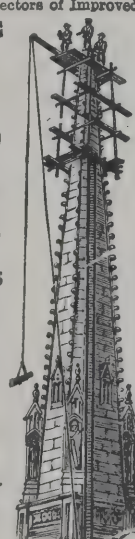
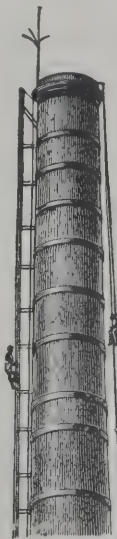
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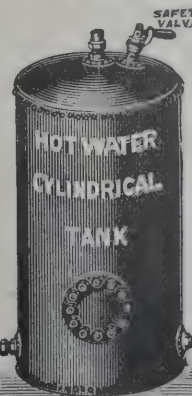
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## AN ELECTRICAL EXHIBITION.

It is proposed to hold an electrical exhibition in Manchester next year. The following arrangements are suggested by the promoters:—An influential president to be elected; a vice-president or presidents to be elected; a list of patrons to be secured; a general committee to be appointed, consisting of five representatives of corporations or councils donating to the funds, two representatives of supply companies donating to the funds, two representatives elected by the Institution of Electrical Engineers, one by the Municipal Electrical Association, three representatives of the National Electrical Manufacturers' Association, two representatives of the Electrical Contractors' Association, and five representatives from among the general exhibitors. From this general committee an executive or acting committee will be appointed, with full powers to carry out the scheme on behalf of the main committee. Hon. consulting engineers, Mr. S. L. Pearce and Mr. V. A. H. M'Cowen; general manager, Mr. C. S. Northcote; organising secretary, Mr. W. Davenport. Profits arising out of the exhibition are to be allocated—(1) In a percentage return to exhibitors; (2) a percentage return to donors; (3) a percentage to be contributed to charities connected with the electrical industry; and (4) a surplus, if any, to be dealt with by the committee. The circular adds:—"It is of interest to put on record that after providing somewhat heavily for expenses to carry through the Olympia Exhibition, several items of which it will not be necessary to incur in connection with the forthcoming one, a very substantial surplus of 3,793*l.* was available to be dealt with for the benefit of the trade, and was distributed in the following manner:—2,168*l.* was returned to exhibitors as a percentage upon their space rentals, 110*l.* was awarded in prizes, 1,000*l.* was allocated to the benevolent funds of the Institution of Electrical Engineers and of the National Electrical Manufacturers' Association, and 515*l.* was invested by the trustees as funds for holding another electrical exhibition under similar auspices in London. It is fully anticipated that the results of the forthcoming exhibition will materially exceed the figures named, as the combination of all interests connected with the electrical industry will insure harmonious working."

## NEW CATALOGUE.

The new catalogue of sanitary appliances manufactured by B. Finch & Co., Ltd., must strike everyone who opens it by the excellence of the illustrations, which present an array that is more than sufficient for the sanitation of the largest public institution. It is commonly supposed that such work need be of only the plainest forms. But whenever there is a possibility Messrs. Finch in their mountings and in their marblework and pottery produce pleasing forms. The ordinary householder will also consider it an advantage to have the prices given not only of an appliance as complete, but also of the prices of the details, however small. The public may be glad to know that periodic inspections are undertaken by Messrs. Finch, and cisterns, baths, traps, &c., kept in order at a reasonable rate. They also prepare plans and specifications in connection with sanitary installations for architects. Having had experience for half a century and undertaken contracts for the Office of Works, the Admiralty, railway companies, clubs, hotels and hospitals, Messrs. Finch's advice is worth seeking. The appliances include varieties of closets, lavatories, baths, sinks, fittings, hot-water cylinders, syphons, and, in fact, whatever is expected to be provided by sanitary engineers for public or private use or for hospitals. As equal care has been taken with each of the different varieties of goods, it would not be fair to describe any one class as if it were their specialty. But the fact that some of the appliances have been especially designed for the use of surgeons in hospitals and infirmaries suggests the confidence placed in Messrs. Finch and the tests to which their inventions are subjected.

By instruction of the Birmingham watch committee, Mr. A. R. Tozer, chief officer of the fire brigade, has circulated a printed notice calling attention to the large number of fires in the city which result from carelessness, especially in the following matters:—(1) Throwing down lighted matches, (2) leaving candles, lamps or gas burning near curtains, &c., (3) carelessness in airing clothing. The notice says:—"175 fires occurred in Birmingham this year from these causes alone. The dangers to life and property from fire being so enormous all citizens are earnestly requested to take every possible care in these matters."

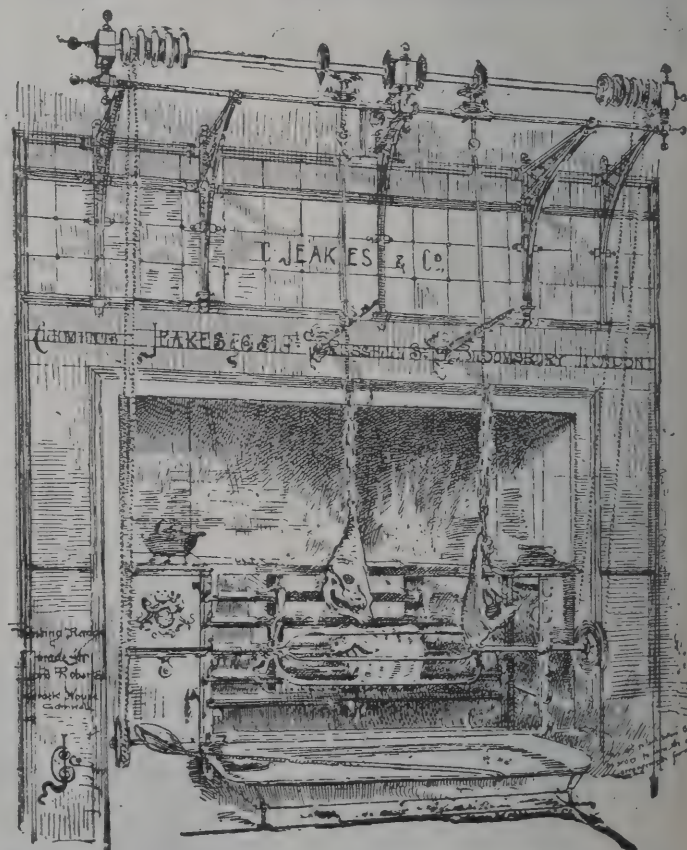
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**MUNICIPAL ENGINEERING.**

ON Monday Mr. George Green, borough engineer of Wolverhampton, read a paper before the members of the Midland Association of Local Government Officers upon "Some Aspects of Municipal Engineering." Mr. Green said that, amongst other things, the municipal engineer must be an expert in hospital construction, for it was unfortunately the case that no town was complete without accommodation being provided for people who contracted smallpox or scarlet fever. It was not necessary that the engineer should be an architect capable of designing a beautiful building, but it was essential for him to understand how to provide a hospital containing all those modern improvements best calculated to enable patients to recover, and also to prevent the spread of the disease to other members of the community. Respecting the making and maintenance of roads, Mr. Green said that, largely owing to the motor-cars, a number of new methods of road-making had recently come to the front. Roads which a few years ago were considered to be of the best type were now amongst the worst in the country, owing to the suction of the rubber tyres tearing up the binding and even the metal itself in wet, and particularly in frosty weather. There was also the fact that the cars created an appalling amount of dust as they were driven from town to town. This new problem which had to be faced by engineers had by no means been solved, chiefly owing to the great expense. He thought the most satisfactory solution would be found in treating the roads with some preparation of tar, either by using it as a matrix with the stone when being laid, or by painting it or spraying it on the surface after the work of construction was completed. The former method was the most expensive in the first instance, but where it could be carried out it was the best method.

**DISPERSAL OF FOG.**

THE Director of the Meteorological Office consented to examine and report upon the proposals of Signor Demetrius Maggiora "to prevent the formation of fog or to disperse it in case it is already formed, and also to disperse and destroy all clouds, and to prevent rain, hailstorms, lightning and thunder."

Dr. Shaw, who has now made his report, states with regard to the object of the invention:—"It once more raises the whole question of the possibility of affecting the weather by artificial means, which, whenever it has been investigated by competent authorities, has been decided in the negative, except in the special case of the lightning conductor." Apparently the process of bombardment which is the essential point of the invention in question has been recommended with similar confidence as a means of making rain instead of preventing it, in Australia and the United States, in which countries stress of weather is felt in the form of drought.

The report proceeds, with regard to the claim of the inventor to prevent hailstorms:—

"The prevention of hailstorms has been the subject of vast expenditure and prolonged investigation in Austria and Italy since the recrudescence in 1896 of the Mediaeval practice of weather shooting in a form of which Signor Maggiora's apparatus affords the largest model. This new form introduced some new features from the point of view of experimental physics, and the movement swept the whole of Southern Europe with a wave of enthusiasm for weather shooting. After much inconclusive discussion an international conference of experts was invited by the Austrian Government to meet at Graz in 1902. The conclusion arrived at was that there was probably no effect attributable to the shooting, but the evidence was not sufficiently clear to justify the categorical statement that the ineffectiveness had been proved. Further trials under careful conditions were therefore made in Austria under Professor Prohaska, and in Italy under a Government commission of which Professor Blaserna, senator, Professor of Physics in the University of Rome, was chairman. For brevity I quote only the concluding paragraph of Professor Blaserna's statement:—The final result of the whole campaign against hailstorms, which has lasted five years, is entirely negative. It would have been much more gratifying if we had found ourselves able to adopt in future an effective method for combating one of the greatest enemies of Italian agriculture. Nevertheless, though the final result is negative, it affords the consolation of finding ourselves in a position to state that no good is to be expected from the methods tried, and that

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we must protect ourselves from the effects of this scourge by entirely different methods."

The subject was also dealt with in an article in the "Meteorologische Zeitschrift," and Professor Pernter, director of the Austrian Meteorological Office, the writer of the article, who took an active part throughout the investigation referred to therein, states:—

"Henceforth the matter is disposed of. Not only among scientific men, but also among all objectively minded persons among agriculturists. The failures at Windisch-Feistritz and Castelfranco, and the ineffectiveness of rockets and bombs, as demonstrated by the Italian experiments, entitle us to say, 'Hereby the end of weather shooting is sealed.' In a footnote, Professor Pernter adds:—'No doubt the future will yet see many who seek salvation in weather shooting in spite of all and everything; but science is entitled to leave them to their imaginings. For us the matter is disposed of.'"

Dr. Shaw's report continues—

For all scientific meteorologists these conclusions are final. No further expenditure upon the artificial modification of weather in the form of hailstorms can be justified on scientific grounds.

The apparatus which Signor Maggiora now offers for removing London fog is apparently on similar lines to that supplied in Italy for dispersing hailstorms. From the scientific point of view, hail affords a much more specious opportunity for human interference than fog. The atmosphere is then in a state of great commotion preceded by abnormally unstable conditions. A London fog is incidental to conditions of unusual stability, and Signor Maggiora's memorandum suggests no physical process which could produce any effect in accordance with the known physical properties of the atmosphere.

It may be remarked that the weight of a cubic mile of air is about 5,000,000 tons, and consequently the weight of fog-laden air in the case of a fog a mile thick extending over the district of greater London alone is 3,000,000,000 tons. It is obviously useless to attempt the motion of so great a mass by mechanical action.

Dr. Shaw, in conclusion, states:—

I may sum up by saying that the claim to prevent or disperse fog is entirely unsupported by any evidence, the

claim to prevent rain is opposed by the more frequent claim of similar processes to produce rain in countries which suffer from drought, and the claim to affect hailstorms (which is associated with that regarding thunder and lightning) is not allowed by the scientific experts of Austria and Italy who have conducted special investigations on the subject for their respective Governments.

Having regard to the terms of this report, the public control committee do not feel justified in recommending the Council to expend money in connection with experiments with Signor Maggiora's apparatus, but at the same time they think that the inventor should be afforded facilities to undertake experiments at his own expense. They have been in communication with the main drainage committee in the matter, and are informed that there would be no difficulty in providing a site for the erection and experimental use of the apparatus on the northern outfall sewer embankment.

They have conveyed to Dr. Shaw our thanks for the valuable information which he has been good enough to furnish to the Council, and recommend:—

"That the main drainage committee be authorised to allow Signor D. Maggiora the use of a site, on land held for main drainage purposes, in order to enable him to conduct experiments with his apparatus for the prevention and dispersal of fog, and that the grant of any such facilities to Signor Maggiora shall be made on the distinct understanding that the experiments are not being carried out under the direction of the Council, and that the name of the Council shall not be used in any way in connection with any application for financial aid for working the invention."

The gas committee of Glasgow Corporation have come to an agreement with the Ironmongers and Plumbers' Associations regarding the supply and fitting-up of gas appliances (other than cooking stoves), the wages to be paid for such work, the terms on which the plumbers and ironmongers who are members of the associations are to be entitled to purchase goods from the Corporation stock, and the supply of gas for the purpose of exhibiting and giving in their premises demonstrations of gas appliances.

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**Under no circumstances whatever can the Proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.**

**EDITORIAL NOTICES.**

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

**TENDERS, ETC.**

*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

**COMPETITIONS OPEN.**

**DURHAM.**—Dec. 21.—For the County Council of Durham. Names of architects willing to submit competitive plans for training college for teachers. A selection of ten names will be made. An assessor will be appointed to adjudicate and select three designs. Premiums 250*l.*, 100*l.* and 50*l.* respectively. J. A. L. Robson, secretary for higher education, Shire Hall, Durham.

**ILFORD.**—The Governors of the Ilford Emergency Hospital invite plans for the erection of this hospital. Conditions and plans on receipt of 1*l.*, returnable. Premiums to amount of 150*l.* Mr. B. Henderson, hon. sec., 24 Mansfield Road, Ilford, Essex.

**RADCLIFFE.**—Feb. 3.—The Radcliffe Urban District Council invite architects practising in Lancashire to submit designs and estimates for Council offices. Premiums of 75*l.*, 50*l.* and 25*l.* offered for designs placed second, third and fourth. Mr. G. H. Willoughby will act as assessor. Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

**CONTRACTS OPEN.**

**AUDLEY.**—Dec. 31.—For proposed Council schools at Talke and Butt Lane, in the parish of Audley, near Newcastle, Staffs, for 300 and 400 children respectively. Deposit 1*l.* 1*s.* Mr. Graham Balfour, director of education, County Education Offices, Stafford.

**BAKEWELL.**—Dec. 21.—For erection and completion of new closets, coal places and urinal at the union workhouse. Workhouse Master's Office, Bakewell.

**BANHAM.**—Jan. 10.—For alterations and additions at the Banham school, Norfolk. Deposit 10*s.* Mr. E. J. Tench, architect, Royal Insurance Buildings, Upper King Street, Norwich.

**BECKENHAM.**—Jan. 6.—For extension of the destructor house at the electric light works, Church Fields Road. Mr. John A. Angell, surveyor, The Beckenham Urban District Council, Kent.

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**BILSTON.**—Jan. 18.—For erection of new schools at Bull-holes, Bilston, consisting of boys', girls', infants', and senior boys' and girls' departments, for 1,350 children, with out-offices and boundary walling. Deposit 1*l.* 1*s.* Messrs. Bailey & McConnal, architects, Bridge Street, Wallsall.

**BIRMINGHAM.**—Jan. 21.—For erection of a Council school in Leigh Road, Washwood Heath. Deposit 2*l.* Finance Office of Education Department, Edmund Street, Birmingham.

**BISHOP'S STORTFORD.**—Dec. 23.—For extending engine-house at the waterworks. The Council's Engineer, North Street, Bishop's Stortford.

**BLAYDON AND CHESTER-LE-STREET.**—Jan. 7.—The Durham County Council invite sole tenders for new council schools at Blaydon and Chester-le-Street. Plans, specifications and general conditions of contract can be seen and bills of quantities obtained as follows: (1) for Blaydon school—at the office of Mr. J. Morson, 77 Westgate Road, Newcastle-on-Tyne; (2) for Chester-le-Street schools—at the office of Mr. W. H. Knowles, 25 Collingwood Street, Newcastle-on-Tyne.

**BRIDGNORTH.**—Dec. 31.—For erection of a secondary school at Bridgnorth, Salop, to accommodate 200 pupils. Deposit 1*l.* 1*s.* after December 12. Messrs. Pritchard & Pritchard, architects, Kidderminster.

**BRISTOL.**—Dec. 27.—For erection of porter's lodge at Eastville Workhouse. Mr. J. J. Simpson, clerk to the Guardians, St. Peter's Hospital, Bristol.

**BRISLEY.**—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

**BROOMHILL.**—Dec. 23.—For erection of a Presbyterian church at Broomhill, Northumberland. Mr. George Reavell, jun., architect, Alnwick.

**CARLISLE.**—Dec. 23.—For carpenters and joiners, plumbers, plasterers, slaters, and painters and glaziers' work in erection of four houses, Dalston Road, Carlisle. Mr. Matthew Johnstone, architect and engineer, 22 Lowther Street, Carlisle.

**COCKFIELD.**—Dec. 31.—For erection of a temperance institute. Mr. James Howe, Cockfield, S.O., co. Durham.

**COVENTRY.**—Jan. 1.—For work required to be executed and materials supplied in erection of corn exchange and shops, Smithford Street. Deposit 1*l.* 1*s.* Mr. J. E. Swindlehurst, city engineer and surveyor, St. Mary's Hall, Coventry.

**DRIFFIELD.**—Dec. 23.—For erection of a motor garage. Mr. Joseph Shepherdson, architect, Lockwood Street, Driffield, Yorks.

**EAST ROUNTON.**—Dec. 21.—For widening, &c., East Rounton Bridge (stone), near Northallerton. The County Surveyor's Office, County Hall, Northallerton.

**EDINBURGH.**—Dec. 23.—For forming bathroom and linen presses in main house building, Craig-Lockhart Poorhouse. Mr. R. M. Cameron, architect, 53 Great King Street, Edinburgh.

**FOLKESTONE.**—Jan. 1.—For erection of elementary school in Chart Road. Deposit 1*l.* 1*s.* Mr. F. Newman, architect and surveyor, 4 Bouverie Street, Folkestone.

**GLOSSOP.**—Dec. 23.—For erection of a public elementary school at Hadfield, in the borough of Glossop, on the site of the old Wesleyan school, Hadfield Road. Deposit 2*l.* Messrs. Ogden & Hoy, architects, Examiner Buildings, Strutt Street, Manchester.

**GREAT HARWOOD.**—Jan. 7.—For erection of public elementary school and technical instruction block at Great Harwood, near Blackburn, to accommodate 900 scholars. Deposit 2*l.* Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

**GRIMSBY.**—Jan. 3.—For erection of a head post office. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's Gate.

**HULL.**—Jan. 8.—For erecting shops and offices in Victoria Square. Mr. W. Bell, architect, North Eastern Railway, Yorks.

**HASTINGS.**—Jan. 2.—For erection of a covered way at the workhouse, Frederick Road. Messrs. A. W. Jeffery & Son, architects, 5 Havelock Road, Hastings.

**IRELAND.**—Dec. 24.—For building a brick chimney, about 40 feet high, at Irvinestown. Mr. W. R. Irwin, secretary, Irvinestown Co-operative Dairy Society, Ireland.

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LANCASTER.—Dec. 30.—For various works (whole or separate) required in erection of Y.M.C.A. building, China Street. Mr. Spencer E. Barrow, A.R.I.B.A., architect, Liverpool Bank Chambers, Lancaster.

LICHFIELD.—Dec. 23.—For alterations to house and premises adjoining Dr. Johnson's house in Breadmarket Street. City surveyor.

LONDON.—Dec. 28.—For erection on school premises of a small house, North Surrey district school, Anerley, S.E. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

LYMINGE.—Dec. 21.—For repairs to house adjoining workhouse premises at Lyminge, Kent. Mr. R. Lonergan, clerk, 11 Cheriton Place, Folkestone.

MANCHESTER.—Dec. 23.—For setting-back buildings in Regent Road and other works at Water Street cleansing depôt. Deposit 2*l.* 2*s.* The City Architect, Town Hall.

NORTHALLERTON.—Jan. 10.—For erection of a secondary school, including boundary walls, out-offices, &c. Mr. Walter H. Brierley, architect, 13 Lendal, York.

ORPINGTON.—Jan. 13.—For erection of fire station in Orpington, Kent. Mr. W. J. Winter, building surveyor, Station Road, Sidcup.

PRESCOT.—Jan. 5.—For construction of sewage-disposal works at Prescott, Lancashire. The works consist of constructing hydrolitic tank, detritus tank and filters, storm-water filter, levelling and laying-out of land, &c. Deposit 3*l.* 3*s.* Mr. Harry W. Taylor, A.M.I.C.E., engineer, St. Nicholas Chambers, Newcastle-on-Tyne.

RADCLIFFE.—Dec. 21.—For erection of vicarage. Messrs. James Sellers, Son & Orrell, architects, Union Chambers, Bury, Lancs.

READING.—Dec. 31.—For erection of a dwelling-house for the farm steward at Manor farm, Whitley. Deposit 2*l.* 2*s.* Mr. John Bowen, A.M.I.C.E., borough engineer and surveyor, Town Hall, Reading.

RISHWORTH.—Dec. 28.—For mason and bricklayer, carpenter and joiner, plumber and glazier, slater, plasterer and concreter's work required in erection of a residence at Rishworth, Yorks. Messrs. Joseph F. Walsh & Graham Nicholas, architects, Museum Chambers, Halifax.

ROCHESTER.—Dec. 24.—For construction of a covered service reservoir (in concrete) at Broom Hill, Stroud. Deposit 2*l.* 2*s.* Mr. William Banks, A.M.I.C.E., city surveyor, Rochester.

ST. HELENS.—Jan. 25.—For erection of schools. Deposit 1*l.* 1*s.* Mr. Frank S. Biram, architect, Hardshaw Street, St. Helens.

ST. LEONARDS-ON-SEA.—Dec. 24.—For building a fire station in Shepherd Street. Deposit 1*l.* 1*s.* Mr. P. H. Palmer, borough engineer, Town Hall, Hastings.

SCOTLAND.—Dec. 23.—For mason, carpenter, plumber, slater, plasterer, and painter's work in erecting a lounge at the Stotfield Hotel, Lossiemouth. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

SCOTLAND.—Dec. 25.—For mason, carpenter, slater, plasterer, plumber, glazier and painter, ironfounder, and blacksmith's work of new central school at Fraserburgh. Messrs. D. & J. R. McMillan, architects, 105 Crown Street, Aberdeen.

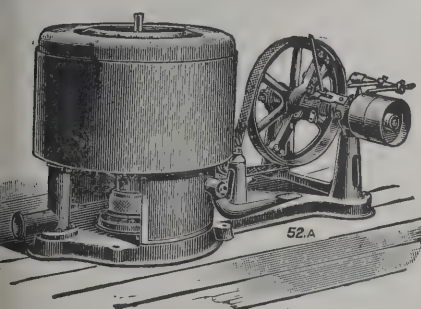
SHEFFIELD.—Dec. 24.—For conveniences at the corner of Sedan Street and Ellesmere Road. Deposit 10*s.* The City Surveyor's office, Town Hall, Sheffield.

SWINDON.—Jan. 1.—For erection of proposed balcony and verandah to Victoria Hospital. Messrs. Ainsworth & Pilcher, Central Chambers, Swindon.

WALES.—Dec. 21.—For erection of addition to Highfield, Carnarvon, and erection of motor garage. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

WALES.—Dec. 28.—For the following works at Pen-y-darren Council schools, for the Merthyr Tydfil education committee:—(1) Carrying-out alterations and additional

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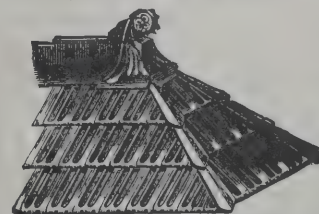
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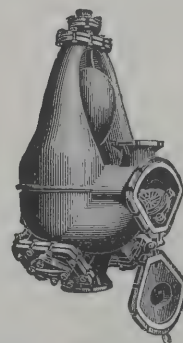
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classrooms, cloak-room, lavatories, &c., to three departments of present school, and erecting new latrines, boundary walls, asphalted playgrounds and laying new drains, &c.; (2) erecting new infants' school, with covered playgrounds, &c. Deposit 2*l.* 2*s.* Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

WALES.—Dec. 28.—For carrying-out alterations and erecting additional classrooms, cloak-rooms, &c., boundary walls, and forming new playgrounds, &c., at the Pant Council school, Merthyr Tydfil. Deposit 2*l.* 2*s.* Mr. J. Llewellyn Smith, architect, Central Chambers, Merthyr Tydfil.

WALES.—Dec. 31.—For erection of a Council school at Penmachno, near Bettwsycoed. Dr. Williams, Mostyn Villa, Penmachno.

WALES.—Dec. 31.—For erection of Council schools at Chwilog and Pentreuchaf, near Pwllheli. Mr. Rowland L. Jones, county architect, 36 High Street, Pwllheli.

WALES.—Dec. 31.—For erection of a Council school at Llanfairfechan. Miss Williams, head teacher, Caersalem School, Llanfairfechan.

WEYMOUTH.—Dec. 24.—For erecting a bakery at Brownlow Street. Mr. S. Jackson, architect and surveyor, Bridge Chambers, Weymouth.

WHITEHAVEN.—Dec. 28.—For alterations to Old Clydesdale Bank, Lowther Street. Mr. J. S. Moffat, architect, Church Street, Whitehaven.

WHITBY.—Dec. 23.—For making additions to villa residence at Sands End. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

WING (LEIGHTON BUZZARD).—Jan. 9.—For carting, excavating for, and laying and jointing of about five miles of cast-iron water-mains, including fixing valves, hydrants, &c., the erection of brick service reservoir, filter-beds, sinking well, and the erection of pumping station, and all works in relation thereto, for the Wing Rural District Council. Deposit 3*l.* 3*s.* Messrs. Sands & Walker, engineers, Milton Chambers, Nottingham.

## TENDERS.

### ALDERSHOT.

For rebuilding the Princess Hotel, Union Street. Messrs. FRIEND & LLOYD, architects, Grosvenor Road, Aldershot.

Cook & Sons	£3,600	0	0
Martin, Wells & Co.	3,050	0	0
Edgoose	3,039	0	0
Poulter Bros.	2,985	0	0
Knight	2,850	0	0
Kemp	2,849	0	0
Snuggs	2,809	0	0
CROSBY & Co., Farnham (accepted)	2,449	0	0

### BEVERLEY.

For sinking, boring and steining well, and works in connection, for the Corporation.

	Brick Lining.	Steel Cylinders.
Lawson	£3,902 0 0	£3,611 0 0
Williamson & Co.	2,720 0 0	2,920 0 0
VILLIERS, Beverley (accepted) for brickwork	2,257 7 3	2,369 17 4
Sangwin	2,187 1 6	2,313 4 4
Chapman & Sons	2,178 3 6	1,919 9 3
Nunn	1,965 14 10	2,208 3 10
Knox	1,959 16 8	2,389 11 4
Chamberlain	1,955 0 0	2,001 0 0
Tilley & Sons	1,838 9 3	1,886 19 10
Neal, Ltd.	1,762 7 0	1,944 1 4
Johnson & Langley	1,727 18 3	2,068 8 9
Crossland	1,546 10 8	1,659 16 9
Mackay	1,153 17 9	1,298 9 1

### CAVERSHAM.

For alterations and additions to premises in Gosbrook Street. Mr. A. J. SMITH, surveyor, Caversham.

Robinson	£228	15	0
Batten Bros.	205	0	0
Wyeth	198	7	4
ANGLISS, Caversham (accepted)	138	15	0

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CLAYGATE.

For making-up parts of Beaconsfield Road and Claremont Road. Mr. H. C. READ, surveyor.			
Griffiths & Co.	£1,335	0	0
James & Co.	1,333	0	0
Ingram & Co.	1,220	0	0
Atkins & Co.	1,200	0	0
Adams.	1,191	0	0
Free & Sons	1,140	0	0
KAVANAGH & Co., Surbiton Hill (accepted)	1,087	0	0
May	966	0	0

DARTFORD.

For alterations to fire alarm and telephone systems at Gore Farm fever hospitals. Mr. W. T. HATCH, engineer-in-chief.			
Revy, Phillips & Co.	£396	15	0
Hopper	373	0	0
Bell Telephone and Electric Company	335	0	0
Bryden & Sons	287	0	0
Private Wire and Telephone Installation Company	278	0	0
Electrical Engineering and Maintenance Company	239	0	0
Cannon & Sons	226	8	0
POTTER & SONS, LTD., Fulham (accepted)	225	0	0

EBBW VALE.

For erection of school at Tallistown. Mr. H. WATERS, architect, Ebbw Vale.			
COLBORNE, Swindon (accepted)	£13,943	3	6

ELLAND.

For alterations to the Town Hall Hotel, Messrs. SAMUEL JACKSON & SON, architects, &c., Bradford.			
<i>Accepted tenders.</i>			
Marshall & Rushworth, mason	£175	0	0
Crowther Bros., joiner	80	0	0
Peel, plumber	24	5	0
Wadsworth, slater and plasterer	16	7	0

ENFIELD.

For making-up private streets. Mr. RICHARD COLLINS, surveyor.			
<i>Ashton Road.</i>			
JENNINGS & GRENFELL, Waltham Cross (accepted)	£560	0	0
<i>Ferndale Road.</i>			
JENNINGS & GRENFELL (accepted)	345	0	0
<i>Malvern Road.</i>			
JENNINGS & GRENFELL (accepted)	395	0	0
<i>Elmhurst Road.</i>			
JENNINGS & GRENFELL (accepted)	570	0	0
<i>Halstead Road.</i>			
JENNINGS & GRENFELL (accepted)	545	0	0
<i>Nelson Road.</i>			
BETTS (accepted)	325	0	0
<i>Sutherland Road.</i>			
BETTS (accepted)	315	0	0

GRAVESEND.

For making-up Portland Avenue. Mr. F. T. GRANT, borough surveyor.			
W. & F. Tuffee	£537	0	0
Wood & Sons	536	0	0
Masters & Co.	535	0	0
Iles.	465	0	0
Miskin, Ltd.	456	0	0
ROAD MAINTENANCE COMPANY (accepted)	449	0	0

HUCKNALL TORKARD.

For the laying of a sewer and other works. Mr. WILLIAM SWANN, Hucknall Torkard, surveyor.			
Hawley & Son	1,200	0	0
Bradley	1,179	15	0
Raynor	1,116	1	8
Keetch & Wainer	1,035	14	0
Cope	1,008	17	6
Smart	847	10	0
Barry	755	0	0
Cox & Co.	748	16	2
LOCK, ANDREWS & PRICE, Nottingham (accepted)	700	0	0

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## ISLEWORTH.

For supply and delivery of about 1,500 tons of best hard Guernsey granite spalls, for the Guardians.

Mowlem & Co.	£800	0	0
Tilbury Contracting Co.	781	5	0
Hall	781	5	0
Brooks, Ltd.	768	15	0
Sommerfeld	743	15	0
Fry Bros.	731	5	0
W. & F. Manuelle	706	5	0
GRIFFITHS & Co., 35 and 37 Hamilton House (accepted)	700	0	0

## KING'S NORTON.

For making roads and paths at infirmary.

TRENTHAM (accepted)	£735	0	0
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## LLANDDANIEL.

For erection of C.M. chapel. Messrs. R. DAVIES & SON, architects, Bangor.

Evans & Pritchard	£811	0	0
Hughes	718	0	0
Jones & Williams	730	0	0
W. & O. Pritchard	663	0	0
Evans	649	0	0
HUGHES, Newborough, Bodorgan (accepted)	550	0	0
Prytherch	545	0	0

## LONDON.

For the supply of steel underframes for the fifty tramcar bodies which are being manufactured by the tramways department for use on the London County Council tramways.

Mountain & Gibson	£2,402	10	0
United Electric Car Co.	2,300	0	0
De Berge & Co.	2,287	10	0
Ditto, corrected	1,937	10	0
Turner	2,275	0	0
Heenan & Froude	2,150	0	0
Hurst, Nelson & Co., Ltd., Motherwell (recommended)	1,975	0	0

## LONDON—continued.

For the execution of (1) the roadwork and platelaying, exclusive of the supply of rails and special trackwork, for the construction, on the overhead trolley system of electric traction, of the new tramways from Hammersmith, via Brook Green Road, Shepherd's Bush Road, Wood Lane and Scrubs Lane, to Harlesden, including a junction line to the Hammersmith car-shed, and (2) certain paving works outside the tramway tracks for street widenings along the route of the tramways. The total length of line affected is about 6½ miles of single line.

	Tramway works.	Paving works for Street Widenings.
Moran & Son	£45,962 1 0	£7,899 10 6
Muirhead & Co.	43,318 1 10	8,304 0 11
Fry Bros.	41,434 10 7	8,656 14 9
White & Co.	41,751 16 0	7,284 14 10
Nuttall & Co.	40,472 19 10	6,530 9 1
National Electric Construction Co.	39,170 15 10	7,416 16 2
Griffiths & Co.	39,536 8 7	6,898 7 2
Mowlem & Co.	40,164 1 4	6,229 6 5
Blackwell & Co.	36,577 8 4	6,772 13 6
Law	34,332 13 6	8,560 8 4
Underwood & Brother	36,694 7 11	6,142 19 11
Manders	34,381 16 10	6,235 13 8
Hay & Co.	33,936 14 4	6,443 8 1
Dick, Kerr & Co.	33,814 7 10	6,338 19 0
Wimpey & Co. Hammersmith (recommended)	32,685 10 3	6,392 12 11

For supply and delivery of about 136 tons of flat-bottomed rails and fastenings required for the Bow (first portion), Hammersmith (first portion) and Hackney tramways car-sheds.

Cammell, Laird & Co.	£1,262	0	0
Scott, Ltd.	1,135	6	3
Steel, Peech & Tozer	1,134	16	10
Barrow Haematite Steel Co.	1,084	4	9
Bolckow, Vaughan & Co.	1,081	15	0
P. & W. Maclellan, Ltd. (recommended)	1,072	18	9

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## LONDON—continued.

For supply of additional sub-station machinery, consisting of one motor-generator.

Dick, Kerr & Co. . . . .	£1,780	0	0
British Westinghouse Electric and Manufacturing Co. . . . .	1,733	0	0
Electric Construction Co. . . . .	1,645	0	0
General Electric Co., Ltd., Witton, Birmingham (recommended) . . . . .	1,608	0	0

For erection of a secondary school to accommodate 476 girls, Broomwood Road, Clapham.

Marsland & Sons . . . . .	£29,080	0	0
Downs . . . . .	28,593	0	0
Lovatt . . . . .	28,573	9	6
Appleby & Sons . . . . .	28,560	0	0
Holloway Bros. (London) . . . . .	28,077	0	0
Carmichael . . . . .	27,916	0	0
Garrett & Son . . . . .	27,856	0	0
J. & C. Bowyer . . . . .	27,685	0	0
Smith & Son . . . . .	27,548	0	0
Wallis & Sons . . . . .	27,337	0	0
Wall . . . . .	27,030	17	0
Whitehead & Co. . . . .	26,900	0	0
Lawrance & Sons . . . . .	26,875	0	0
Johnson & Co. . . . .	26,858	0	0
Leng . . . . .	26,855	0	0
Smith & Sons . . . . .	26,753	0	0
Waring White Building Co. . . . .	26,640	0	0
Moss & Sons . . . . .	26,573	10	3
J. & M. Patrick . . . . .	26,193	0	0
Holliday & Greenwood, Ltd., Brixton (recommended) . . . . .	25,919	0	0
Architect's estimate . . . . .	27,038	0	0

For erection of business premises at Borough High Street, S.E. Mr. V. VAGNOLINI, architect, 33 Stirling Road, Clapham Rise, S.W.

Shepherd & Co. . . . .	£3,500	0	0
Downs . . . . .	3,125	0	0
Parsons . . . . .	2,187	0	0
RICE & SON (accepted) . . . . .	2,121	0	0

## LONDON—continued.

For supply and delivery of special trackwork required for the construction of the new tramways from Hammer-smith to Harlesden.

Allen & Co. . . . .	£1,773	0	0
Hadfield's Steel Foundry Co. (recommended) . . . . .	1,666	12	6
Chief engineer's estimate . . . . .	1,650	5	0

## LOUGHBOROUGH.

For alterations and additions to Markfield Church Elementary school. Messrs. BARROWCLIFF & ALLCOCK, architects, Loughborough.

Chapman . . . . .	£570	0	0
Moss . . . . .	508	15	0
Shipman . . . . .	505	18	6
Wileman . . . . .	499	0	0
Griffin Bros. . . . .	493	10	0
Dobson . . . . .	484	8	0
Corah & Son . . . . .	474	0	0
Orton . . . . .	469	0	0
Watson & Camm . . . . .	466	0	0
Faulks . . . . .	457	0	0
Wesley . . . . .	455	0	0
BARKER & SONS, Loughborough (accepted) . . . . .	446	0	0

For providing and laying about 3,300 superficial yards of 2-inch concrete flagging and 550 yards of blue brick paving, together with about 370 yards of splayed granite kerbing and channelling, &c. Mr. ALBERT H. WALKER, borough surveyor.

Hawley & Son . . . . .	£1,380	13	2
Faulks . . . . .	1,280	0	0
Ellis & Sons . . . . .	1,216	15	0
Trentham . . . . .	1,190	0	0
Abell & Cammell . . . . .	1,184	10	10
Patent Victoria Stone Co., London . . . . .	1,167	8	6
Barker & Sons . . . . .	1,165	0	0
Palmer . . . . .	1,142	3	0
Croft Granite Co. . . . .	1,131	16	5
Ball . . . . .	1,101	0	0
Gibbs Bros. . . . .	1,095	11	0
Cliffe Hill Granite Co. . . . .	1,082	8	6
Moss & Sons, Loughborough (recommended) . . . . .	1,049	18	4

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For Index of Advertisers, see page x.



## LOUGHBOROUGH—continued.

For supplying and laying of about 295 lineal yards of 9-inch sanitary pipe sewer, &c. Mr. ALBERT H. WALKER, borough surveyor.

Faulks . . . . .	£483	0	0
Palmer . . . . .	443	14	9
Thompson & Gamble . . . . .	414	0	0
Hawley & Son . . . . .	410	0	0
Barker & Sons . . . . .	404	0	0
Moss & Son, Loughborough (accepted) . . . . .	402	17	3
Ball . . . . .	398	12	6

## NORWICH.

For erection of Wensum View school.

HURN & SON, Norwich (accepted) . . . . .	£9,790	0	0
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## PENARTH.

For street improvement works. Mr. E. J. EVANS, surveyor.

Mackay & Davies . . . . .	£762	11	9
Evans . . . . .	760	0	10
Ringham . . . . .	742	0	6
Hatherley & Co. . . . .	711	1	2
Morgan . . . . .	683	19	9
Collins & Co. . . . .	659	16	9
WILLIAMS, Cardiff (accepted) . . . . .	643	18	0

## RAMSGATE.

For restoration to spire and tower of Christ Church. Mr. STANLEY H. PAGE, architect, Ramsgate.

Dunn . . . . .	£720	0	0
White . . . . .	670	0	0
Hayward & Paramor . . . . .	634	0	0
Denne . . . . .	630	0	0
Browning . . . . .	624	0	0
Martin . . . . .	618	0	0
GRUMMANT BROS. (accepted) . . . . .	524	0	0

## SOUTHWICK.

For extension of sewer in Cross Road and Church Lane."

Woolgar Bros. . . . .	£286	19	10
BOSTEL BROS., Brighton (accepted) . . . . .	273	0	0

## SEAHAM.

For the construction of a steel and timber lifeboat house and slipway. Mr. W. T. DOUGLASS, consulting engineer, 15 Victoria Street, London, S.W.

Wright . . . . .	£5,300	0	0
Firth . . . . .	4,950	0	0
White . . . . .	4,674	0	0
Alnwick Foundry Co. . . . .	4,006	15	2
Lauder & Co. . . . .	3,441	0	0
Marshall . . . . .	3,430	0	0
Gradwell & Co. . . . .	3,402	17	6
CAMPBELL & HANDMAN, London (accepted) . . . . .	3,294	0	0

## SOUTH MIMMS.

For erection of police cottages. Mr. J. DIXON BUTLER, F.R.I.B.A., surveyor to the Metropolitan Police. Quantities by Messrs. THURGOOD, SON & CHIDGEY, 8 Adelphi Terrace, Strand.

Brightman . . . . .	£1,744	0	0
Waterman . . . . .	1,746	0	0
Godson & Sons . . . . .	1,743	0	0
Stapleton & Sons . . . . .	1,736	0	0
Newby Bros. . . . .	1,638	7	0
Pearson & Son . . . . .	1,619	17	7
Darvill . . . . .	1,568	0	0
Miskin & Sons . . . . .	1,553	0	0
Fairhead & Sons . . . . .	1,552	0	0
Willmott & Sons . . . . .	1,511	0	0
Bushell . . . . .	1,479	8	0

## SWINDON.

For alterations and additions to No. 1 Farnsby Street. Messrs. BISHOP & FISHER, architects, Swindon.

Kilmister . . . . .	£353	0	6
Ponting . . . . .	342	2	0
Norman . . . . .	330	0	0
Tarrant . . . . .	316	5	8
Tydemans Bros. . . . .	301	4	6
Colborne . . . . .	285	14	0
LEIGHFIELD, Swindon (accepted) . . . . .	284	0	0

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For Index of Advertisers see page X.



**TAVISTOCK.**

For reconstructing the drainage system at the Kelly College.  
Mr. WM. GEO. LANE, engineer, Tavistock.

J. Shaddock . . . . .	£2,118	15	0
Stephens . . . . .	1,722	5	0
Pethick Bros. . . . .	1,644	0	0
Minhinnick Bros. . . . .	1,616	12	2
Stanbury . . . . .	1,506	10	6
W. E. Shaddock . . . . .	1,478	11	3
KERSLAKE, Tavistock (accepted) . . . . .	1,396	8	5
Engineer's estimate . . . . .	1,441	0	0

**TICKHILL.**

For erection of public library.  
RAWSON & SONS, Tickhill (accepted) . . . . . £1,267 0 0

**TWICKENHAM.**

For erecting infectious diseases hospital. Mr. F. W. PEARCE, surveyor, Twickenham.  
MESSOM & SONS, Twickenham (accepted) . . . . . £5,780 0 0

**WAKEFIELD.**

For pulling-down premises in Kirkgate and the erection of new hotel and three shops. Mr. ARNOLD S. NICHOLSON, architect, Wakefield.

*Accepted tenders.*

Kitson & Sons, builder . . . . .	£1,252	11	5
Squires, joiner . . . . .	543	7	6
Gillott, plumber . . . . .	269	0	0
Senior, plasterer . . . . .	126	19	0
Atkinson, slater . . . . .	56	2	4
Turner & Sons, painter . . . . .	19	0	0

**WALES.**

For a temporary school at Barry county school for the Glamorgan county education committee. D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by County Architects' Department.

*Accepted tenders.*

Harrison & Co., superstructure, London . . . . .	£390	0	0
Britton, substructure, Barry . . . . .	151	0	0

**WALES—continued.**

For alterations and additions to St. Athans Council school for the Glamorgan county education committee. D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by the County Architects' Department.  
BRITTON, Barry (accepted) . . . . . £850 0 0

For the erection of a new Council school at Tongwynlais for the Glamorgan county education committee. D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by Architects' Department.  
SHAIL, Llandaff North, near Cardiff (accepted) . . . . . £4,353 10 4

For the erection of a new infants' Council school at Giffach-Fargoed for the Glamorgan county education committee. D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by the Architects' Department.  
BOND, Beda Road, Cardiff (accepted) . . . . . £2,890 2 4

For extensions, &c., to the Bargoed girls' Council school for the Glamorgan County Council (education committee). D. PUGH-JONES, F.S.I., county architect, Cardiff. Quantities by the Architects' Department.  
WILLIAMS & SON, Bargoed, Glam. (accepted) . . . . . £5,347 0 0

**WILLAND.**

For erection of a dwelling-house at Willand. Mr. WM. BARRONS, surveyor, Tiverton.

Manning . . . . .	£840	0	0
R. Grater & Sons . . . . .	774	0	0
Labdon & Sons . . . . .	675	0	0
J. Grater & Son . . . . .	669	0	0
Short & Son . . . . .	643	15	0
Nicks Bros. . . . .	612	10	0
Sanders, Thorne & Co. . . . .	585	0	0
CHICK & BRADBEER, Willand, Cullompton (accepted) . . . . .	566	0	0

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Gaze & Sons . . . . .	1,395	0	0
Falvey . . . . .	1,275	0	0
Shorter & Co. . . . .	1,200	0	0
Bruton & Sons . . . . .	1,200	0	0
Sullock & Sons . . . . .	1,196	0	0
Fox & Sons . . . . .	1,163	0	0
Batchelor . . . . .	1,160	0	0
Meador . . . . .	1,160	0	0
Wood & Co. . . . .	1,156	0	0
Spinner & Harris . . . . .	1,138	0	0
Webb & Co. . . . .	1,125	0	0
Allflatt . . . . .	1,113	0	0
Cook, jun. . . . .	1,095	0	0
Smith & Co. . . . .	1,093	0	0
Hedges . . . . .	1,090	0	0
Price . . . . .	998	0	0
Glanville . . . . .	950	0	0
Earland . . . . .	950	0	0
Prior . . . . .	928	0	0
Pessell & Co. . . . .	900	0	0
Lawrance . . . . .	899	15	0
Deans . . . . .	864	6	10
Small & Co. . . . .	872	0	0
Crampton . . . . .	750	0	0
MARCHANT (accepted) . . . . .	750	0	0

THE British Consul-General at Antwerp reports that tenders are invited by the municipal authorities of that city for the construction of two groups of metal sheds on one of the new subsidiary docks at Antwerp. The estimated cost of the work is about 23,736l. Tenders, in sealed registered envelopes, should be delivered to le Bourgmestre, Hôtel de Ville, Antwerp, not later than the 30th inst. A deposit of 35,000 francs (about 1,400l.) will be required to qualify any tender.

## TRADE NOTES.

MESSRS. MURRAY, LOTZ & Co., of 102 Fenchurch Street, E.C., have been appointed by the Patrick Brass and Copper Works (A. Low), Glasgow, their sole agents for England and the Continent.

MESSRS. OETZMANN & Co., LTD., have issued a catalogue of "Presents for all Seasons" from their stock, showing furniture and decorative articles of an acceptable kind at reduced prices.

MESSRS. RIPOLIN write us that they are removing to more commodious premises on January 1, and their address will be 35 Minories and Nos. 1 and 3 Haydon Street, E.C., as and from that date.

## NEW CATALOGUE.

At the Christmas season thoughts of presents inevitably arise. Some wish to receive them, others happily are prepared to give them. It is a difficult task apparently to select the gifts. Any liberal-minded gentleman or lady who wishes to give a token of goodwill to a young student of architecture or engineering should lose no time in obtaining a copy of the latest catalogue of W. F. Stanley & Co. Every one of the instruments or appliances, however small, which is issued by the firm is remarkable for its workmanship. That does not, however, affect its endurance, and a case of Stanley's drawing instruments would enable the donor to be remembered for many a year. Indeed, a clever architect could lead a profitable career with such an equipment. But there are single instruments which are also adapted for presents; and, indeed, one's memory might be kept green by offering one of the pocket compasses. We have so often referred to the variety of instruments for the office and the field produced by W. F. Stanley & Co., it is unnecessary to again treat of the subject. But we may add that new premises have been secured in High Holborn, in addition to those which are well known to architects and engineers all over the world. It is also worth mentioning that Messrs. Stanley can now supply tracing paper, tracing cloths and detail paper of several varieties at moderate prices.

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## ELECTRIC NOTES.

A SCHEME for the enlargement of the municipal electricity works is to be laid before the Heywood Town Council in a few days. Enlargements are necessary because of the enormously increased demand for current for lighting and for tramway purposes.

THE Wednesbury Town Council have agreed that application be made to the Board of Trade for the revocation of a provisional order obtained by the Midland Electric Corporation for Power Distribution to supply electricity within the borough.

THE Arbroath Town Council have agreed by a majority to make an arrangement with Mr. George Balfour, London, or the company he represents, the undertakers of the electric lighting of the burgh, to light the High Street from Tower-nook to the Public Hall, Commerce Street, Millgate, and West Port as far as beyond the railway station, with arc lamps of 800 candle power, each at 12*l.* per annum, or 1,000 candle-power lamps, each at 14*l.* per annum, to be switched off at eleven o'clock at night, and glow lights of 50 candle power to be provided till daylight, or alternatively, 2*l.* additional for each arc lamp to be kept burning till daylight, it being understood that all expenses for carbons, maintenance or otherwise, be paid by the company, the Council to have the option of using either the 800 or 1,000 candle power lamps. The Council have agreed not to take up the question of lighting public buildings at present.

THE Washington Bureau of Manufacture states, on the authority of Mr. John C. Covert, the United States consul at Lyons, that a very important and far-reaching invention has been announced by which electrical power can be transmitted without the use of wires. It may be called an

extension of the wireless use of electricity, and it is still kept a secret, only one person in Lyons possessing a knowledge of all the facts on the subject. He is a prominent broker who has financed the enterprise. He informed Mr. Covert that all the work in perfecting the invention was carried on in the country at the castle of a prominent manufacturer of Lyons, and that only two persons were permitted to know what was going on. Some two weeks ago the first experiments were tried, and a miniature street car was moved over a flat space by electricity communicated from a distance of several yards. The invention is being tried in Marseilles on a street car line, and applied to several different kinds of machinery.

## VARIETIES.

ON account of heavy outlay on water supplies and sewage works the Yeovil Town Council are unable at present to accept Mr. Carnegie's offer of 2,500*l.* towards building a free library.

THE Royal Choral Society will give on January 1 at the Royal Albert Hall Handel's "Messiah" (with the original accompaniments). The conductor will be Sir F. Bridge and the organist Mr. H. L. Balfour. The band and chorus will number altogether 1,000 performers.

THE death occurred on Saturday at his residence in Sheffield of Mr. Fred Jeckells, one of the best known members of the painting and decorating trade in the north of England. Mr. Jeckells had been in failing health for some time. He was sixty-one years of age.

THE Admiralty have accepted the tender of Messrs. Relf & Son, of Plymouth, for the construction of an oil fuel depôt at Turnchapel, on the eastern side of Plymouth Sound. The depôt will provide storage for 30,000 tons of liquid fuel. The work will occupy about two years.

THE Bishop of Jarrow dedicated a new large quarter chime clock, with two large dials painted and gilt and new bells, to the memory of the third Earl of Ravensworth, and presented by the widow, now the Countess of Mount-Edgumbe. The work has been carried out by Messrs.

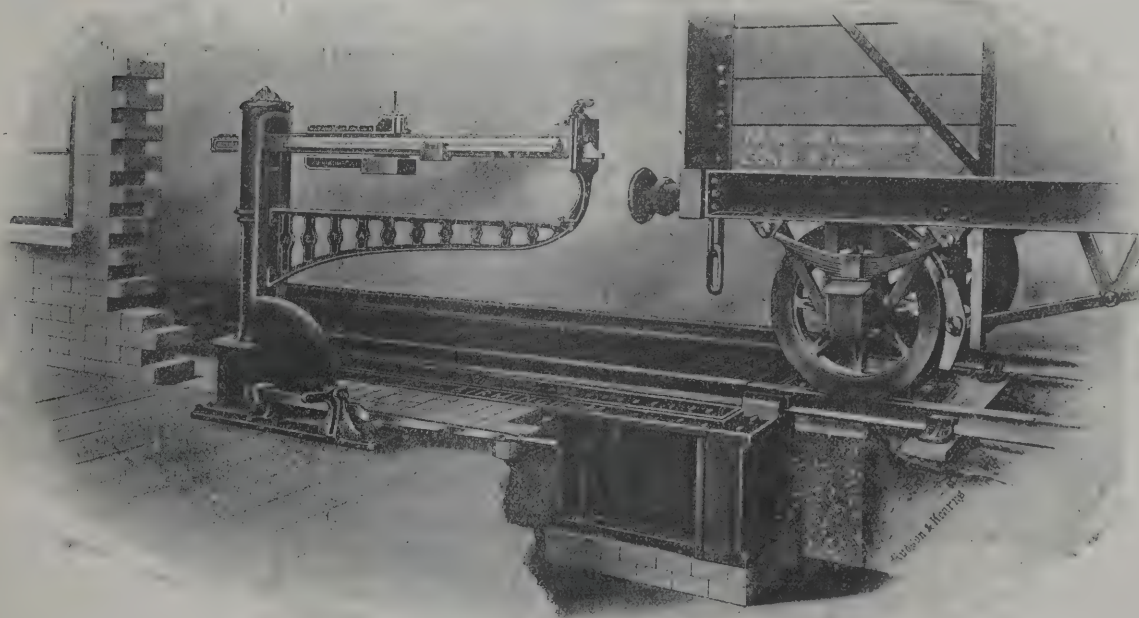
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Potts & Sons, Ltd., Leeds and Newcastle, who are also making an illuminated clock for Wallsend town hall, and another for the Mayor and Corporation of South Shields.

THE Prescott Guardians (Lancs) last week instructed their architect to submit an estimate of the cost of the proposed new buildings for male mental cases. At the next meeting a member will move that the previous resolution of the board giving their consent to the expenditure of 9,000*l.* for this purpose be rescinded, and that they be asked to substitute 10,000*l.*

THE December report of the Amalgamated Society of Carpenters and Joiners states that the membership is now 70,259—an increase of 2,361 as compared with the corresponding period of last year, and of 3,322 as compared with February. If the new scheme of amalgamation with the Associated Society is carried, this total will be increased by over 6,000. The voting is to take place next month, and a special effort is to be made to get the necessary two-thirds of the membership to poll.

THE quarry owners in the Carnarvon district have resolved upon further substantial reductions in their price lists of slates. These reductions will range from 5 per cent. to 10 per cent., and will represent a total reduction of about 40 per cent. on the prices which ruled four years ago. It is believed that similar reductions will be made in respect of the Penrhyn, Dinorwic, and Portmadoc slates.

THE water department of the Preston Corporation are confronted with a serious problem owing to a species of fine moss having found its way into the water mains and then into the service mains of houses in different parts of the towns. Whole streets are affected, and considerable inconvenience has been caused, the occupants having to carry water for drinking and cooking purposes from considerable distances.

THE National Association of Master House Painters and Decorators are to visit Birmingham next September for the second time in their history. Since its former visit in 1896 the Association, which was then in its infancy, has become a very powerful organisation. The forthcoming visit will be notable for an exhibition of decorative and applied art, for which purpose Bingley Hall has been taken. One of the features will be an historical exhibition of wall-papers of the last century.

To prevent further inroads of the sea near Sillioth, on the Cumberland side of Solway Firth, the local Council have decided to expend 4,000*l.* in erecting protective walls. At one point the sea had made an inroad 160 yards long and 10 yards wide, and there was imminent danger of further serious encroachment. It is hoped that the Cumberland County Council and other interested authorities will contribute.

THE Caledonian Railway Company are about to commence at Ferryhill, Aberdeen, the erection of new engine sheds, repairing shops, bothies for drivers and cleaners, stores, &c., which have to be completed by May 1 next. The buildings will cover an area of 230 feet in length by 200 feet in width. Messrs. Robert Bruce & Son, builders, Edinburgh, are the contractors for the works, which are to cost about 17,000*l.*

THE scheme for the restoration of Bowden Kirk, N.B., is now practically complete. The church has been continuously used for public worship for 800 years, and in the restoration the old lines will be faithfully followed, and as far as possible the old building will be left untouched. Internally there will be great alterations, but all will be done in accordance with the style and principles of the old architecture. The work (which will cost 1,750*l.*) has been put in the hands of Mr. Macgregor Chalmers, architect, Glasgow.

THE Carnarvon Harbour Trust passed a resolution on Tuesday, the 3rd inst., in support of a petition by local slate merchants asking the Board of Trade to intervene with a view to obtaining a reduction of the new increased Australian tariff on slates, just raised from 15 per cent. to 25 per cent. *ad valorem*. The Harbour Trust have been informed by the Board of Trade that as the result of telegraphic communications the Australian Government had reduced the *ad valorem* duties on slates from this country to Australia from 25 per cent. to 20 per cent. This is not quite a return to the *status quo ante*, but it is a distinct concession, and one that will be largely appreciated in Wales.

At the instance of the Medical Officer of Health, the Corporation of London is bringing to the notice of architects and builders the responsibility imposed upon them in connection with the conduct of building operations which are

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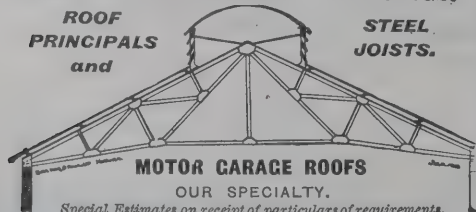
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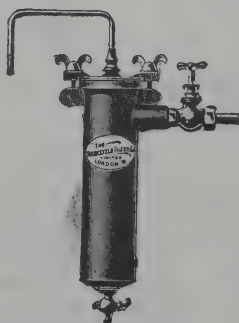
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likely to involve any disturbance of human remains in the course of excavation. Except where a body is removed from one consecrated place of burial to another by faculty, it is not lawful, the Doctor points out, to remove any body, or the remains of any body, without licence. This prohibition extends to any place of burial, and not merely to burying grounds which have been closed. It has been held, for instance, to be an indictable misdemeanour to enter an unconsecrated burial ground, and, without authority, to dig up and carry away a corpse—"and this even although the person committing the act may have been actuated by motives of affection and respect to the dead, and of religious duty, and have conducted the removal decently."

It has been decided that St. Michael's Church, Coventry, shall be the cathedral of the other new see which it is hoped to create in Warwickshire. Coventry and Lichfield in pre-Reformation times were seats of one bishopric, but the cathedral was burnt in Henry VIII.'s reign. St. Michael's is the second largest parish church in England. Being built by one generation (1373-95), it has a singular unity of its own. Its famous tower rises to a height of 303 feet, the highest of the three tall spires of Coventry. The interior length of the building is 293 feet and its breadth 127, but the lightness of its piers and the breadth of its aisles give it an appearance of much greater size. The chapels which once encumbered the interior are all swept away, leaving it perfectly clear with uninterrupted vistas. On its recent restoration 40,000*l.* was spent.

The Liverpool City Council carried by a large majority an amendment of the fair wage clause in all Corporation contracts, the effect of which is to make the condition much more stringent. It was the complaint of trade unionists that the practice had developed of contractors paying trade union wages and observing trade union conditions merely upon the Corporation work thus obtained, while in all other work and for the rest of the year those conditions were deliberately ignored. It was contended that this was unfair to those employers who observed the required conditions all round and not merely to enable them to secure a particular contract. The amended fair wage clause therefore requires contractors to sign a declaration that they observe trade union conditions and pay trade union wages.

The Sunderland Town Council last week adopted two schemes for providing work for the unemployed. The first was for a West End park costing 15,510*l.*, of which labour would absorb 7,766*l.* The other was for a sea wall at Roker costing 5,500*l.*, the labour to cost 2,623*l.* The Local Government Board telegraphed that they would grant 5,000*l.* to the park and 1,500*l.* to the sea wall. At the same meeting a long discussion took place on the report of the baths committee, who asked for sanction to borrow 3,800*l.*, which is excess expenditure on the building of the new bath at Hendon, for which the estimate was 11,000*l.* The work has been done by the borough engineer and his staff. A sub-committee who had investigated the matter reported that the work had been done satisfactorily, and that the town had got fair value for its money. Many members held, however, that private contractors would have done the work for the original estimate. In the end the report was adopted.

In his annual report to the Glasgow Corporation, Mr. Thomas Nisbet, Master of Works, deals exhaustively with the work of his department during the past year. It states that the net capital expenditure for paving work and repair of streets was 17,667*l.*, or 3,617*l.* over the amount authorised. The increase was occasioned by experimental paving laid in Saracen Street and by the paving of various portions of roadways which had been widened, neither of which had been provided for in the estimates. The estimated ordinary expenditure for the repair of streets, &c., was 86,204*l.*, and the estimated receipts 19,845*l.*, making an estimated net charge against revenue of 66,359*l.* The actual expenditure amounted to 96,471*l.*, and the actual receipts to 17,495*l.*, or an actual net charge against revenue of 78,976*l.* Reference is made to the improvements effected in a large number of streets, and it is added that negotiations for many improvements are still pending. The following is the statement of notices received for openings to be made in the streets by Corporation departments, &c.:—Corporation Water Department, 1316; Corporation Gas Department, 475; Electric Lighting Department, 1201; Telephone Department, 45; Post Office Authorities, 141; proprietors, under bonds, 2,156*l.*—total, 5,334.

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THE Royal Commission on Canals and Waterways have recently obtained Treasury sanction for an inquiry into the probable cost of improving the canals and waterways connecting the Midlands with the Thames and the Humber. Unless the results of this inquiry lead the Commission to reconsider their scheme, the investigation as to cost will not stop with these two routes, but will be extended to two more—namely, those connecting the Midlands with the mouths of the Mersey and the Severn. Sir John Wolfe Barry and Partners have undertaken the investigation on behalf of the Commission. The estimates as regards canals will be for two or three alternative gauges, of which the smallest will be a canal with locks capable of accommodating not only barges carrying 100 tons, but also multiples of smaller canal boats.

In the Sheriff Court at Kilmarnock a joiner of Grangemouth recently sued a restaurateur at Ardrossan for 41*l.*, the balance of the price of the joiner work of a tenement of houses in Grangemouth executed for the defender. The estimate for the work was 432*l.*, and the cost was 473*l.* The defenders dispute the balance sued for on the ground that some of the woodwork was disconform to contract. Sheriff-Substitute Mackenzie allowed a proof as to the disconformity to contract of certain extra work performed by the pursuer. On Friday last the First Division recalled the judgment of the Sheriff-Substitute, and remitted to him to allow a proof, not on the question of disconformity of work to the contract, but on the question of whether the extra work was ordered by the defender's architects. The court was satisfied that the architect employed by the defender was put forward by the latter to represent him in the contract; that the architect, who was the proper judge of such matters, had expressed himself as satisfied with the work done and had certified it; and that the only question was whether the architect had authorised the extra work in question. The Sheriff-Substitute was directed to dispose of the expenses of the appeal according to the result of the cause.

A FEW months ago a bulge was noticed in the exterior face of the north wall of the vestibule and staircase of the ancient Guildhall of Norwich. It was found that, instead of the defect being local, a large portion of the wall was in a bad condition, and that the outer face had separated from the inner face, leaving a large cavity. The wall was shored

from the outside and tied to the western wall internally. The floors and the roof were shored from the basement, and a commencement made of taking down the defective wall from the top, but although about three-quarters of the height of the defective wall has been taken down, no sound work has yet been found on which to rebuild. The city engineer is quite satisfied from an engineering point of view of the proper steps to be taken, yet, seeing the archæological interest of the building, he thought it would be advisable to consult some person thoroughly acquainted with dealing with repairs to heavy old buildings. Accordingly it was decided to call in Messrs. Thompson & Co., ecclesiastical builders, of Peterborough, and one of the specialist members of that firm will make an inspection. The whole wall has been found to have a decided tremor at the passage of every tramcar. The mortar, as far as the work has been pulled down, has crumbled to pieces, and most of the flintwork can be removed without difficulty with bare hands.

#### COLLEGE OF SCIENCE, DUBLIN.

IN reply to a letter from Mr. William Field, M.P., in reference to the new College of Science for Ireland, the Secretary to the Commissioners of Public Works states that the statement that 40,000*l.* out of a contract for 110,000*l.* will be spent on Portland stone is a grotesque misrepresentation, if it means expended on Portland stone as delivered in Dublin, and a gross exaggeration even if it means expended on the material worked and fixed in its position in the building. The total sum to be paid for Portland stone, including material, delivery, working and fixing is very considerably less than 40,000*l.*, and that of that reduced sum probably not one-third is attributable to the cost of material and delivery in Dublin, the remaining two-thirds being for work to be done in Dublin. The Board are satisfied that Portland stone is suitable to Dublin atmospheric conditions, and trust there will be an end to the controversy regarding the merits of that material and Mountcharles stone. Mr. Field, in reply, states that even if Portland stone were suitable, there is no need to import material when there is such an abundance of native stone to choose from, and says he will later on ventilate the grievance in Parliament.

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## PROPERTY IN FEUDAL TIMES.

A LECTURE was delivered by Mr. G. J. Johnson in Birmingham on "The Statute of Uses A.D. 1535: its Causes and Consequences." He said the old form of transferring land was very different from that in use at the present day. In the old days people thought little about title, the reason being that the possessor of the land only held it for his life, and he could not dispose of it without the consent of his lord. What they thought of first, last and before everything else was possession. And the possession of freehold land was technically known as seisin. One would have thought that the importance of seisin had been effectually done away with by the Real Property Act of 1845, but last April a case occurred which, by reason of the judgment of the late Mr. Justice Kekewich, was likely to raise a storm in a teacup. According to the old practice publicity was required. If a man wanted to obtain possession what did he do? He and the purchaser walked to the land to be conveyed, and in the presence of neighbours the possession was solemnly delivered from one to the other. The law in the old days was dead against the secret practice which had obtained since the Statute of Uses. They wanted to know who was the man in possession, and he was required to be a man who could render feudal service. If he could not fight he had to pay. Indeed the old feudal system could be described as a territorial force. It brought in its train unbearable burdens on every feudal tenant, and at last relief was sought by severing the beneficial interest from the legal interest, and vesting the beneficial interest in a body of trustees in trust for the legal owner or his heirs. This idea received the cordial approval of the ecclesiastic, but met with the bitter antipathy of the barons, whilst the common lawyers who were accustomed to deal with the seisin of land could not stand the new-fangled notion at all. It was a metaphysical proposition; it was beyond something which could be seen or felt. Being free from feudalistic restrictions it could be moulded in any direction. The evil results of the divided interest were set out at length in the preamble to the Statute of Uses by which the seisin was converted to the use. It transferred what was now called the legal estate from the man who held the common law ownership to the man who

was to have the beneficial interests. And no use could be declared after the first use, and then there came the difficulty as to what source the seisin to serve any subsequent shifting use came from, seeing that the first use had been executed and therefore exhausted. To overcome this they set up a little doctrine known as "Scintilla juris," which meant that there was a spark remaining behind which could be called into effect by another use being substituted for the first. This "scintilla" kept cropping up now and then, and was the subject of much debate, but the "Act to Amend the Property Act of 1860" quite settled it for ever. In conclusion, Mr. Johnson urged the imperative necessity for legislation to render unnecessary reference to the piecemeal alterations of the last 400 years, and really to simplify the law of real property.

## AQUEOUS SUBSOIL OF LONDON.

A PAPER on "The Buried Rivers of London" was read by Mr. J. George Head before a meeting of the Auctioneers' Institute of the United Kingdom on Saturday. London builders, he said, have frequently to carry their foundations down, either on piers built with hydraulic cement or on wooden piles treated with some damp-resisting preparation, through the saturated stratum until a firm basis is found. Examples are known where foundations have been carried down as far as 80 feet below the surface before a satisfactory base could be obtained. They might be able to see why water should be so plentiful if they considered for a moment the geological formation of the London district; it lay in a shallow, trough-like depression of the great chalk formation, which came to the surface at Rickmansworth on the north and Purley on the south. In this trough they had, resting on the chalk, a porous stratum called the London tertiaries, consisting of mixed sands, clays and pebbles; over this there was a dense bed of the London clay. This clay extended from Rickmansworth as far south as Mitcham, and varied in thickness from 400 feet downwards; at Kentish Town it was 236 feet, at Oxford Street 64 feet and at Mitcham it thinned out to nothing. On the top of all this they had a bed of sandy gravel extending on both sides of the Thames to a total width of about five miles.

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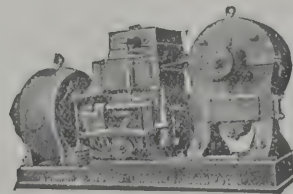
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North and south of this sandy strip rose the clay hills, which on the northern side were capped with Bagshot sand. There were also patches of gravel, sand and boulder clay scattered all over the clay area. The lines of junction of the different rocks would facilitate the percolation and accumulation of water underground and the formation of shallow springs, which would feed the various streams. It would also be seen from the trough-like shape of the basin that much of the chalk lay higher than the superincumbent clay and sand, so that the water which was so abundant in the chalk would tend to rise round the edges of the clay or wherever it could effect a passage to the open air. That this was so was evident from the chalybeate and saline nature of the springs, indicating a deep and distant origin. The drainage of London had, of course, greatly lessened the quantity of these springs, and as far as external evidences went had altogether removed nearly all of them, a few only remaining, such as the spring in Well Walk, Hampstead, which still ran and in which the chalybeate taste was markedly discernible. The Roman Bath in Strand Lane still delivered 7,000 gallons daily. The horse trough in Cornhill was a familiar object, and was supplied by a spring which was described by an inscription on the trough. Doubtless there were others, but the majority had vanished. The watercourses were filled up and built over, the soakage which supplied the surface streams had been diminished by the drainage system, and where streams were fed by deep springs they had been enclosed in sewers specially constructed—the Ranelagh sewer for the Westbourne, the King's Scholars Pond sewer for the Tybourn, and the Fleet for the Holebourn. But though they might imprison the main stream of a river in a sewer, they could not do so with its innumerable tributary rivulets. The brook in its course would be joined by many springs and rivulets which could not enter the closed sewer, and these, if they still ran, must be finding their way underground, and probably along the original course of the stream. Doubtless numerous instances would occur to many surveyors of the abundant presence of water under buildings, and it would be most interesting to note whether the situation was near the old channel of one or other of the London streams. He thought that in most instances this would be found to be the case—indicating that, in addition to the main streams flowing along the

sewers, there were trickling rivulets of pure water buried deep under our feet, creeping along the old channels, to which they clung with quiet persistence. They were the ghosts of the rivers that once beautified the environs of London town, and in the words of the old historian, "whose sweet, wholesome and clear waters flowed rippling over the bright stones."

### PRODUCTION AND PREVENTION OF SMOKE.

A LECTURE was given by Mr. J. W. Graham, principal of Dalton Hall in the University of Manchester, before the members of the Birmingham Ruskin Society, on "Smoke: its Production and Prevention." Describing the smoky condition of English cities, Mr. Graham observed that the present condition of our towns represented a state of transition. He could not believe that the industrial districts of England would, or could be, always as they are. The work of the twentieth century must be to adjust the needs of the works to the needs of the workers. We choked and coughed and slipped about under the constant irritation of our city atmospheres, and some of us took to drink in consequence. We knocked up against the smoke question in almost every effort made for the people's good, temperance included. Unfortunately, our climate was such that smoke was not only an evil in itself, but an evil because of the fog which it caused.

Speaking of the effect of smoke on climate, Mr. Graham said he felt that we should never have again in England the kind of weather there was half a century ago. Ruskin seriously believed that the weather of England had changed for the worse during his lifetime. He declared that a change began to come over the weather of England about 1871, and it was a curious fact that that was the first year for which we had a record of our coal consumption. We now burned twice as much coal as we did then. France and Germany had become almost entirely industrial. Switzerland was completely industrial. So that the effect of smoke on climate was a European phenomenon. He believed we were entirely altering the face of the sky. There was in the atmosphere an accumulation of carbon which seriously affected the whole of our weather. The solution of the smoke difficulty, he thought, would be found

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in the direction of the use of gas, which was by far the most economical way of making power. The substitution of gas-engines for steam producers would reduce our coal bill for obtaining power by one-fifth. People all over England were no doubt well alive to this fact, and a change was going on. He had no doubt that before a generation was over the use of improved gas-engines would come more and more into vogue. It was well to make this change on another ground. The public did not realise how relatively near we were to the exhaustion of our coal supply. From calculations given in the appendix to the report of a Royal Commission, it appeared that if we estimated that the population would go on increasing with the corresponding decrement that had been observed since 1870, the coal beds we know of would be exhausted in 209 years from the present time. We had at present 100,000 million tons of coal, and there were 40,000 million tons supposed to be in the unproved coalfields which probably existed. These additional coalfields would keep us going for about another eighty years. It was certain that long before the coal was nearly exhausted a great rise in price would take place. Coal famines were becoming more and more frequent, and the return to normal prices after these famines became less and less strong. Prices would rise until they were checked by the importation of coal. Before the present century was over we would be in the midst of a severe coal famine, and as regards price England would be in the position of a country which had to import its coal from abroad. That was a very serious thing for our manufactures and even our Empire. London would get a living by hotel-keeping and as the resort of fashion, and Birmingham would become a place of interest for its old town halls and picture galleries. If there was nothing to take the place of coal—and a Royal Commission said there was nothing in sight to take its place—our Empire and our navy would be destroyed. In the face of such a situation the necessity for economy in coal consumption was paramount. But we went on wasting our coal, so that on the average only one hundredweight out of every ton was turned into effective heat. Ten horse-power worth of gas was wasted for every ton of pig-iron made. A great part of this waste could be saved by the use of gas for power purposes. There was no doubt also that domestic smoke could very largely

be obviated by the use of gas. The domestic smoke question was the worst part of the problem. The thorough cure for the evil was the gas stove; but he hoped that before long we should be able to point to coalite as a solution of the fuel difficulty. Coalite was a perfect cure for smoke, and if it or any of its rivals could be sold at a reasonable price a solution of the domestic smoke question would be obtained. In the meantime our domestic grates should be reasonable ones. They should be constructed on the principles carried out by Dr. Teale, of Leeds. The grates should be firebrick fireplaces, with open slanting cheeks and a back sloping forward over the fire. The direction of the draught should be over and not through the fire. The man who used more gas than his neighbour was a public benefactor, because he produced less smoke. Therefore gas should not be sold at a profit by municipalities, and in the coal districts should not cost the consumer more than 1s. 6d. or 2s. per 1,000 cubic feet. As to manufacturing smoke, owing to the mechanical stokers available, there was no need for it anywhere. Mr. Graham added that for the purposes of smoke prevention an amendment of the Public Health Act was needed, and the business of smoke prevention should be taken out of the hands of local authorities. With the appointment of central inspectors, egged on by the Local Government Board, who should have increased powers, we should probably get the Act carried out. At present it was a dead letter, except in London and seven provincial towns.

### LUSTRED POTTERY.

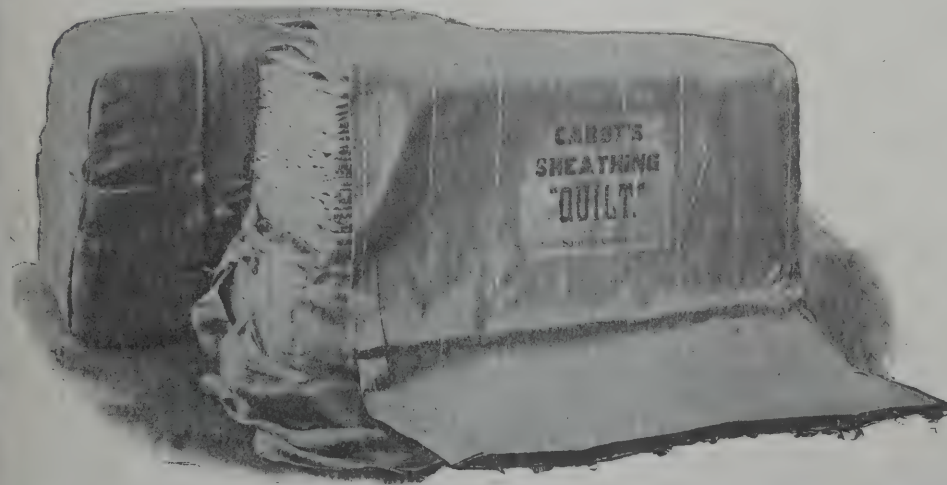
An address on the methods of true lustred pottery decoration was given last week before the Northern Art Workers' Guild in the Manchester Municipal School of Art by Mr. William Burton, the director of the Pilkington pottery at Clifton Junction and the historian of porcelain. For some years past, Mr. Burton said, according to the *Manchester Guardian*, we have been doing something to carry forward the old processes of lustred pottery. In so doing we had learned many things about the methods of the old potters who used that form of decoration centuries ago. We had learned what they did and why they did it, and how they got the effects, beautiful, subtle and strong, and very dif-

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ferent from many of the things that have been used since. Lustred pottery possessed one prominent feature in common, and that was a shining metallic quality of surface which marked it off from every other kind of pottery decoration, though this quality was more or less manifest in all the decorations of this class produced during the last thousand years. The so-called copper and silver lustres of English pottery were introduced a little more than a century ago. Here the metallic quality was developed to the utmost, for pottery covered all over with such lustres as these recalled at once the characteristic appearance of vessels shaped in metal. There could be no doubt that the English potters of the late eighteenth and early nineteenth century thought they had discovered a delightfully simple method of making their pottery look like metal and resembling vessels made in gold or silver. They endeavoured to imitate the popular Sheffield silver plate of that day. Unconsciously, they seemed to have been following the example of the first inventors of the lustre decoration, for there was no doubt that the potters of Egypt, Syria and Persia, who made the first "lustres," also hailed their invention as a brilliant discovery that enabled them to make pottery like gold.

It was interesting to recall how soon the newly discovered metal platinum was brought into use for lustred pottery. Just as it was found that gold-chloride solution would furnish a coat of shining gold, one of the first industrial uses of platinum was its application in a similar way to produce a shining deposit of platinum on crockery, which was known by the common name of silver lustre because of its resemblance to that metal in appearance. Wedgwood was one of the potters who made extensive use of these gold and silver lustres. If we examine examples of the fine lustres of the Persian, Spanish or Italian potters we should find that the decoration, however strong and metallic it might be in certain lights, was softened and beautified by a wonderful play of iridescent colour, so that it assumed something of the changing quality of the inside of a pearl shell.

The only form of pottery decoration which ought to be called lustre was that which exhibited besides the metallic sheen this play of iridescent colour, and in Mr. Burton's opinion it would be better if our so-called English lustres

made with a basis of gold or platinum were described as "plated" or "metallised" pottery, so as to avoid the confusion of treating these not very artistic products as if they belonged to the same category as the splendid lustres of old time. Mr. Burton described the process of true lustre, and said that after it had reached a high pitch of excellence in Spain and in Italy it fell into almost complete disuse in Europe, and had only been revived since about 1860. Where the method was originally invented was by no means certain. He could only say that it was probably invented by Egyptian, Syrian or Persian potters working for the Arabs, and that it was extensively adopted by the Spanish potters, and especially by the Moorish potters of the south and east of the Peninsula, and afterwards conveyed to Italy.

Certain interesting effects, Mr. Burton said, had been brought to light in their works at Clifton Junction, Manchester. A great deal had been said as to certain glazes being much better for the lustre process than others. They had found it possible to produce excellent lustres on glazes of every type—leadless glazes, lead glazes and glazes with or without oxide of tin. The value of the lustre process depended entirely on the artistic use of it. Having reduced the scientific and mechanical sides of the process to something like order and method, they endeavoured to produce a new English pottery as artistic and beautiful as that of the Middle Ages. To this end they had gathered together a school of young English artists, all of whom had had some training in various art schools of the country under the control of the Board of Education. Every piece of lustre pottery they produced was unique, for either the designs were original conceptions or adaptations of the painters themselves. In cases where they had been fortunate enough to obtain designs from distinguished decorative artists like Mr. Walter Crane no two pieces were reproduced in the same way.

Some excellent examples of the work done at the Clifton Junction Pottery were on view in a case at the School of Art. Some pieces of lustre ware from the Victoria and Albert Museum were also lent to Mr. Burton by the Board of Education, while the lecturer showed a collection of pieces by Clement Massier, Jerome Massier, Cantegalli, De Morgan and others.

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**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

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**TENDERS, ETC.**

\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

**COMPETITIONS OPEN.**

RADCLIFFE.—Feb. 3.—The Radcliffe Urban District Council invite architects practising in Lancashire to submit designs and estimates for Council offices. Premiums of 75*l.*, 50*l.* and 25*l.* offered for designs placed second, third and fourth. Mr. G. H. Willoughby will act as assessor. Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHDALE.—Feb. 1.—The Corporation invite designs for branch baths to cost not more than 7,500*l.* Premiums of 25*l.*, 15*l.* and 10*l.* An assessor will be appointed. Send 10s. 6*d.* to Mr. S. S. Platt, borough surveyor, Town Hall, Rochdale.

**CONTRACTS OPEN.**

AUDLEY.—Dec. 31.—For proposed Council schools at Talke and Butt Lane, in the parish of Audley, near Newcastle, Staffs, for 300 and 400 children respectively. Deposit 1*l.* 1s. Mr. Graham Balfour, director of education, County Education Offices, Stafford.

BANHAM.—Jan. 10.—For alterations and additions at the Banham school, Norfolk. Deposit 10s. Mr. E. J. Tench, architect, Royal Insurance Buildings, Upper King Street, Norwich.

BECKENHAM.—Jan. 6.—For extension of the destructor house at the electric light works, Church Fields Road. Mr. John A. Angell, surveyor, The Beckenham Urban District Council, Kent.

BILSTON.—Jan. 18.—For erection of new schools at Bull-holes, Bilston, consisting of boys', girls', infants', and senior boys' and girls' departments, for 1,350 children, with out-offices and boundary walling. Deposit 1*l.* 1s. Messrs. Bailey & McConnal, architects, Bridge Street, Wallsall.

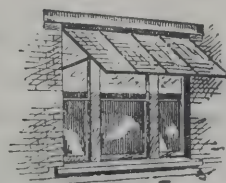
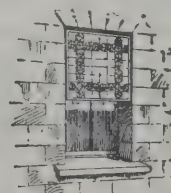
BIRMINGHAM.—Jan. 21.—For erection of a Council school in Leigh Road, Washwood Heath. Deposit 2*l.* Finance Office of Education Department, Edmund Street, Birmingham.

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**BLAYDON AND CHESTER-LE-STREET.**—Jan. 7.—The Durham County Council invite sole tenders for new council schools at Blaydon and Chester-le-Street. Plans, specifications and general conditions of contract can be seen and bills of quantities obtained as follows: (1) for Blaydon school—at the office of Mr. J. Morson, 77 Westgate Road, Newcastle-on-Tyne; (2) for Chester-le-Street schools—at the office of Mr. W. H. Knowles, 25 Collingwood Street, Newcastle-on-Tyne.

**BRIDGNORTH.**—Dec. 31.—For erection of a secondary school at Bridgnorth, Salop, to accommodate 200 pupils. Deposit 1*l.* 1*s.* after December 12. Messrs. Pritchard & Pritchard, architects, Kidderminster.

**BRISLEY.**—Dec. 28.—For improvement and enlargement of Brisley Church of England schools, East Dereham. Rev. W. H. Lowe, Brisley Rectory, East Dereham.

**CASTLEFORD.**—Dec. 31.—For whole or part tenders in erection of a dual secondary school at Castleford, Yorks. Deposit 1*l.* Mr. W. S. Braithwaite, architect, 6 South Parade, Leeds.

**COCKFIELD.**—Dec. 31.—For erection of a temperance institute. Mr. James Howe, Cockfield, S.O., co. Durham.

**COVENTRY.**—Jan. 1.—For work required to be executed and materials supplied in erection of corn exchange and shops, Smithford Street. Deposit 1*l.* 1*s.* Mr. J. E. Swindlehurst, city engineer and surveyor, St. Mary's Hall, Coventry.

**DEVONPORT.**—Dec. 31.—For erection of laundry at the workhouse. Messrs. Thornely & Rooke, architects, 29 St. Aubyn Street, Devonport, or 11 The Crescent, Plymouth.

**DOVER.**—Dec. 30.—For carrying-out structural alterations to the St. Martin's Council schools in Markland Road, Maxton. Deposit 1*l.* 1*s.* Mr. W. C. Hawke, A.M.I.C.E., borough engineer, Maison Dieu House, Biggin Street, Dover.

**EARLSHEATON.**—Jan. 13.—For pulling-down and re-erecting retaining and other walls, flagging footways, kerbing, channelling and draining of High Road, Earlsheaton, Yorks, for the tramway route. Deposit 1*l.* 1*s.* before Dec. 31. Mr. J. H. Ward, surveyor, the District Council Offices, Earlsheaton.

**EGGLINGHAM.**—Jan. 6.—For erection of a villa at Eggingham, near Alnwick. Mr. M. Temple Wilson, architect and surveyor, Alnwick.

**FOLKESTONE.**—Jan. 1.—For erection of elementary school in Chart Road. Deposit 1*l.* 1*s.* Mr. F. Newman, architect and surveyor, 4 Bouverie Street, Folkestone.

**FULMER.**—Jan. 1.—For erection of elementary school at Fulmer, Bucks, to accommodate about ninety children. Mr. W. C. G. Watkins, secretary, Education Office, Aylesbury.

**GOOLE.**—Jan. 8.—For erection of a school with caretaker's house. Deposit 1*l.* 1*s.* Mr. W. T. Silvester, clerk to the Governors, 10 Victoria Street, Goole.

**GREAT DRIFFIELD, &C.**—Jan. 3.—For the following works, for the West Riding education committee:—(1) Additions and alterations to the Council school, Great Driffield; (2) additions and alterations to the Council School, Wold Newton; (3) enclosing and forming playground at the Council school, Withernwick. The Building Surveyor, County Hall, Beverley.

**GREAT HARWOOD.**—Jan. 7.—For erection of public elementary school and technical instruction block at Great Harwood, near Blackburn, to accommodate 900 scholars. Deposit 2*l.* Mr. Henry Littler, county architect, 16 Ribblesdale Place, Preston.

**GREETLAND.**—Jan. 8.—For mason (labour only), joiner, plumber, slater and plasterer's work in erection of fifteen through houses off Clay House Lane, Greetland, Halifax. Messrs. Richard Horsfall & Son, architects and surveyors, 22A Commercial Street, Halifax.

**GRIMSBY.**—Jan. 3.—For erection of a public convenience in Riby Square behind Messrs. Waby & Co.'s premises. Separate tenders for the sanitary fittings and appliances. Deposit 1*l.* 1*s.* Mr. H. Gilbert Whyatt, A.M.I.C.E., borough engineer and surveyor, Town Hall Square, Grimsby.

**GRIMSBY.**—Jan. 3.—For erection of a head post office. Deposit 1*l.* 1*s.* H.M. Office of Works, &c., Storey's Gate.

**HASTINGS.**—Jan. 2.—For erection of a covered way at the workhouse, Frederick Road. Messrs. A. W. Jeffery & Son, architects, 5 Havelock Road, Hastings.

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HULL.—Jan. 8.—For erecting shops and offices in Victoria Square. Mr. W. Bell, architect, North Eastern Railway, Yorks.

IRELAND.—Dec. 30.—For erection of a public library at Kilkenny. Deposit 2*l.* 2*s.* Messrs. E. S. Lowrey & Son, 62 Dame Street, Dublin.

IRELAND.—Dec. 30.—For construction and erection of a galvanised corrugated iron shed, 50 feet by 18 feet, two storeys high, with steel framing and steel roof principals, at their Cookstown station, for the Great Northern Railway Company (Ireland). Payment 10*s.* Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin, or at the office of the district engineer, Belfast.

IRELAND.—Jan. 6.—For erection of the following buildings, for the Great Northern Railway Company (Ireland):—Three four-roomed cottages, in masonry, at Fintona station; one four-roomed cottage, in masonry, at Ballyward station. Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

LANCASTER.—Dec. 30.—For various works (whole or separate) required in erection of Y.M.C.A. building, China Street. Mr. Spencer E. Barrow, A.R.I.B.A., architect, Liverpool Bank Chambers, Lancaster.

LEEDS.—For the whole or any of the several trades in connection with the erection of a pair of semi-detached villas in Sandhill Lane, Moortown. Mr. G. W. Atkinson, architect, 1 Mark Lane, Leeds.

LONDON.—Jan. 8.—For erection of coal store at the Brook fever hospital, Shooter's Hill, Woolwich, S.E. Deposit 1*l.* Mr. W. T. Hatch, engineer-in-chief, Metropolitan Asylums Board, Embankment, London, E.C.

LONDON.—Several contracts are still open for decorative plasterwork at the Franco-British Exhibition. Contractor of Works Office, Exhibition Grounds, Wood Lane, Shepherd's Bush, W.

NEWBURN-ON-TYNE.—Jan. 14.—For erecting a Council school to accommodate 480 scholars. Deposit 2*l.* 2*s.* Mr. C. Williams, secretary to the education committee, Pearl Buildings, Newcastle-on-Tyne.

SCOTLAND.—Dec. 31.—For the mason, carpenter, slater, plaster, plumber and painterworks of addition to United Free Church, Burghead. Messrs. Wilson & Walker, architects, Aberdeen.

SOUTH BANK.—Jan. 7.—Separate tenders only are invited for erection of proposed Unionist club premises. Mr. Fred Walshaw, architect, 59 Lorne Terrace, South Bank, S.O., Yorks.

SOUTH ELMSALL.—For erection of branch grocery stores at South Elmsall, near Doncaster. Messrs. Garside & Pennington, architects, Pontefract and Castleford.

WALES.—Jan. 9.—For erection of Council school buildings at Fishguard, Pembrokeshire. Deposit 1*l.* 1*s.* Mr. D. Edward-Thomas, architect, 17 Victoria Place, Haverford-west.

WALES.—Jan. 18.—For excavator and mason's work required in the erection of stone and ferro-concrete bridge near Talley, Llandilo, Carmarthenshire. Mr. Charles H. Mounsey, county surveyor, County Offices, Carmarthen.

WAKEFIELD.—Jan. 8.—For the enlargement of Wakefield post office. Deposit 1*l.* 1*s.* Secretary, H.M. Works and Public Buildings, Storey's Gate, S.W.

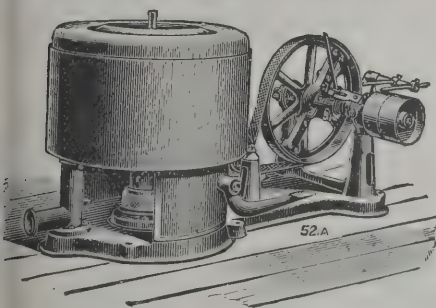
## TENDERS.

### ACTON.

For the erection of additions to Central Council school, Acton, for the education committee of the Acton Urban District Council. Messrs. E. C. P. & H. MONSON, architects to the committee, 182 High Street, Acton, and 22 Buckingham Street, Adelphi, W.C. Quantities by Mr. F. T. W. MILLER, 8 Dartmouth Street, Westminster, S.W.

Barrett, Smith & Co. . . . .	£2,803	0	0
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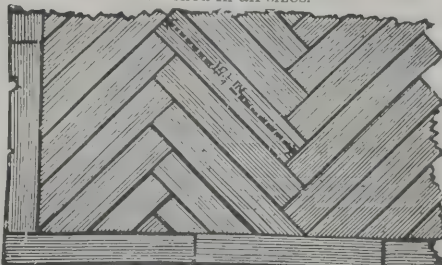
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Erwood & Morris . . . . .	275	0	0

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For resewering and paving portions of Back Bowes Street, Waterloo. Mr. ROBERT GRIEVES, surveyor.

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Gosling & Stafford, London Road, Hazel Grove . . . . .	£1,408	14	5
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Brown & Son . . . . .	£569 3 0	£601 19 3
Hussey . . . . .	435 0 0	335 0 0
Wood . . . . .	433 0 0	—
Barrett & Power . . . . .	427 0 0	270 0 0
Power . . . . .	402 4 0	—
Fox & Sons . . . . .	390 0 0	408 0 0
Wick . . . . .	378 0 0	342 0 0
Measor & Son . . . . .	352 2 9	411 10 2
Sherwood . . . . .	342 0 0	298 0 0
Hocking & Co. . . . .	333 0 0	296 0 0
Newmans . . . . .	330 0 0	265 10 0
Bruton & Son . . . . .	330 0 0	320 0 0
Clemens . . . . .	330 0 0	250 0 0
Stevens & Sons . . . . .	328 0 0	224 0 0
Wood Bros. . . . .	308 15 0	229 10 0
Woollaston Bros. . . . .	305 0 0	240 0 0
Clemens Bros. . . . .	299 10 0	—
Vigor & Co. . . . .	297 10 0	248 0 0
Smith . . . . .	292 0 0	—
Scott . . . . .	288 16 0	359 6 3
Partridge . . . . .	284 19 0	—
Sims . . . . .	275 0 0	410 0 0
Coxhead . . . . .	266 0 0	256 0 0
Holmes . . . . .	259 0 0	280 0 0
Richards & Son . . . . .	258 10 0	198 12 0
Hubbard . . . . .	255 0 0	283 0 0
P. McCarthy . . . . .	211 0 0	297 0 0
KAZAK, Belvedere (accepted) . . . . .	173 0 0	194 10 0

## LONDON.

For the supply of track rails, &c., for the London County Council.

Cammell, Laird & Co., Ltd. . . . .	£15,579 10 0
Steel, Peech & Tozer, Ltd. . . . .	14,444 10 0
Barrow Hæmatite Steel Co., Ltd. . . . .	13,262 12 6
P. & W. MacLellan, Ltd. . . . .	13,119 18 9
Bolckow, Vaughan & Co., Ltd. . . . .	12,893 0 0
SCOTT, LTD., Hunslet, Leeds (accepted) . . . . .	11,546 0 0

## LONDON—continued.

For making roads and laying drains from Acton Lane to Workhouse buildings, Willesden, N.W. Mr. A. SAXON SNELL, architect, 22 Southampton Buildings, W.C.

Bendon . . . . .	£1,140 0 0
Griffiths & Co. . . . .	781 15 9
F. & E. Davey . . . . .	677 0 0
Kavanagh & Co. . . . .	669 0 0
Adams . . . . .	638 0 0
Ford . . . . .	637 0 0
Catley . . . . .	620 0 0
Fowles & Co., Ltd. . . . .	600 0 0
Edwards & Co. . . . .	595 0 0
Brummell . . . . .	590 0 0
WILLIS & POWIS, Sudbury (accepted) . . . . .	464 0 0

For the making-up and paving of part of Burntwood Lane, S.W. Mr. P. DODD, surveyor for western district, Wandsworth.

Hoffmann . . . . .	£1,227 10 6
Dykes . . . . .	1,220 0 0
E. & E. Iles . . . . .	1,202 9 0
King . . . . .	1,200 0 0
Wood & Sons . . . . .	1,182 14 5
Etheridge . . . . .	1,167 0 0
Potter & Co. . . . .	1,155 0 0
Parry & Co. . . . .	1,108 0 0
Mowlem & Co. (recommended) . . . . .	1,082 0 0
Surveyor's estimate . . . . .	1,187 11 9

## NORWICH.

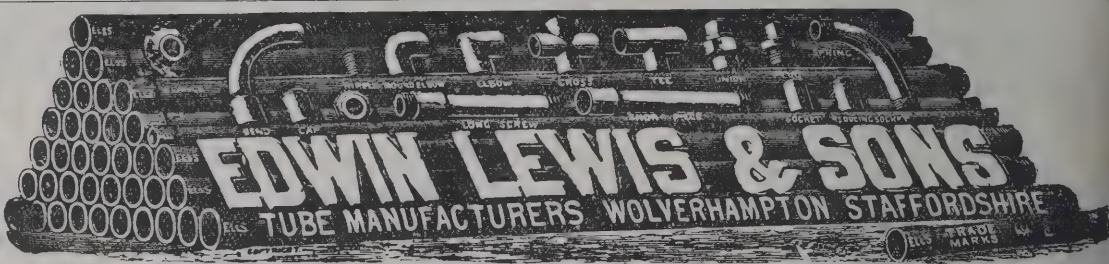
For erection of Wensum View Council school. Mr. C. J. BROWN, architect, The Close, Norwich.

Downing & Sons . . . . .	£10,995
Smith . . . . .	10,886
Scarles Bros. . . . .	10,650
Youngs & Son . . . . .	10,464
Greengrass . . . . .	10,457
Hawes . . . . .	10,452
Hannant . . . . .	10,250
Gill . . . . .	9,946
Spencer, Santo & Co. . . . .	9,850
HURN (accepted) . . . . .	9,790
Clark & Son . . . . .	9,279

# TUBES

AND

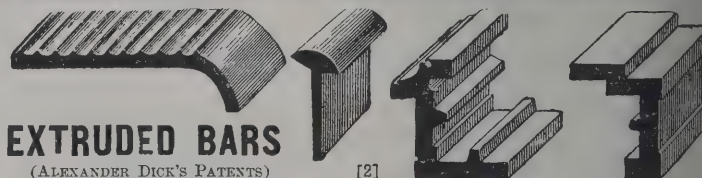
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A. & B. Hanson, Southall . . . . 131 0 0

##### Adelaide Road (part of).

A. & B. Hanson, Southall . . . . 629 0 0

##### Talbot Road.

A. & B. Hanson, Southall . . . . 409 0 0

##### Endsleigh Road (part of).

A. & B. Hanson, Southall . . . . 208 0 0

##### Gordon Road.

A. & B. Hanson, Southall . . . . 722 0 0

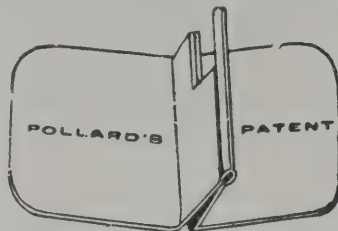
##### Inverness Road (part of).

A. & B. Hanson, Southall . . . . 533 0 0

### A. SLATE CLIP.

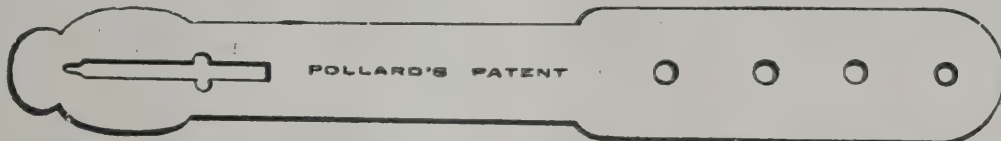
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elasticity. The clip is  $\perp$  formed and made out of one piece. The vertical part, which, of course, is doubled, is cut to receive the slate, which is held securely, although there is no chance of breakage through expansion, contraction or other cause. Theoretically the arrangement is ingenious; and as the clip has been used by railway companies, owners of breweries and other large establishments, experience has confirmed the conclusions which can be drawn from a single specimen.

THE Mansfield Town Council last week gave a general approval to the sewerage scheme submitted by the engineers, and resolved that application be made to the Local Government Board for sanction to borrow 38,000*l.* for



and to slide. In some French buildings precautions are taken which are enough to suggest that slates are hung rather than laid. The English system, by which slates are held in position by nails, is not always satisfactory. To increase the safety lead clips have been used, especially where roofs are repaired. The new clip of the Lock S'ate

works of sewerage disposal, repayable in 50 years, and that the borough surveyor, Mr. R. F. Vallance, be paid 1,500*l.* for his services in carrying out the scheme, including quantities up to 38,000*l.*, 700*l.* to be paid at once, 300*l.* when the loan is received, and remainder as the work progresses.

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## TRADE NOTES.

UNDER the direction of Mr. Ernest Collier, architect, Carmarthen, the "Boyle" natural system of ventilation, embracing the latest patent "air-pump" ventilators, has been applied to the National school, Ferryside.

THE infectious diseases hospital, Leuchars, is being warmed and ventilated by means of Shorland's patent Manchester grates and special inlet ventilators, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

WE have been requested to announce that Messrs. Field & Sons, auctioneers, surveyors and estate agents, of 54 Borough High Street, London, S.E., who took into partnership Mr. William Glasier in 1903, have added his name to the firm, and that in future it will be known as Field, Sons & Glasier.

THE Edison & Swan United Electric Light Co., Ltd., are supplying a new type of lamp which they have named the "Black-Cap." The lamp, which bears the well-known trade mark "Royal Ediswan," is further distinguished by an illustration of a bird, and the words "Black-Cap" etched on the bulb. Briefly, the lamp has been placed on the market to meet the demand for a high-grade lamp, of standard pattern, suitable for use in all exposed situations, where the ordinary type would be unreliable owing to corrosion from damp or chemical fumes. The lamp is specially suitable for use in such places as mines, chemical works, breweries, laundries, cellarage, and all similar places where the lighting is exposed to either damp or fumes which would have a corrosive effect on the lamp caps, if left unprotected with the exception of the ordinary lacquering. The cap of the new type is enamelled with an acid and waterproof enamel of high flexibility and insulating qualities, and in addition to the protection afforded by this, the cementing of the cap to the bulb is effected by means of a waterproof cement, thus rendering the lamp absolutely impervious to moisture or fumes. For outdoor use, as street lighting, these lamps should be invaluable, as no special precautions are necessary to render the fitting waterproof. The usual form of water-tight fitting hitherto necessary can be modified if required where these lamps are used, as the advantages of the lamp

itself are so great. We are informed that in all details regarding insulation, the lamp more than conforms to the standard requirements and may be implicitly relied upon.

## VARIETIES.

A FURTHER public library is to be erected for the Urban District Council of Ilford, Essex, in Balfour Road. The plans are in course of preparation by the surveyor.

MR. BASIL PYM ELLIS, aged fifty-seven, of Bevendean, Oxshott, Surrey, engineer, a partner in the firm of John Aird & Co., son-in-law of Sir John Aird, M.P., left property valued at 207,385*l*.

MESSRS. BROWN & SONS, of Salford, have commenced the work of the foundations for the large offices of the Royal Liver Friendly Society in Liverpool. Their tender for that part of the work was 31,500*l*.

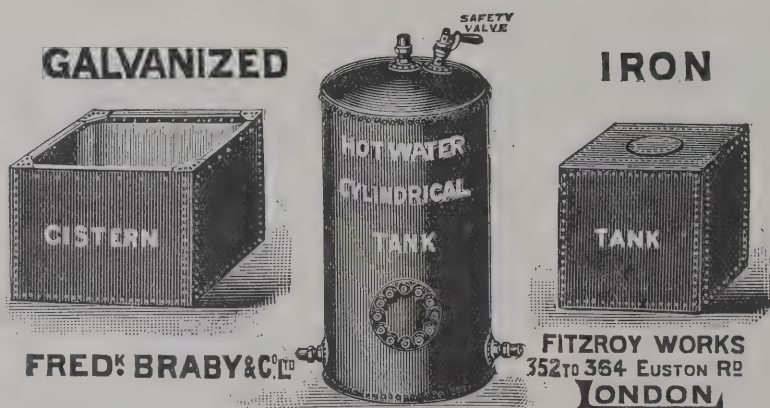
THE Urban District Council of Wood Green, London, have decided to make application to the Local Government Board for sanction to borrow 22,000*l*. for the purpose of purchasing land for a public park, sites for a secondary school, for a new fire station and for an elementary school.

MR. CHARLES CARTER, architect, of Nottingham, has been awarded the first premium for the new municipal offices for the Corporation of Hereford, the cost of which is not to exceed 3,500*l*. Messrs. Baines were placed second in the competition, for which there were ninety-eight entries.

At a meeting of the Hanley Council the chairman, in moving the minutes of the sanitary committee, referred to the great progress made in the gas fires of the potting ovens in the district, and declared there was no doubt now that they were within reasonable distance of a smokeless potteries.

MR. HENRY BIGGIN, of Sheffield, was elected president of the Yorkshire Builders' Federation at the annual meeting at Hull on the 19th inst. Mr. Biggin is a member of the firm of Messrs. Ash, Son & Biggin, builders and contractors, and is recognised as one of the leading men in the trade in Sheffield and district. He has been president of the Sheffield Builders' Exchange since its inauguration. Mr. A. J. Forsdike, of Sheffield, is treasurer of the Federation.

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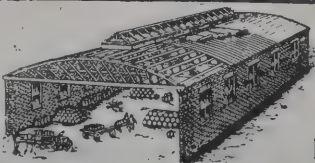
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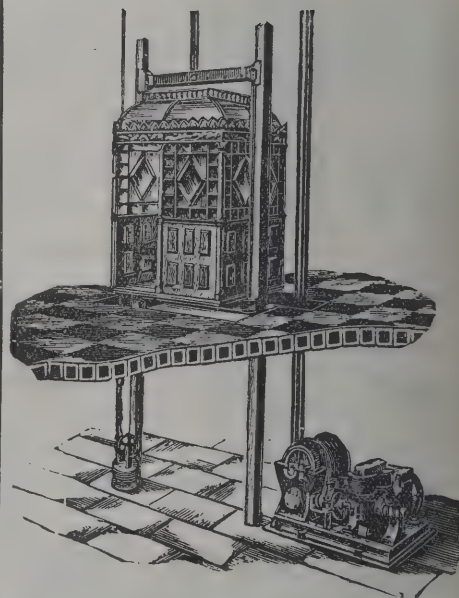


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THE Waterford Corporation last week acquired the Waterford toll bridge and ferry rights over the river Suir, a cheque for 63,885*l.* 17*s.* 9*d.* being handed over to the bridge proprietors in full discharge of all claims. The bridge will be free from January 1, and it has been decided to invite Mr. John E. Redmond, M.P. for the city, to attend the demonstration at the throwing open of the bridge on the night of December 31.

At Edinburgh the residential agricultural and sporting estates belonging to the Earl of Galloway in Wigtownshire were offered for sale by public auction on the 18th inst. The upset price was 487,000*l.* There was a large attendance, but there was no offer, and the sale was adjourned. The estates include the historic mansion of Galloway House.

A SUB-COMMITTEE of the general purposes committee of the Birmingham City Council considered the tenders received for the excavations, foundation and the construction of the lower ground floor of the building to be erected on the site between Edmund Street and Great Charles Street as an extension of the Council house. It was decided to recommend to the full committee the acceptance of the tender of a local firm.

A NEW town hall is to be built for the Bethnal Green Borough Council at a cost of 20,000*l.*, the site selected being in Cambridge Road, at the south-east corner of Patrick Square, within two minutes' walk of Cambridge Heath station. It has a frontage of about 80 feet to Cambridge Road and of 133 feet to Patrick Square, the total area being 11,000 square feet. The surveyor's estimate of the cost is 22,100*l.*, including provision for an adequate supply of appropriate furniture.

A REPORT on the subject of the unemployed has been submitted to the works committee of Dundee Town Council by Mr. James Thomson, the City engineer. He states that on November 26 twenty cards offering work were issued, and on the 27th the work was commenced, 13 men accepting the offer of work. Having regard to the small number who responded to the invitation, a further 10 work cards were issued on the 28th, and of these five only availed themselves of the offer; and again on December 3 ten additional offers of work were sent out, and of these only

three men turned out. Of the total number of 40 invitations for work there are at present 13 men working.

A DEPUTATION of London managers of the Theatrical Managers' Association waited upon the committee of the Metropolitan Water Board for the purpose of pointing out the enormous charges made upon them in respect of water rates, which are likely to be increased owing to the new law coming into force on April 1, 1908.

THE markets committee of Edinburgh Town Council recommend the adjustment of the plans for the new slaughter-house at Gorgie in accordance with an arrangement arrived at with the butchers' representatives, and to ask for a remit to obtain estimates for the work. The same course was adopted with regard to the plans for the corn market, in relation to which a petition was received from farmers, corn-dealers, and others, asking that the erection of the new premises should be proceeded with simultaneously with the cattle market and slaughter-house.

THE provision of a commercial pier near Langney Point, close to Eastbourne, is contemplated. It is estimated that the cost of this work will be about 60,000*l.* The site is about 1½ mile east of the town and close to the Corporation gasworks and the Corporation electric power station. The proposed works consist of two arms; the eastern arm, about 1,200 feet long, will be the landing stage, and will provide a depth of 30 feet to 35 feet at high water ordinary spring tides. The western arm, 1,000 feet long, will form a wave screen or breakwater for the protection of vessels discharging at the landing stages. In rough weather these vessels will lie to moorings and will be served by long-reach cranes. The deep-water structure will be built exclusively of armoured concrete, portions of the approaches being of timber. The engineer is Mr. A. E. Carey, M.Inst.C.E.

THE Liverpool Corporation propose to promote a "Streets and Buildings" Bill, which suggests that additional provisions and further powers should be granted to the Corporation with regard to streets and buildings in the city of Liverpool and to the laying out and development of estates for building purposes; provisions as to new and existing streets; power to the Corporation to purchase and sell lands; adjustment of boundaries and exchange of lands

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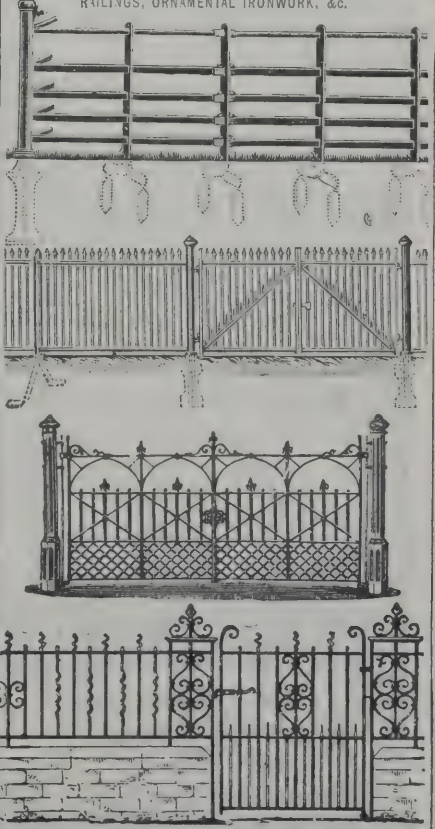
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THE Board of Trade recently issued the fourteenth annual report dealing with the change in the rates of wages and in the recognised hours of labour of the workpeople in the United Kingdom. The particulars relate to 1906 and the first half of 1907. The statements as to wages of course refer to the recognised rates per week or day and do not attempt to represent the actual earnings. The upward tendency in wages which commenced in the second half of 1905 continued throughout 1906, showing, for the first time since 1900, a total net increase in wages as compared with the preceding year. The changes in rates of wages during 1906 resulted in net advances in all the principal groups of trades, with the exception of building and quarrying. Of the 5,140 workpeople whose wages were reduced, 2,400 were engaged in quarrying and 2,200 in the building trades. Of the workpeople whose hours were changed, 18,400 (or 33.5 per cent.) were in the metal, engineering and shipbuilding trades, and 14,400 (or 26.5 per cent.) were in the building trades. The 14,400 workpeople in the building trade group include nearly 4,800 operatives at Bristol, 4,000 plasterers in London and 2,700 carpenters and joiners at Glasgow.

THE Local Government Board has reopened the question of the purchase of the electricity works by the Dover Corporation on an application for a further loan. The Board, in a letter submitted to the Council on the 18th inst., states that an investigation of the accounts shows that there has been an increasing annual loss during the period that the works have been carried on by the Corporation. The purchase price appeared to represent the cost price of the works, which had been in working for seven years, and goodwill representing 52.370%. The Board wished to know who advised the Corporation as to the

price and on what information the valuation was made. On the information before them they were of opinion that the advice on which the Corporation acted was entirely mistaken, and that the company in consequence received a sum considerably in excess of the value of the undertaking. The Board asked to be furnished with all documents. The Corporation last week ordered a reply that the loss is greatly due to the fact that, though they asked for a loan for forty-two years, the same as given to Metropolitan boroughs, they were only allowed thirty-five years. The Council were reluctant to raise the price of the current, though in Hastings and Eastbourne it was 20 per cent. more than in Dover. Copies of the engineers' and valuers' reports were ordered to be sent.

A SERIES of experiments to demonstrate the relative speeds of electric and steam locomotive trains have recently been made upon a six-mile stretch of the New York Central Railway. The two trains, identical in weight, ran side by side upon an ordinary railway track with easy gradients and curves of average radius. Both the steam and the electric locomotives were of the latest design, the former weighing 108 and the latter 90 tons. In the first run the electrically hauled train came in two lengths ahead, and reached a maximum speed of fifty-seven miles an hour to the steam-engine's fifty. The result of all the other five races was the same—victory for electricity. In the second run the electric train reached a speed of 60 miles an hour to the steam train's 53.6, and in the third run 61.6 miles to 56 miles an hour. In the last two trials the electric locomotive was run at full speed; with one coach attached its maximum speed was 79 miles an hour, and without any coach over 80 miles an hour. Had not the precaution been taken of shutting off the power when rounding curves a speed of 90 miles an hour would probably have been reached. The net result of these runs seems to be a demonstration that, the conditions being equal, a lighter electric locomotive will haul a load of given weight at a higher speed and with greater powers of acceleration than a steam locomotive.

It is reported by Mr. S. P. Cockerell, commercial attaché to the British Embassy at Madrid, that, according to the Government returns, there were in Spain in 1901 only 861 electric power stations, of which 651 were restricted to

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public lighting and 210 to private lighting. Since then the number of power stations for electric lighting has increased considerably, and it may be added also that the use of electricity in its multiple other applications has also increased and become more general (transmission and distribution of energy, electro-chemical industries, smelting furnaces, &c.); but there is still a vast field for further industrial developments, as the supply of power which the country affords is far yet from being exhausted. Indeed, while some regions of Spain appear to be almost over-developed, there are others which are completely abandoned. Most Spanish towns of any importance, Mr. Cockerell says, have a fair service of public and private electric lighting, but business in this direction is not by a long way yet exhausted, as many of the existing installations are deficient and could easily be reformed, or competition could easily be effected under favourable conditions, thanks to the improvements which the construction of electrical machinery and material have undergone during late years. And, furthermore, there are a considerable number of towns, some of them of importance, which are not yet supplied with electric lighting. Leaving on one side the question of competition, there is, as stated above, still much to be done by way of electric lighting for smaller towns and villages, and in Mr. Cockerell's opinion an investment in such undertakings would yield fair profits without going to great expense. There are in Spain in its various provinces over 400 towns and villages of over 4,000 inhabitants where there are no electric power stations. British capitalists should, says Mr. Cockerell, study care-

fully the advisability of installing electric light plants in the larger towns and even in the smaller ones, and quick action in the matter would, in his opinion, fully compensate such an undertaking. As regards the towns and villages which are not yet lighted by electricity, Mr. Cockerell states that the north-west region of Spain (Galicia) is almost devoid of electricity.

THE slate quarrying district of Easdale (Argyllshire) is at present the centre of serious dissatisfaction on the part of the workmen, which threatens to lead to a stoppage of the works there. There are four quarries in the district, all under one management, and the quarries on the island of Easdale, owned by the Easdale Slate Company. Of late the slate trade on the west coast has been unsatisfactory, and an effort is being made to group all these quarries under one management, to be in the hands of a new company to be formed in Glasgow. The system of working the quarries hitherto has been what is called the "crew" system—that is, each crew, or section of men, contract to excavate an allotted portion of the quarry, dividing the labour so that the crew is responsible for all the work in that portion to the completion of the finished slate. When the last pay was made, a new method of working the quarry was intimated, namely, that the quarries be divided into two classes, one to work as labourers in the quarry at 6d. per hour, and the other section on the bank at piecework, as before, and to be paid at the rate of 10s. per 1,000 slates dressed. The men unanimously reject these proposals, on the ground that the arrangement will be detrimental to the life of the quarries, inasmuch as it will lead to "picking the eyes" of the quarries, and that in a short time they would become useless, thereby depriving them in future years of all hope of employment. They unanimously adhere to the "crew" system, under which uninterrupted employment is always available, an advantage which they feel will be destroyed by the proposed system. They therefore intimated to the employers their absolute refusal of the system proposed, demanding the preservation of the "crew" system. On the part of the masters it is explained that they desire to give the new system a trial. Both sides are meantime uncompromising in their attitude, and the present prospects are that the quarries will be thrown idle for some time.

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## SYRIAN ASPHALTE.

In his report the United States Consul-General, G. B. Ravndal, writing from Beirut, says:—

At the time of my 1905 report the only deposits exploited were those at the headwaters of the Jordan, the Hasbeya pits, the product of which is still sold to America and Europe for use in the manufacture of black varnish (for furniture, leather, &c.). The Hasbeya mines have been lying idle for several years, and it is old accumulated stock that is on the market.

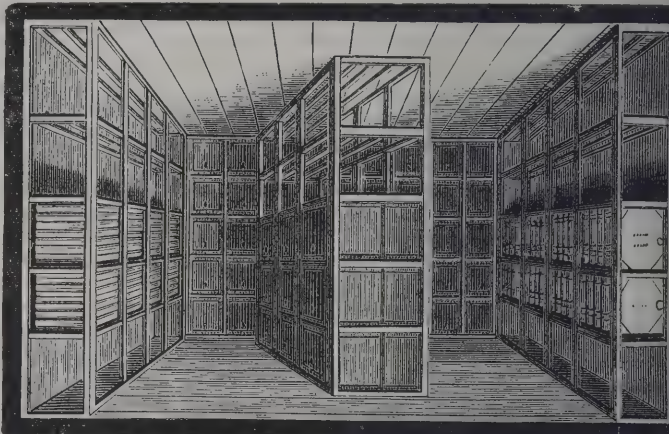
In my report alluded to I recommended that efforts be made to obtain a concession from the "Liste Civile" at Constantinople for the further development and exploitation of the Hasbeya bitumen fields. Eventually the concession could no doubt be extended so as to include the Dead Sea and Latakia asphalte, and perhaps the phosphates of the Jordan Valley and other natural resources of Palestine, which, for industrial and commercial purposes, are as yet untouched, including the mineral waters and salts of the hot springs between Lake Tiberias and the Dead Sea.

My recommendation still holds good and stands for what it is worth, except that in the meantime an Anglo-Egyptian company has obtained from the Imperial Government a concession covering the Latakia Mountains. Asphaltic layers have been found near Kferie, a village about twenty-five miles north-east of the port of Latakia, along the road leading toward Aleppo, which have been declared by competent mining engineers to be not only rich in asphalte, but also practically inexhaustible. Application has been made by the company for the right to construct a light railway from the prospective mining district to the port of Latakia and also proper harbour facilities.

Some two months ago I had a conversation with an American who is now buying up asphalte-bearing lands in the southern districts of Palestine, in the region around Beer-Sheba and not far from the Egyptian boundary. I sincerely hope the enterprise will prove successful. American trade in Western Asia will be greatly encouraged and promoted by American investments of capital out here in public works, such as railways, electric street systems, telephone lines, tourist resorts, as well as in the development of natural resources which lie dormant.

## STRONG-ROOM FITTINGS.

In his "Almanac" for 1908 Mr. Puach refers with pride to the foresight of one of his artists, George Du Maurier, in representing an amateur, when he wished to give a delightful musical evening to his friends going to a treasury and taking from the shelves the compositions which one of the scientific instruments was to render. Anyone who wishes to emulate that amateur will find it to his advantage to examine the wrought-iron fittings which Messrs. Farrow & Jackson have prepared. Their names have long been known to all good people who feel a pride in the condition of their



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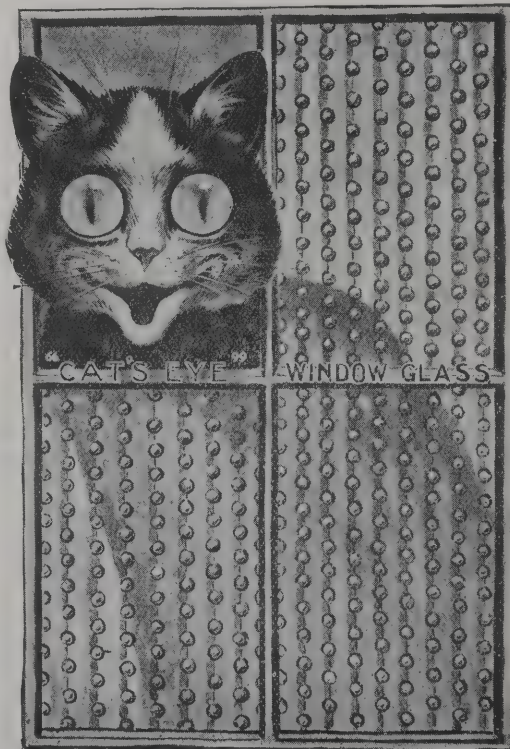
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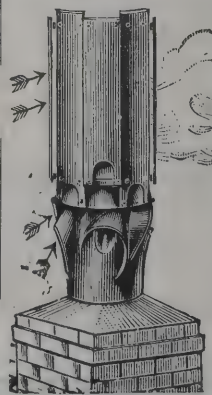
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## ARCHITECTS' TECHNICAL BUREAU.

THROUGH the courtesy of the editor, we are glad to have this opportunity of drawing the attention of the architectural profession to the establishment of the Architects' Technical Bureau.

We believe there are many among us who have for a long time felt the want of such an institution, and the reason is not far to be sought, when one glances at the immense growth and advancement that have taken place in building methods and materials during recent years. Simultaneously with this development is a proportionate increase in our responsibility and liability, and architects as a conscientious and professional body cannot afford to be without the ready means for acquiring disinterested information, which it is hoped to provide through the medium of this bureau. Architects are regarded by manufacturers as being too conservative, and one hears it on all sides that difficulty is encountered in bringing any innovation, however desirable and useful it may be, to the personal notice of architects. If manufacturers knew how inundated we are with circulars, trade lists, travellers and so forth, they would not be surprised at architects turning a deaf ear to their proposals. One remedy is to centralise all catalogues, pamphlets and circulars; have them carefully classified and tabulated, so that an architect when requiring any special information could obtain it from a central office. This the bureau proposes to do, and wherever practicable to make this information more useful by having tests and reports made by experts, these to be supported by the views of those architects who have had experience of the goods under examination. By this means we believe confidence will be readily established, and progress, at present so retarded, greatly assisted.

Apart from these reports, how deplorable is the waste of time incurred in searching through catalogues for some particular information that is required, and if eventually found is often out of date. Manufacturers cannot keep the catalogues they send us up to date, for cost of materials, &c., fluctuates, but a central office can be kept so.

It would, further, be most desirable, we are of opinion, to ascertain from some office where one could see in build-

ings erected the materials or fittings, as the case may be, that it is contemplated to use. It is the intention of the bureau, with the permission of the respective architects, to make records of the firms supplying the materials and fittings to the various prominent buildings throughout the country as erected, and also to give the architect's name, for many of us are quite prepared to repose confidence in the judgment of some architect known to us who had used the contemplated goods, and these records would also be a ready means for ascertaining what architects had utilised the various materials, &c.

We trust that architects generally will appreciate the idea that has resulted in the establishment of this bureau, for though at present we have over 500 architects as subscribers from all parts of the country, we hope as time goes on to greatly increase our numbers.

The bureau is to be under popular control, the committee being elected from the subscribers, and the strictest impartiality will be observed throughout.

Geo. Bertram Bulmer, F.R.I.B.A. (Leeds).	Paul Ogden, F.R.I.B.A. (Manchester).
Alfred W. S. Cross, M.A., F.R.I.B.A. (London).	William A. Pite, F.R.I.B.A. (London).
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Committee

All communications to be addressed to the Secretary, at the offices, 11 Bloomsbury Mansions, Hart Street, London, W.C.

## CUCKNEY CHURCH.

THE parish church of Norton Cuckney, near Welbeck Abbey, was reopened on Sunday. The church appears to have been rebuilt in the thirteenth century, the existing portions of this period being chiefly the tower and the porch. This thirteenth-century building is remarkable for

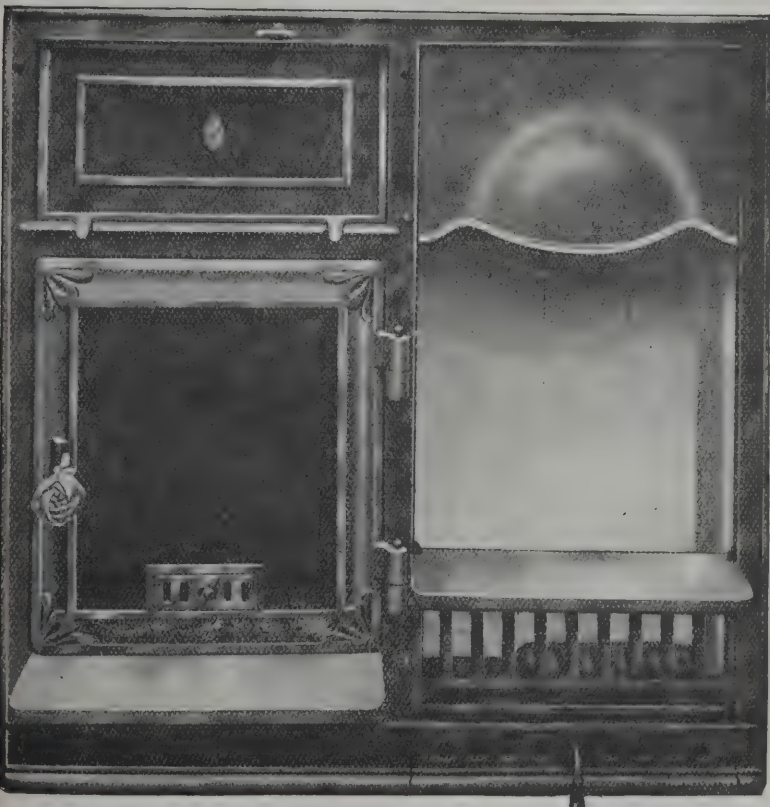
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its great length, being one of the longest village churches in Nottinghamshire, the extreme length from east to west externally being 145 feet.

The recent restoration works were planned last year by Mr. Louis Ambler, architect, of London, and the cost has been mostly defrayed by the Duke of Portland, who is lay rector of the church and patron of the living.

The restoration is not complete, most of the proposed work to the chancel and north aisle still remaining to be done, also some of the work to the tower, but the following portions have been completed, enabling the church to be reopened. The ground on the west and south sides has been lowered to its original level, and the paths have been re-formed and the drainage entirely renewed. The bases and plinths of the porch and the plinth of the tower and nave are now disclosed, having been buried. The whole of the rough-cast has been removed from the walls, also the stucco from inside the porch, and the walls have been repaired and repointed, including the upper portion of the tower. Moulded stone cornices have been put to the nave walls, and the porch walls have been underpinned, the buttresses, bases and plinths repaired where now uncovered, and the gable raised and restored to its original pitch. Weldon stone has been used for the external masonry, the old Bolsover stone quoins being reused. The external steps down to the porch from outside have been removed, the ground being now below the floor level of the porch. New open timber roofs of a higher pitch have been substituted for the former low-pitched roofs over the nave and porch, and the south slopes have been covered with green Buttermere slates, the old slates being reused on the north side. The floors of the nave, north aisle and tower have been lowered to what is believed to have been their original levels, about 18 inches below the ground outside, disclosing the bases of the piers, which have been repaired and restored. The old Bolsover stone paving has been relaid in the passages, the nave passage being now made central, and the floors under the seats and in the tower (this space now forming a choir vestry) have been laid with wood-block flooring. The plaster has been stripped from the internal walls of the nave and the lower portion of the tower, and the walls have been repaired and pointed. The

thick layers of whitewash have also been carefully removed from the stone arches, piers and columnus, revealing traces of old painted decorations and enrichments of various patterns and designs, probably stencilled. These have been preserved, as far as possible, and the piers and arches have been repaired and restored.

The imitation panelling has been removed from the sanctuary, and the plastered walls of the chancel and north aisle have been repaired and distempered. New oak doors with ornamental iron hinges have been substituted for the dilapidated deal doors throughout. The vestry fittings and inner porch are of pitch pine. The old high-backed pews have been removed and new seating of pitch pine has been made at Welbeck for the nave, this and the vestry fittings and the whole of the roof timbers having been stained a quiet shade of brown and varnished.

#### THE MARBLE QUARRIES OF CARRARA.

Few, if any, industries in the world have a greater percentage of waste than marble quarrying as it is done in Italy, says Mr. Day Allen Willey, in the *Scientific American*, yet the famous Carrara deposits have been worked over 2,000 years, and according to the statements of experts who have examined the mountains of marble in this locality, the quality of high grade material yet to be excavated is so great that Carrara promises to supply the present rate of demand for its marbles for centuries to come.

When nature created this section of the Apuan Alps, she formed a storehouse of marble that is truly marvellous in extent, for beds of the finest quality of the Carrara grade are known to exist as high as 5,500 feet above the level of the sea. The exact depth is unknown, as the deposits have as yet not been thoroughly investigated by the use of machinery. Test borings which have been made, however, show that a considerable portion of the mountain formation in the commune of Massa, in which Carrara lies, seems to be entirely of marble, and it is believed that in places the formation extends fully 500 feet downward, with not even a layer or thrust of other stone. One reason why the extent of the resource has thus far been merely guessed at, so to

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speak, is because so much of it is hidden by great masses of *débris*—the waste from workings that date back many centuries. The quarrymen of olden times opened the beds which were most convenient on the mountain slope, and much of the refuse fell into valleys. Some of these piles are hundreds of feet in thickness, and the labour of removing them would require so much time and expense, that it would not be profitable until the formation now so accessible has been taken out and the marble advances in price.

The grain of the marble quarried at the present time is said to be fully as fine as that secured a century ago, as is shown by comparing the blocks with the waste taken from the older workings. It still has a greater reputation among sculptors than the Pentelic, Hymetian, or even the finest Parian, both by reason of its grain and the fact that it can be fashioned with such ease into statuary and other forms. In recent years the quarries of Carrara have had an annual aggregate output of about 200,000 tons. They supply the bulk of the marble used in Italy and Europe to-day for sculpture and other ornamental work, while, as is well known, a large amount is sent to the United States in blocks in the rough or in the finished form.

These deposits are quite accessible, especially since the principal workings are now reached by a railway which connects them with the principal shipping point—the little seaport of Avenza on the Gulf of Liguria. Avenza is really only three miles from the town of Carrara itself, but the quarries are distributed over an area which extends several miles beyond its borders. The nearest large city is Pisa in North Italy, 32 miles distant. Most of the marble at it comes from the quarries to Avenza, is placed on sailing vessels and small steamers and carried to Genoa and Leghorn, where there are extensive marble works. These cities are also the principal places for shipping it to other parts of Europe as well as America. At the present time about six hundred quarries in all are in actual operation. Of these, more than half are in Carrara or its vicinity, about fifty are in the city of Massa, and the rest scattered principally in the commune of Massa. They give employment to about 6,000 men and boys, and are the sole support of a population of nearly 75,000 in this part of Italy.

As in other old industries, tedious and wasteful methods are still employed extensively at Carrara. Although steam

and electric-driven machinery for stone-cutting has been invented for a period of years, the Italians continue to use hand drills extensively, and employ explosives freely in getting out the material, so that the visitor familiar with the system in America regards their antiquated ways with surprise. In the Vermont quarries, for example, most of the blocks of all sizes are secured by channelling entirely with power tools. Where these cannot be placed in service, pneumatic and electric-driven drills are substituted. The channeller travels back and forth on a track which is pinned to the solid rock, making a ridge or channel which averages one and one-fourth inches in width and ranges from four to ten feet in depth. This incision is made parallel with the rails of the channeller track, but a few inches to one side. The machine cuts but one channel at a time, and in its operation is somewhat similar to the ordinary steam drill, with this exception, that the rotary motion is avoided. In order to cut the channel evenly, no less than five drills are assembled, each having a separate bit.

Another type of cutting machine is operated either by steam or electric power as desired. It is also moved back and forth on a track, but makes a channel on each side of the track and parallel with it. In this apparatus the drills are also arranged in clamps in groups of five, the up-and-down stroke of the drills where operated by steam being obtained through a double system of levers connected with a crank-pin on the crank-shaft of the engine. Between the levers is a system of springs, also between the lower lever and the frame, and the motion of the machine along the track is secured by connecting the crank-shaft of the engine with the trucks through a system of gears. With this type of channeller there is a constant relation between the speed of the machine and the strokes of the drill. When electricity is used in place of steam-power, a connection is made between the electric motor and the shaft by means of bevel gears.

The use of this labour-saving mechanism is one reason why the American quarries can be operated at a profit, although most of the marble has to be lifted to heights ranging from 50 to 300 feet from the beds, necessitating the installation of powerful boom derricks and hoisting cranes. The Italians have one great advantage owing to the elevation of so many of their quarries. As already

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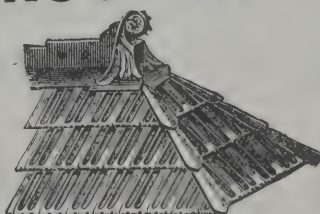


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stated, beds exist in the Apuan Alps at an altitude of 5,500 feet, while many of the workings are more than 2,000 feet above the sea. Therefore much of the expense of derrick machinery is avoided, and the force of gravity is an economical factor that partly makes up for the enormous waste incurred by the methods of quarrying. While some of the lessees have installed drills actuated by steam and electric-power, such are only occasional instances, much of the drilling being done with the hand-power ratchet type of drill. Neither the channeller nor any other apparatus for grooving the marble has yet been employed except in a few works, the bulk of the product being obtained by blowing it out. The holes are drilled where in the judgment of the quarry director the explosion will be most effective, but before being charged they are usually enlarged by pouring nitric acid into them which eats away the interior. The explosive, which is usually blasting powder, is then inserted. In recent years the electric current has been introduced to ignite it, but in many of the larger operations the fuse is still employed.

The charges are not always so distributed that the block desired is loosened, so a second blast is frequently necessary to completely detach the mass, when some of the needless surface is cut off on the spot with chisel and mallet. Then the material is ready to be transported to the marble mills in the valley or to Avenza for shipment by water. As the quarry may be several miles from the railroad, advantage is taken of its elevation. If it is a very large piece, an inclined plane may be made, down which the block slides upon a wooden sledge, controlled by ropes fastened about it, which are run through pulleys, so that the speed can be regulated. At the foot of the incline it is jacked up on a clumsy but strong cart drawn by oxen. Sometimes a string of twenty or more of these beasts are hitched to the cart by means of wooden yokes of the pattern used a hundred or more years ago. Thus it is transported to the railroad or mill.

To save the expense of transporting refuse material, a considerable amount of the marble is sawed and finished at Carrara, but here again most of the work is performed by antiquated machinery. Plants where the slabs are actually sawed by hand are numerous. A crude frame somewhat resembling the old-fashioned American bucksaw, but much

larger, holds the saw blade, which is usually of steel and when new is about 5 inches in width. This is pulled back and forth across the surface of the stone by two men, one at each end of it. Water flows along the cut from a wooden trough resting on one end of the block, and thus the metal is cooled. The work is so slow, however, that a groove 4 inches deep is considered a fair day's work, for which each man receives the equivalent of about 35 cents in American money. Recently several mills have been established containing gangs of saws moved by water-power, as in Vermont, but they cut only a small portion of the marble. Power is used more extensively for operating the finishing tables, where the slabs are smoothed and polished while rotating beneath pumice and wooden polishing blocks, although some of this labour is still performed by hand.

Strange as it may seem, the Carrara deposits are not absolutely owned by any private individuals or companies. Since the era of the Roman republic, they have been what is termed State property in Italy. At one time they were under the control of the Bishop of Luni, the chief Roman city which was located in this portion of Italy, being ceded to the bishop in 1183. This will give an idea of the long time during which the quarries have been in operation. The present method of working them is for a person to lease a certain portion. The price paid the State for this lease, however, is so small that it is but nominal, and the lessee practically secures the revenue from the industry without any expense except that incurred for the wages of the labourers, the cost and care of the draft animals and the machinery which he may install. These are reasons why the processes followed are still so antiquated in comparison with quarrying in other parts of the world.

The different kinds of marble are not arranged in layers, but blend with one another like the colours of the rainbow. A little sandy coating covers the blocks and divides each from the other. It is noticed that where marble is exposed to the sun, it becomes harder; where it is placed in the shade, it becomes finer and softer. From an admixture of metallic substances, the marbles are sometimes marked, speckled, veined and spotted. Though the marbles are of great variety, they may all be reduced to three classifications of *brecciatì*, *bardigli*, and *bianchi*. Although

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the elegant *brecciato* is much liked for ornaments, and the flowered *bardiglio* is useful, still it is the *bianco* which is of the greatest importance, and the white statuary marble is the noblest of all. It has many varieties. Sometimes it is of dazzling whiteness, sometimes it inclines to blue, sometimes to flesh colour, as is the case with *crestola*, which is by far the most beautiful. It rises in value in proportion to its freshness, its tint, its crystallisation and the size of the piece. Its freedom from impurities is also a matter of much consideration. The *crestola* is the choicest of all, either on account of the beauty of its surface or because, from being less liable to chip, it can receive from an expert hand more finely chiselled and delicate features. A beautiful proof of the excellence of this marble was given by the sculptor Moli in his "Pompeian Mother." The woman, flying with her child from the disaster, tries to shield herself from the burning rain with some drapery or a sheet, which she holds high above her head. The air which she displaces in running swells the folds of the drapery, which, owing to the masterly way in which these folds are executed, and the delicacy of the work, is so fragile, that it seems as thin and transparent as if it were linen. The most colossal monuments, however, the loftiest columns and the most sumptuous vestibules are made of *bianco-chiaro*.

Nearly one hundred and fifty years ago the famous Academy of Fine Arts was established at Carrara; but as far back as the fifteenth century these marble mountains attracted the sculptor, and the little city has long been one of the actual art centres of Europe, though seldom heard of compared with Florence and other Italian communities. Michel Angelo worked here for years, and was one of the first savants to realise the extent and quality of the beds. Bandinella and many other masters of the chisel had studios in Carrara, and some of their creations are to be seen in the museum, which contains one of the most valuable collections of sculpture in existence, including pieces which date back nearly to the era of the Roman republic. Carrara has also been a great school for sculptors. It has been said that even the quarrymen inherit a talent for fashioning with the chisel, handed down through generations. Certain it is that a large number have become expert with the use of this tool.

### REINFORCED CONCRETE REGULATIONS.

The following regulations of the Bureau of Building Inspection of Philadelphia, in regard to the use of reinforced concrete, have been approved by the Director of the Department of Public Safety:—

The term "reinforced concrete" shall be understood to mean an approved concrete mixture reinforced by steel or iron of any shape, so that the steel or iron will take up all the tensional stresses and assist in the resistance to compression and shear.

Before a permit to erect any reinforced concrete structure is issued, complete specifications and drawings shall be filed with the Bureau of Building Inspection, showing all details of the construction, size and position of all reinforcing rods, stirrups, &c., and giving the composition and proportions of the concrete.

The execution of the work shall be performed by workmen under the direct supervision of a competent foreman or superintendent.

Reinforced concrete construction will be accepted for fireproof buildings of the first class if designed as herein-after prescribed; provided that the aggregate for such concrete shall be clean, broken, hard stone, or clean graded gravel, together with clean siliceous sand or fine grained gravel; should the concrete be used for flooring between rolled steel beams, clean furnace clinkers entirely free of combustible matter, or suitable seasoned furnace slag may be used; when stone is used with sand gravel it must be of a size to pass through a 1-inch ring, and 25 per cent. of the whole must not be more than one-half the maximum size; and provided further, that the minimum thickness of concrete surrounding the reinforcing members of reinforced concrete beams and girders shall be 2 inches on the bottom and 1½ inches on the sides of the said beams and girders. The minimum thickness of concrete under slab rods shall be 1 inch. All reinforcement in columns to have a minimum protection of 2 inches of concrete.

All the requirements herein specified for the protection of steel and for fire-resisting purposes shall apply to reinforced concrete flooring between rolled-steel beams as well as to reinforced concrete beams and to entire structures in reinforced concrete. Any concrete structure or the floor

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filling in same, reinforced or otherwise, which may be erected on a permanent centring of sheet metal, of metal lathing and curved bars or a metal centring of any other form, must be strong enough to carry its load without assistance from the centring, unless the concrete is so applied as to protect the centring as herein specified for metal reinforcement.

Exposed metal centring or exposed metal of any kind will not be considered a factor in the strength of any part of any concrete structure, and a plaster finish applied over the metal shall not be deemed sufficient protection unless applied of sufficient thickness and properly secured, as approved by the Chief of the Bureau of Building Inspection.

All concrete shall be mixed in a mechanical batch mixer to be approved by the Bureau of Building Inspection, except when limited quantities are required or when the condition of the work makes hand mixing preferable; hand mixing to be done only when approved by the Bureau of Building Inspection. In all mixing the material shall be measured for each batch.

When hand mixing is done under the aforesaid limitations, the cement and fine gravel or coarse sand shall be first thoroughly mixed dry and then made into a mortar by gradually adding the proper amount of water. The crushed stone or gravel shall be spread out to a depth not to exceed 6 inches, in a tight box or upon a proper floor, and be sprinkled with water as directed; the mortar is then to be evenly spread over the crushed stone, and the whole mass turned over a sufficient number of times to effect the thorough mixing of the ingredients.

All forms and centring for concrete shall be built plumb and in a substantial manner, made tight so that no part of the concrete mixture will leak out through cracks or holes or joints, and after completion shall be thoroughly cleaned, removing shavings, chips, pieces of wood and other material; and no debris of any kind shall be permitted to remain in the forms. All forms to be properly supported and braced in a manner to safely sustain the dead load and the load that may be imposed upon them during construction.

The reinforcing steel shall be accurately located in the forms and secured against displacement.

Concrete shall be placed immediately after mixing.

Whenever fresh concrete joins concrete that is set, or

partially set, the surface of the old concrete shall be roughened, cleaned and spread with cement mortar, which mortar shall be mixed in proportions of one of cement to two of sand.

Concrete shall not be mixed or deposited in freezing weather, unless precautions are taken to avoid the use of material covered with ice or snow or that are in any other way unfit for use, and that further precautions are taken to prevent the concrete from freezing after being put in place. All forms under concrete so placed to remain until all evidences of frost are absent from the concrete, and the natural hardening of the concrete has proceeded to the point of safety.

Concrete laid during hot weather shall be drenched with water twice daily, Sunday included, during the first week. The broken stone, if hot and dry, must be wet before going to the mixer.

The time at which props or shores may safely be removed from under floors and roofs will vary with the condition of the weather, but in no case should they be removed in less than two weeks; provided that column forms shall not be removed in less than four days; provided further, that the centring from the bottom of slabs and sides of beams and girders may be removed after the concrete has set one week, provided that the floor has obtained sufficient hardness to sustain the dead weight of the said floor and that no load or weight shall be placed on any portion of the construction where the said centres have been removed.

The concrete for all girders, beams, slabs and columns shall be mixed in the proportions of one of cement, two of sand or fine gravel, and four of other aggregates as before provided. The concrete used in reinforced concrete-steel construction must be what is usually known as a "wet" mixture. When the concrete is placed in water it must be placed in a semi-dry state.

Only Portland cement shall be permitted in reinforced concrete constructed buildings. All cement shall be tested, in carload lots when so delivered or in quantities equal to same, and report filed with the Bureau of Building Inspection before using it in the work. Cement failing to meet the requirements of the accelerated test will be rejected.

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posed in any convenient way in an atmosphere of steam, above boiling water, in a loosely closed vessel, for 3 hours, after which, before the pat cools, it is placed in the boiling water for 5 additional hours.

To pass the accelerated test satisfactorily, the pats shall remain firm and hard, and show no signs of cracking, distortion or disintegration.

Such cements, when tested, shall have a minimum tensile strength as follows:—Neat cement shall, after one day in moist air, develop a tensile strength of at least 150 lbs. per square inch; and after one day in air and six days in water shall develop a tensile strength of at least 500 lbs. per square inch; and after one day in air and 27 days in water shall develop a tensile strength of at least 600 lbs. per square inch. Cement and sand tests composed of one part of cement and three parts of crushed quartz shall, after one day in air and six days in water, develop a tensile strength of at least 175 lbs. per square inch; and after one day in air and 27 days in water shall develop a tensile strength of at least 240 lbs. per square inch. These and other tests as to fineness, set, &c., made in accordance with the standard method prescribed by the American Society of Civil Engineers, may from time to time be required by the Bureau of Building Inspection.

**Walls.**—Reinforced concrete may be used in place of brick and stone walls, in which cases the thickness may be two-thirds of that required for brick walls as shown in the Schedule, Section 18 of the Act of Assembly, No. 123 of the Commonwealth of Pennsylvania, approved June 5, 1901, provided the unit stresses as set forth in these regulations are not exceeded.

Concrete walls in such cases must be reinforced in both directions in a manner to meet the approval of the Chief of the Bureau of Building Inspection.

**Steel.**—All reinforcements used in reinforced concrete shall be of standard grade of structural steel or iron of either grade to meet the "Manufacturers' Standard Specifications," revised February 3, 1903.

Reinforced concrete slabs, beams and girders shall be designed in accordance with the following assumptions and requirements:—

(a) The common theory of flexure to be applied to all beams and members resisting bending.

(b) The adhesion between the concrete and the steel is sufficient to make the two materials act together.

(c) The design shall be based on the assumption of a load four times as great as the total load (ordinary dead load plus ordinary live load).

(d) The steel to take all the tensile stresses.

(e) The stress-strain curve of concrete in compression is a straight line.

(f) The ratio of the moduli of elasticity of concrete to steel:—

Stone or gravel concrete . . . . .	1 to 12
Slag concrete . . . . .	1 to 15
Cinder concrete . . . . .	1 to 30

The allowable unit transverse stress upon concrete in compression:—

Stone or gravel concrete . . . . .	600 lbs. per sq. in.
Slag concrete . . . . .	400 " "
Cinder concrete . . . . .	250 " "

The allowable unit transverse stress in tension:—

Iron . . . . .	12,000 lbs. per sq. in.
Steel . . . . .	16,000 " "

The allowable unit shearing strength upon concrete:—

Stone or gravel concrete . . . . .	75 lbs. per sq. in.
Slag concrete . . . . .	50 " "
Cinder concrete . . . . .	25 " "

The allowable unit adhesive strength of concrete:—

Stone or gravel concrete . . . . .	50 lbs. per sq. in.
Slag concrete . . . . .	40 " "
Cinder concrete . . . . .	15 " "

The allowable unit stresses upon concrete in direct compression in columns:—

Stone or gravel concrete . . . . .	500 lbs. per sq. in.
Slag concrete . . . . .	300 " "
Cinder concrete . . . . .	150 " "

The allowable unit stress upon hoop columns composed of stone or gravel concrete shall not be over 1,000 lbs. per square inch, figuring the net area of the circle within the hooping. The percentage of longitudinal rods and the spacing of the hoops to be such as to permit the concrete to safely develop the above unit stress with a factor of safety of four.

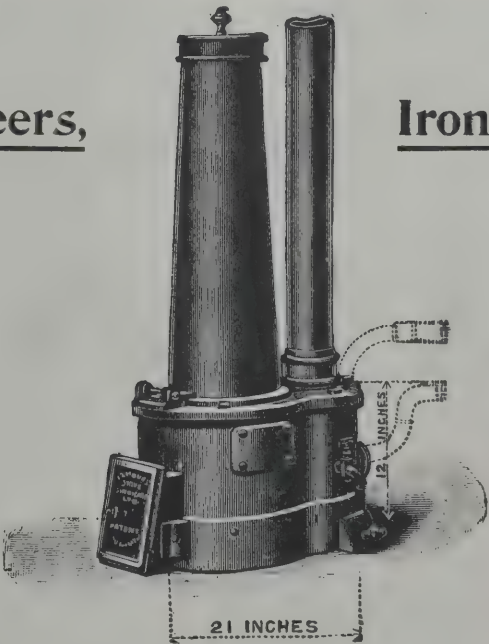
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When steel or iron is in the compression sides of beams the proportion of stress taken by the steel or iron shall be in the ratio of the modulus of elasticity of the steel or iron to the modulus of elasticity of the concrete, provided that the rods are well tied with stirrups connecting with the lower rods of the beams; provided further, that when rods are used in compression, the approval of the Chief of the Bureau of Building Inspection must be obtained.

In the design of structures involving reinforced concrete beams and girders, as well as slabs, the beams and girders shall be treated as T-beams, with a portion of the slab acting as flange in each case. The portion of the slab that may be used to take compression shall be dependent upon the horizontal shearing stress that may exist in the beam, and in no case shall the slab portion exceed twenty times the thickness of the slab.

All reinforced concrete T-beams must be reinforced against the shearing stress along the plane of junction of the rib and the flange, using stirrups throughout the length of the beam. Where reinforced concrete girders carry reinforced concrete beams, the portion of the floor slab acting as flange to the girder must be reinforced with bars near the top, at right angles to the girder, to enable it to transmit local loads directly to the girder and not through the beams, thus avoiding an integration of compressive stresses due to simultaneous action as floor slab and girder flange.

In the execution of work in the field, work must be so carried on that the ribs of all girders and beams shall be monolithic with the floor slabs.

In all reinforced concrete structures special care must be taken with the design of joints to provide against local stresses and secondary stresses due to the continuity of the structures.

Shrinkage and thermal stresses shall be provided for by the introduction of steel.

In the determination of bending moments due to the external forces, beams and girders shall be considered as simply supported at the ends, no allowance being made for continuous construction over supports. Floor slabs, when constructed continuously, and when provided with reinforcement at top of slab over the supports, may be treated as continuous beams, the bending moment for uniformly

distributed loads being taken at not less than  $WL/10$ . In cases of square floor slabs which are reinforced in both directions and supported on all sides, the bending moment may be taken at  $WL/20$ ; provided that in floor slabs in juxtaposition to the walls of the building the bending moment shall be considered as  $WL/8$ , when reinforced in one direction, and if the floor slab is square and reinforced in both directions, the bending moment shall be taken as  $WL/16$ .

When the shearing stresses developed in any part of a reinforced concrete building exceed under the multiplied loads the shearing strength as fixed in this section, a sufficient amount of steel shall be introduced in such a position that the deficiency in the resistance to shear is overcome.

When the safe limit of adhesion between the concrete and steel is exceeded, provision must be made for transmitting the strength of the steel to the concrete.

Reinforced concrete may be used for columns in which the ratio of the length to least side or diameter does not exceed fifteen. If more than fifteen diameters the allowable stress shall be decreased proportionately. Reinforcing rods that are introduced for lateral stresses must be tied together at intervals of not more than the least side or diameter of the columns.

Longitudinal reinforcing rods will not be considered as taking any direct compression.

The contractor must be prepared to make load tests in any portion of a reinforced concrete building within a reasonable time after erection, and as soon as may be required by the Chief of the Bureau of Building Inspection. The tests must show that the construction will sustain a load equal to twice the calculated live load without signs of cracks.

Systems of construction differing from the standard already approved and tested may be required to pass a load, fire and water test, as present in Section 2 of the Act of Assembly, No. 236 of the Commonwealth of Pennsylvania, approved April 25, 1903.

The Chief of the Bureau of Building Inspection may from time to time issue such modifications to these regulations as may be found necessary to conform to modern practice.

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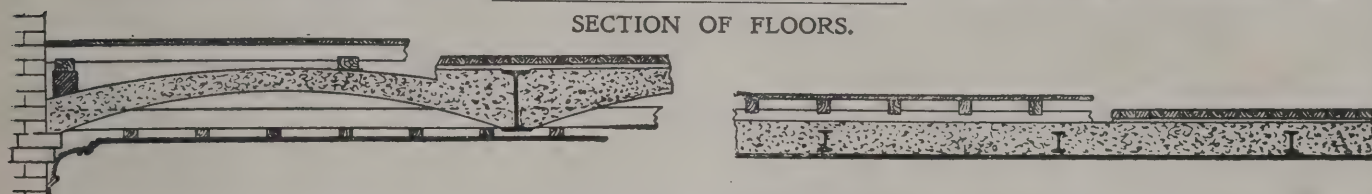
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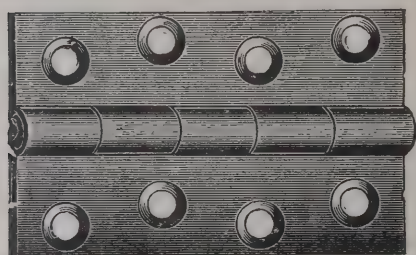
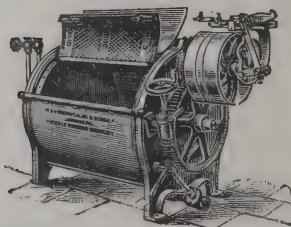
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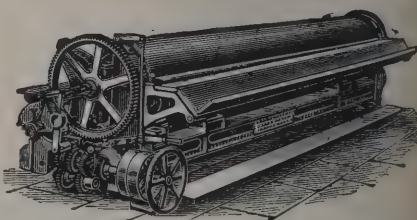
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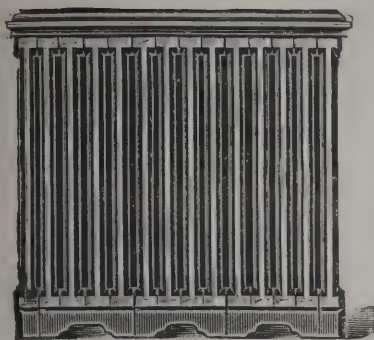
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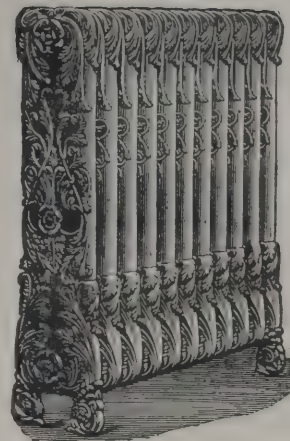
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Coatstone Decoration Co. ....	Supp. —	Ingram, Chas., & Co. ....	Supp. —	Phoenix Insurance Co. ....	Supp. —	Winsor & Newton, Ltd. ....	Supp. 19
Colthurst & Symons ....	Supp. 9	Ingram, Perkins & Co. ....	Supp. —	Pickering, Ltd. ....	Supp. —	Witchell & Co. ....	Supp. 11
Columbian Fireproofing Co., Ltd. ....	Supp. —	Irish Marble Co. ....	Supp. 29	Pilkington Bros., Ltd. ....	Supp. —	Wood Bros. ....	Supp. —
Constantine & Son ....	xv	Jackson, G., & Sons ....	viii	Pinchin, Johnson & Co., Ltd. ....	Supp. 2	Wood Carving Co. ....	Supp. —
Cook, R. J., & Hammond ....	Supp. —	James, R. E. ....	Supp. —	Pott, Cassels & Williamson ....	Supp. 9	Woolliscroft, G., & Son ....	Supp. —
Cope, C. F., & Co. ....	iv	Japanol Enamel Co. ....	Supp. —	Potts, Wm., & Sons ....	Supp. —	Wormald Patent Locks Co. ....	Supp. —
Copeman, John & Co. ....	Supp. —	Jeakes, C., & Co. ....	Supp. —	Press Etching Co. ....	Supp. —	Wragg, Thos., & Sons, Ltd. ....	Supp. 29
Cordelova ....	Supp. —	Jeffrey & Co. ....	i	Prior, James D. ....	Supp. 28	Do. do. (Jennings) ....	Supp. 18
Corker, J. & B., Ltd. ....	Supp. —	Johnson, Geo. ....	Supp. —	Provincial Papers ....	Supp. 4, 5	Wright, E. G. ....	Supp. —
Cotton, George & Co. ....	Supp. —	Jones & Co. ....	Supp. —	Pulsometer Engineering Co. ....	Supp. —	Yockney & Co. ....	Supp. 11
Couzens' Patent Anti-Flooring Traps ....	Supp. —	Jones, John & Sons ....	Supp. —	Putney, Samuel, Ltd. ....	Supp. —	Zeta Wood Flooring Co., Ltd. ....	Supp. 24
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Crofton, Thomas ....	viii	Kaye & Co., Ltd. ....	Supp. 23				
Crotch, W. G., & Son ....	Supp. 8	Kaye & Sons ....	Supp. —				
Darlington & Co. ....	xii	King, J. A. & Co. (Mack Fireproof Co.) ....	Supp. —				
Davis, Geo., & Co. ....	Supp. —						
Dawney & Sons ....	Supp. —						
Dean, A. R., & Sons ....	v. ii						

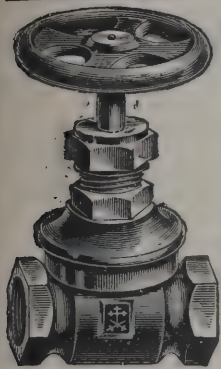


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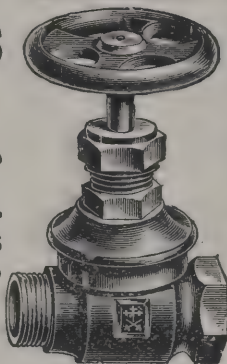
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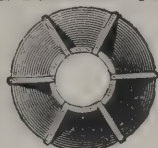


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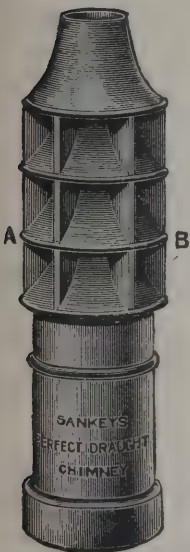
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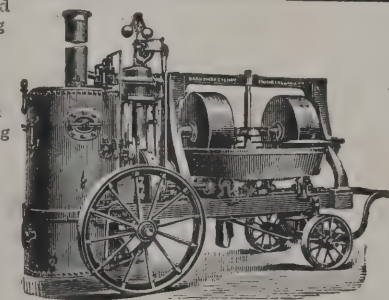
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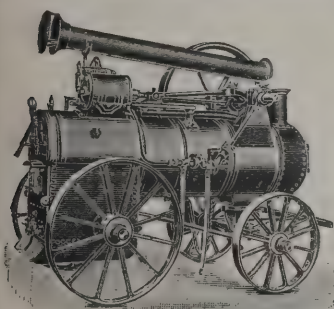
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Mark's, Venice.	bourg, Mayence.
The Rialto, Venice.	Roman Pillar and View
Bridge of Sighs, Venice.	at Igel.
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iger Family, Verona.	Sachsenhausen, Frank-
The Cathedral, Lau-	fort.
sanne.	View of the Castle at
Street in Schaffhausen.	Heidelberg.
Basel, from the Rhine.	Basel.
Geneva, View of the	Cathedral, Ratisbonne.
City.	View in Ratisbonne.
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Old Houses, Sion.	Ratisbonne.
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Bridge over the Saône,	dral.
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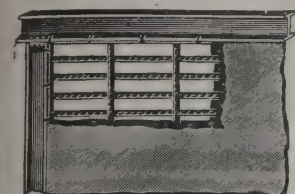


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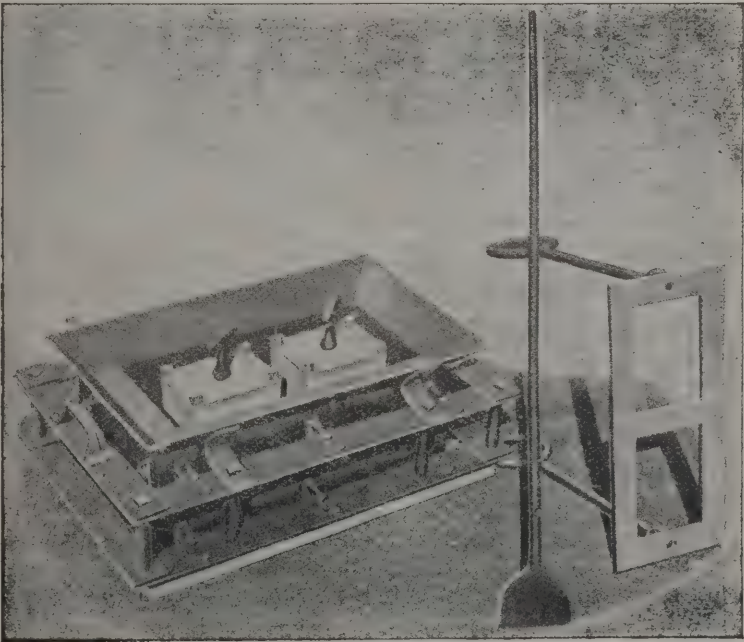


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For Index of Advertisers, see page x.

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## PUBLIC NOTICE.

CORPORATION OF LONDON.  
PUBLIC HEALTH DEPARTMENT.  
Notice to Architects, Builders and Others.

**THE attention of Architects, Builders and other persons connected with building operations in the City, which are likely to involve the disturbance of human remains, is directed to the responsibilities incurred by any breach of the following Section of the Burial Act of 1857, and to the importance of at once giving notice to the Medical Officer of Health of any cases where human remains are discovered.**

BURIAL ACT, 1857, Section 25.

"Except in the cases where a body is removed from one consecrated place of burial to another by faculty granted by the ordinary for that purpose, it shall not be lawful to remove any body, or the remains of any body, which may have been interred in any place of burial, without license under the hand of one of Her Majesty's principal Secretaries of State, and with such precautions as such Secretary of State may prescribe as the condition of such license; and any person who shall remove any such body or remains, contrary to this enactment, or who shall neglect to observe the precautions prescribed as the condition of the license for removal, shall, on summary conviction before any two justices of the peace, forfeit and pay for every such offence a sum not exceeding ten pounds."

BELL.

Guildhall, E.C.: December 16, 1907.

## TENDERS.

COUNTY COUNCIL OF SALOP.  
Higher Education Department.

**TENDERS are invited for the Erection of a Secondary School at Bridgnorth to accommodate 200 pupils.**

Plans and specifications may be seen, and forms of tender and bills of quantities obtained, at the offices of Messrs. Pritchard & Pritchard, Architects, Kidderminster, on and after December 12, on payment of One Guinea, which will be returned on receipt of a bona-fide tender.

The lowest or any tender will not necessarily be accepted. Sealed tenders, endorsed "Bridgnorth Grammar School," are to be delivered to me, the undersigned, not later than December 31, 1907, at 5 o'clock p.m.

W. H. PENDLEBURY,

Secretary for Higher Education.  
St. John's Hill, Shrewsbury:  
November 25, 1907.

PARISH OF LAMBETH.—BOARD OF GUARDIANS.  
Drainage Works at Norwood Relief Station.

**THE Guardians of the Poor of the Parish of Lambeth hereby invite TENDERS for the reconstruction of the drainage system at their Relief Station, Elder Road, West Norwood, S.E.**

Tenders, which must be in the undermentioned form, superscribed "Tender for Drainage, Norwood Relief Station," must be sent to the Clerk to the Guardians before Ten o'clock on Wednesday morning, January 1 next, and will be opened at the Board Room at Noon on the same day.

Drawings and draft contract may be inspected at these offices on any day between the hours of 10 and 5.

Specification and form of tender will be supplied on personal application to the undersigned and on payment of £2 in respect thereof, which will be returned to each person sending a bona-fide tender, and copies of the drawing can also be obtained from the Clerk to the Guardians on further payment of the sum of Two Shillings per copy.

The Guardians do not pledge themselves to accept the lowest or any tender.

By Order of the Guardians,

W. THURNALL, Clerk.  
Guardians' Board Room and Offices,  
Brook Street, Kennington Road, S.E.:  
December 11, 1907.

HUDDERSFIELD CORPORATION WATERWORKS.  
Deerhill Catchwater and other Works.  
Contract No. 1.

**THE Corporation of Huddersfield are prepared to receive TENDERS from contractors experienced in the construction of waterworks for the construction of a Catchwater, about three miles in length; a Road, about a quarter of a mile long; and a Siphon over the embankment of the Butterley Reservoir, the Gull Brook, the Wessenden Valley, reached from the Marsden station on the London and North-Western Railway, between Manchester and Huddersfield; and for the construction of a Filter-house, &c., for the Longwood Reservoirs of the Corporation, reached from the Longwood Station on the same railway. The drawings may be seen and specification, schedule of quantities, and form of tender obtained at the offices of the engineers, Messrs. G. H. Hill & Sons, 3 Victoria Street, Westminster, and Albert Chambers, Albert Square, Manchester, on and after Wednesday, December 11, upon payment of the sum of £10. This sum will, after the Corporation shall have come to a decision on the tenders, and not before, be returned to the tenderer, provided that he shall have sent in a bona-fide tender, and shall not have withdrawn the same, and shall have returned the documents and drawings lent to him for the purpose of making up his tender. A limited number of sets of the drawings, uncoloured, are available, and will be lent to persons tendering in priority of application on receipt of the sum of two pounds (in addition to the aforesaid ten pounds), which sum of two pounds will not be returned. A representative of the engineers will point out the position of the intended works on Wednesday, December 18. He will start from Marsden Station on the arrival of the train from Huddersfield at 10.37 A.M. Persons who have applied for and received the specification, &c., and intend visiting the sites at that time, are recommended to arrange as to carriages with Mr. Albert Schofield, cab proprietor, Marsden, near Huddersfield.**

Sealed tenders, endorsed "Tender for Deerhill Catchwater and other Works," must be addressed to the Chairman of the Waterworks Committee, and received by me at the Town Hall, Huddersfield, on or before Wednesday, January 8, 1908. The Corporation do not bind themselves to accept the lowest or any tender.

By Order.

J. HENRY FIELD, Town Clerk.  
Town Hall, Huddersfield: December 6, 1907.

TO BUILDERS.

**THE St. Helens County Borough Council invite TENDERS for the Erection of new Schools in St. Helens.**

On deposit of One Guinea, which will be returned upon receipt of a bona-fide tender, plans and specifications may be inspected, and bills of quantities and conditions obtained at the office of the Architect, Mr. Frank S. Biram, Hardshaw Street, St. Helens, on and after Monday, December 23, 1907.

Sealed tenders, endorsed "Tenders for New Schools, Sutton," must be delivered to the undersigned not later than 10 A.M. on Saturday, January 25, 1908.

W. H. ANDREW, Town Clerk.

Town Hall, St. Helens:  
December 12, 1907.

## TENDERS.

COUNTY COUNCIL OF DURHAM.

New Council Schools at Blaydon and Chester-le-Street, and South Hetton.

**SOLE TENDERS are invited for the Erection of the above Schools.**

Plans, specifications and general conditions of contract can be seen, and bills of quantities obtained as follows:—  
For Blaydon School.—At the Office of Mr. J. Morson, architect, 77 Westgate Road, Newcastle-on-Tyne.

For Chester-le-Street School.—At the Office of Mr. W. H. Knowles, architect, 25 Collingwood Street, Newcastle-on-Tyne.  
For South Hetton.—At the Office of Mr. F. Renoldson, architect, 37 King Street, South Shields.

Sealed tenders, endorsed "Blaydon (or Chester-le-Street, or South Hetton), New School Tender," are to be sent to the undersigned on or before Tuesday, January 7, 1908.

The Council do not bind themselves to accept the lowest or any tender.

A. J. DAWSON.

Clerk to the Education Committee.  
Shire Hall, Durham: December 13, 1907.

TO BUILDERS AND CONTRACTORS.

**THE Metropolitan Asylums Board invite TENDERS for the Erection of new Coal Store at the Brook Fever Hospital, Shooter's Hill, Woolwich, S.E., in accordance with drawing and specification prepared by Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., engineer-in-chief.**

The drawing, conditions of contract, specification and form of tender may be inspected at the Office of the Board, Embankment, London, E.C., on and after Ten A.M. on Monday, December 23, and can then be obtained upon payment of a deposit of £1.

The amount of the deposit will be returned only to persons who have sent in bona-fide tenders and returned the drawings and specification in accordance with the instructions.

Tenders, addressed as noted on the form, must be delivered at the Office of the Board not later than Ten A.M. on Wednesday, January 8, 1908.

By Order.

T. DUNCOMBE-MANN,  
Clerk to the Board.  
December 16, 1907.

WEST RIDING COUNTY COUNCIL.

To Builders, Joiners, Slaters, Plumbers, Plasterers, Painters.

**THE West Riding Education Committee is prepared to receive whole or separate TENDERS for the Erection of a New Infants' School at Timbury.**

Plans may be seen and bills of quantities obtained on application to this office.

A deposit of £1 is required, which will be returned on receipt of a bona-fide tender. Cheques, &c., must be made payable to the West Riding treasurer and sent to him direct at the County Hall, Wakefield, otherwise applications will not be entertained.

Sealed tenders, properly endorsed, to be forwarded to the undersigned not later than 10.30 on the morning of January 10, 1908. All tenders received after this date will be returned.

J. VICKERS-EDWARDS,  
County Hall, Wakefield: County Architect.  
December 18, 1907.

LANCASHIRE EDUCATION COMMITTEE.

To Contractors.

**THE Lancashire Education Committee are prepared to receive TENDERS for the Erection of a new Public Elementary School and Technical Instruction Block at Great Harwood, near Blackburn, to accommodate 900 scholars.**

The plans may be seen and bills of quantities obtained at the office of the County Architect, Mr. Henry Little, 16 Ribblesdale Place, Preston, on payment of a deposit of £2, which will be returned upon receipt of a bona-fide tender.

The Committee do not bind themselves to accept the lowest or any tender.

Tenders must be delivered before Twelve o'clock Noon on Tuesday, January 7, 1908, sealed and endorsed, to Mr. W. Sagar, White House, Rishton, near Blackburn.

(Signed) HARCOURT E. CLARE,  
Clerk to the Lancashire County Council.  
County Offices, Preston: December 1907.

**THE Managers of Brisley Church of England Schools invite TENDERS for the Improvement and Enlargement of the Buildings.**

Plans and specifications may be seen at the schools on any day, and at any hour when the schools are open for instruction. The work will not be begun before April.

Tenders, fixing a date by which the work will be completed, must be sent to the Rev. W. H. Lowe, Brisley Rectory, East Dereham, on or before Saturday, December 23.

The advertisers do not bind themselves to accept the lowest or any tender.

NORTH-EASTERN RAILWAY.

To Builders.

**THE Directors are prepared to receive TENDERS for erecting Shops and Offices in Victoria Square, Hull.**

Plans and specification may be seen and quantities and further information obtained on application to Mr. W. H. Bell, the Company's Architect, at York, on and after Wednesday, the 17th inst.

Duplicate plans and specification may also be seen on application to the Station Master at Paragon Station, Hull.

Quantities supplied on personal application to parties tendering for the whole of the works.

Sealed tenders, marked "Shops, &c., Hull," to be sent to the Secretary at York not later than 9 A.M. on Wednesday, January 8, 1908.

The Directors do not bind themselves to accept the lowest or any tender.

R. F. DUNNELL, Secretary.  
York: December 16, 1907.

BILSTON URBAN DISTRICT COUNCIL.

Education Committee.

New Schools, Bullholes, Bilston.

To Builders and Contractors.

**THE Bilston Education Committee are prepared to receive TENDERS for the Erection of New Schools at Bullholes, Bilston, consisting of Boys, Girls, Infants and Senior Boys and Girls' Departments, for a total number of 1,350 Children, with Out-Offices and Boundary Walling in accordance with plans and specification prepared by Messrs. Bailey & McConnell, Architects, Bridge Street, Wallasey, at whose offices and also at the offices of the undersigned plans may be seen. Bills of quantities may be obtained from the Architects on payment of a deposit of One Guinea, which will be returned on receipt of a bona-fide tender.**

Tenders, sealed and endorsed "Tender for Bullholes Schools," must be sent to the undersigned not later than Twelve o'clock Midday on Saturday, January 18, 1908.

No pledge is given to accept the lowest or any tender, and no tender will be considered from any person who does not bind himself to pay the standard rate of wages current in the district to workmen engaged on the works.

FRED. M. COOPER,

Secretary.  
Education Offices, Town Hall, Bilston  
December 16, 1907.

## TENDERS.

CITY OF BIRMINGHAM EDUCATION COMMITTEE.  
To Building Contractors.

**TENDERS are invited for the Erection of a Council School in Leigh Road, Washwood Heath Birmingham.**

Applications for forms of tender and bills of quantities may be made on or before January 4, 1908, in the Finance Office of the Education Department, Edmund Street, Birmingham, accompanied by a deposit of £2, for which a receipt will be given, and the amount of the deposit will be returned after the Committee's decision, provided that the tenderer shall have sent in a bona-fide tender, and shall not have withdrawn the same. The drawings may be seen on and after the same date in the Architect's Office at the Education Department.

The Education Committee does not bind itself to accept the lowest or any tender, nor will the committee pay any cost incurred in tendering.

All workpeople engaged on any part of the work, whether sublet or otherwise, shall be paid not less than the minimum standard rate of wages current in the district in which the work or works may be constructed or executed, and no work shall be sublet to persons not paying at least the minimum standard rate of wages in the said district. The tender of any person or firm paying to their workpeople less than the minimum standard rate of wages current in the district will not be accepted.

Tenders must be delivered in sealed envelope, addressed to the undersigned, not later than Twelve noon, on Tuesday, January 21, 1908, endorsed "Tender for Council School, Leigh Road, Washwood Heath."

JNO. ARTHUR PALMER,  
Secreta

Education Department, Edmund Street:  
December 13, 1907.

## COMPETITION.

ILFORD EMERGENCY HOSPITAL.

**THE Governors invite Architects to compete in the preparation of Plans for the erection of this Hospital.**

Premiums amounting to £150 offered. Conditions and plan of site will be forwarded to any Architect on receipt of £1, which sum will be returned at the close of the competition, after the selection has been made.

The site adjoins Newbury Park Station (on the Great Eastern Railway Company's Ilford-Woodford Line) and may be viewed by arrangement.

All communications (written only) to be addressed to B. HENDERSON, Hon. Secretary, 24 Mansfield Road, Ilford, Essex.

## SITUATIONS WANTED.

**TRAVELLER desires APPOINTMENT in town or country. Full knowledge of Builders' requirements, well up in constructional and wrought-iron art metal work. Good references.—Address, Box 20, Office of "The Architect," Imperial Buildings, Ludgate Circus.**

**AN Experienced Architect desires Temporary or Permanent Employment as Draughtsman, Colourist, or Building-Modeller.—Address "Delta," Office of "The Architect."**

**AS Traveller or Representative, young Architect and Engineer, now open. South and west connection and Wales.—M. S. A., 13 Halse Road, Salisbury.**

**YOUTH wants an Appointment. No special qualification, but willing to work.—Box 203, Office of this Journal.**

**GENERAL FOREMAN or Clerk of Works desires ENGAGEMENT; 15 years' experience; well up in mansion building or alteration; architects' references; town or country; interview desired; wages low for a long job; just off an £8,000 job.—Address, W. E., Office of "The Architect and Contract Reporter."**

**YOUNG LADY STENOGRAPHER seeks an Appointment. Recently passed examination for Civil Service. Highest references.—Box 155, Office of this Journal.**

**HEATING and VENTILATING ENGINEER having fourteen years' experience in designing, estimating and supervision, desires change of responsible position.—Apply Box 77, Office of this Journal.**

**ARCHITECT'S ASSISTANT requires SITUATION. Seven years' experience, including four with large firm of constructional engineers. Knowledge of calculations and designs for steel construction.—HERBERT, 4 Freemantle Square, Bristol.**

**EXPERIENCED Traveller seeks a Good Appointment. Salary and Commission. Can give the best possible references.—Box 171, Office of this Paper.**

**JOINER'S FOREMAN seeks RE-ENGAGEMENT. Excellent manager of men and machines. Quick and accurate setter-out. Good timekeeper. Highest references. Seven and a half years last situation. Age 38.—R. J. BROWN 124 Beecham Road, Reading.**

**JUNIOR DRAUGHTSMAN requires Position; well up drawing office, tracing, colouring and detail work; small salary.—G. 32 Juer Street, S.W.**

**TO QUANTITY SURVEYORS.—Worker-up, experienced, well up in prices, wants SITUATION. Wages £2.—G., 40 Orchard Road, Brentford.**

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